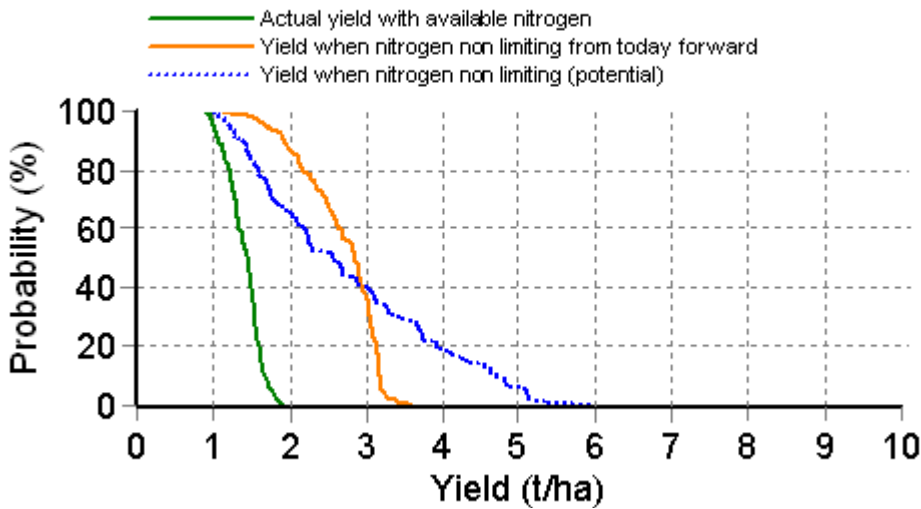


Crop Report

Report name: Crop Sequence Low N Crop Report (Complete)
 Report date: 09/09/2014
 Last climate date available: 8/09/2014
 Client name: EH Graham Centre
 Paddock name: Crop Sequence Low N
 Report generated by: EH Graham Centre
 Date sown: 15-May
 Crop type: Wheat
 Variety sown: Gregory
 Sowing density: 150 plants/m²
 Initial conditions date: 09-Apr
 Soil type: Red Kandosol (No498-Generic)

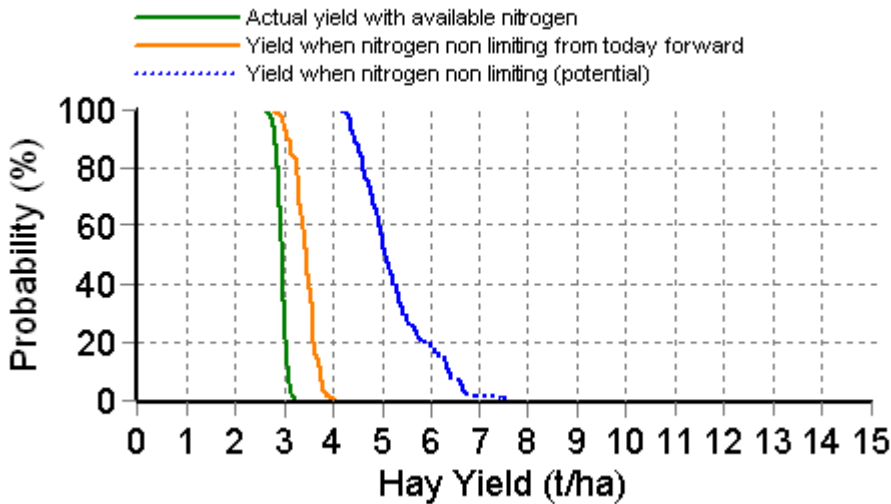
SILO station used: Wagga Wagga AMO
 Rainfall records used: SILO
 Temperature records used: SILO
 Maximum rooting depth: 100 cm
 Stubble type: None
 Stubble amount: kg/ha
 Number of tillage operations: 0
 Stubble % incorporated into the top 10cm: 0 %
 Rainfall since 9-Apr: 200 mm
 Date of last rainfall 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.

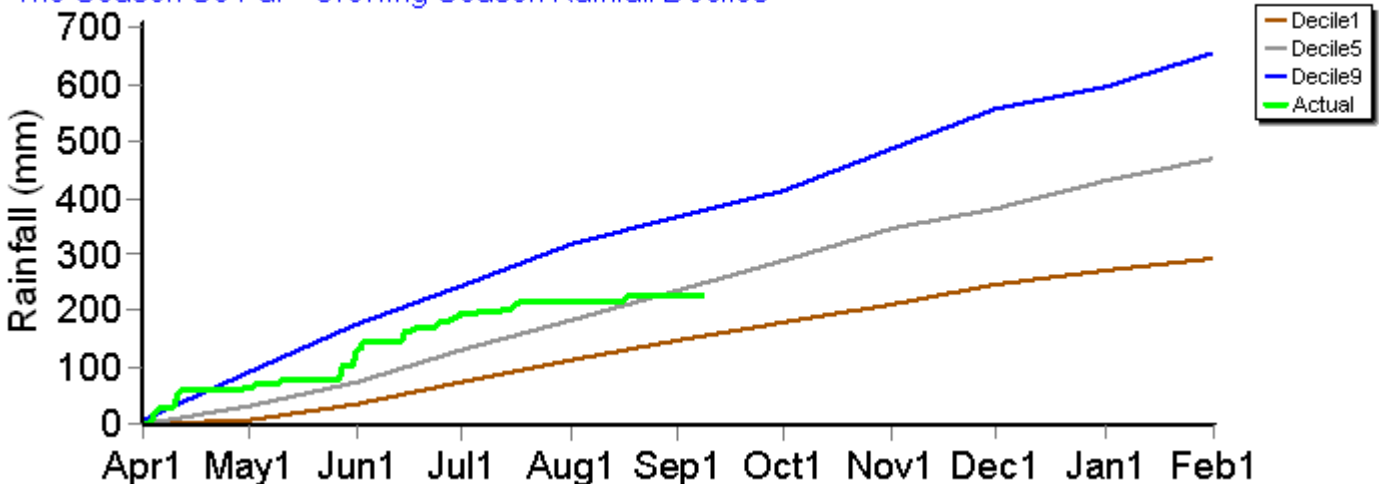
Hay Yield Outcome



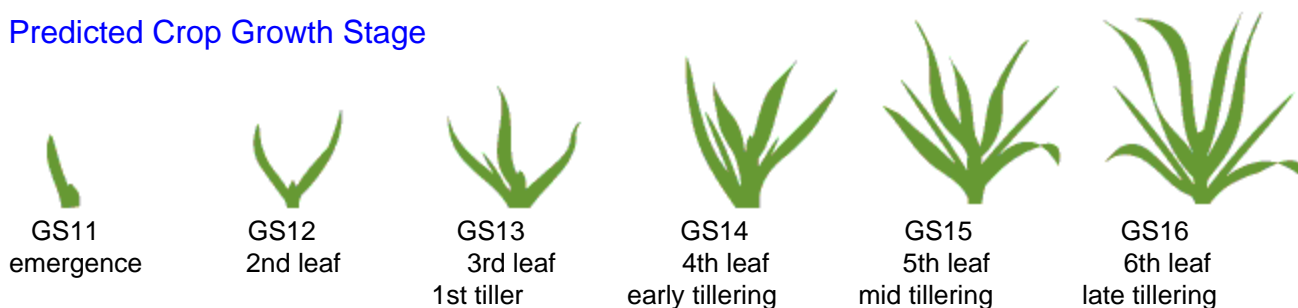
This graph show the probability of exceeding a range of hay yield outcomes this season. It takes into account the same factors as the grain yield graph above. When above ground dry matter is below 2t/ha, hay yield is assumed to be 70% of dry matter, with a moisture content of 13%. When dry matter is 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: 2075 kg/ha

The Season So Far - Growing Season Rainfall Deciles

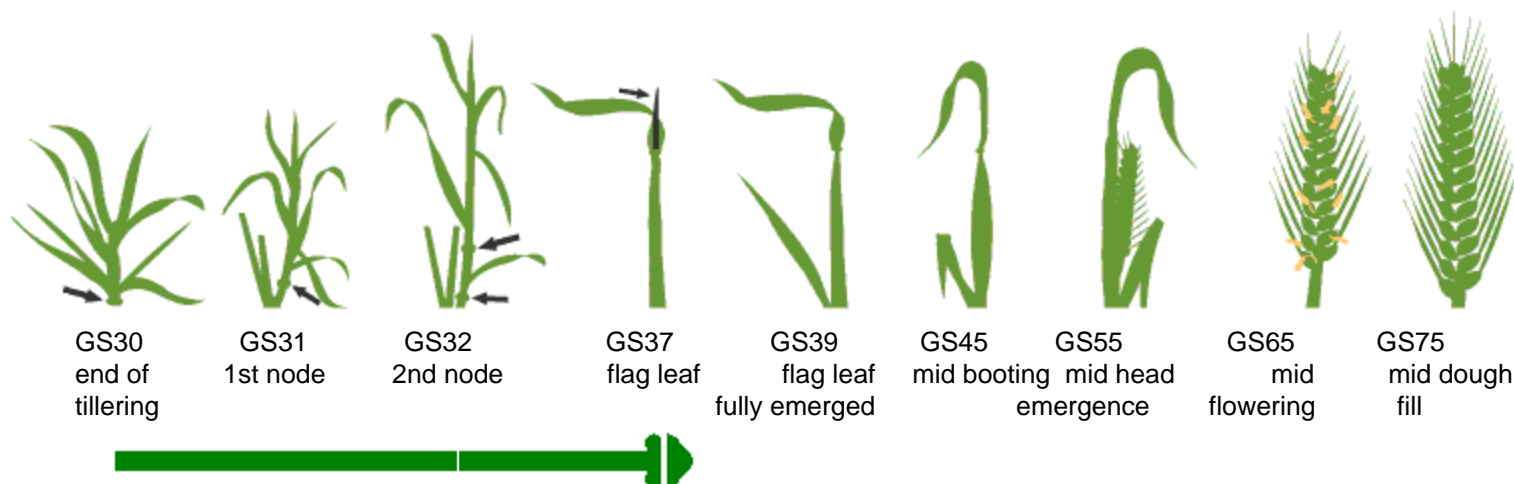


Simulated and Predicted Crop Growth Stage



Predicted

	GS11 emergence	GS12 2nd leaf	GS13 3rd leaf 1st tiller	GS14 4th leaf early tillering	GS15 5th leaf mid tillering	GS16 6th leaf late tillering
Earliest	22-May	6-Jun	16-Jun	26-Jun	8-Jul	19-Jul
Median	22-May	6-Jun	16-Jun	26-Jun	8-Jul	19-Jul
Latest	22-May	6-Jun	16-Jun	26-Jun	8-Jul	19-Jul



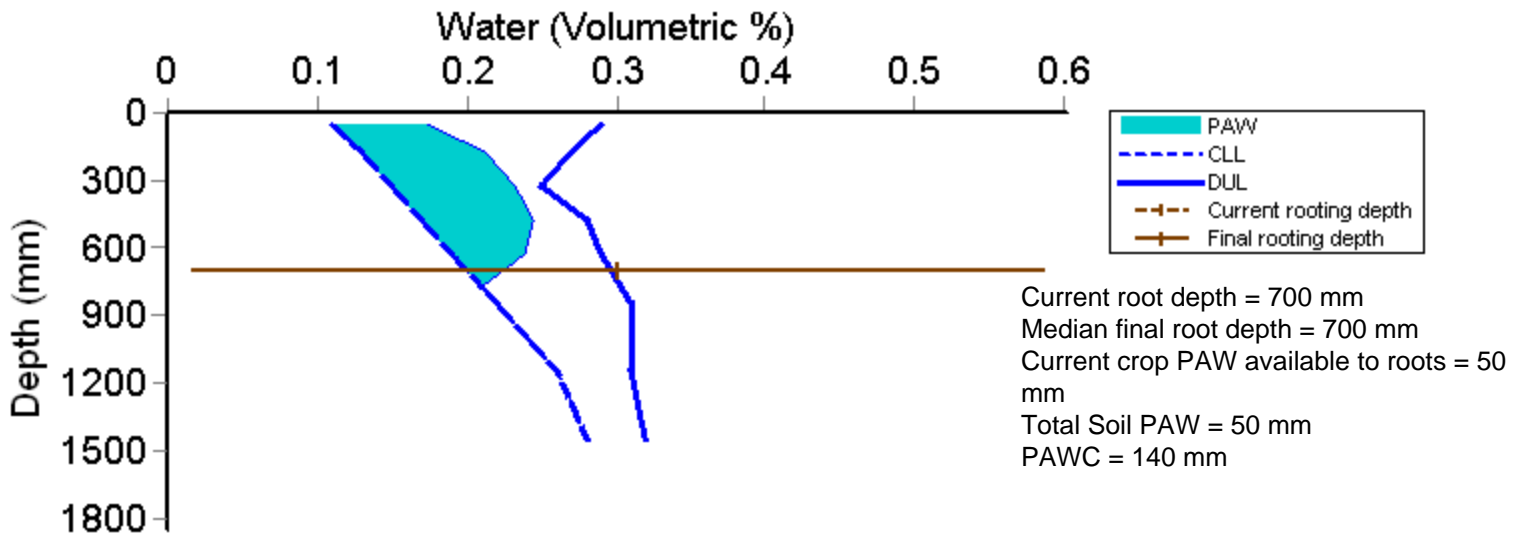
Predicted

	GS30 end of tillering	GS31 1st node	GS32 2nd node	GS37 flag leaf	GS39 flag leaf fully emerged	GS45 mid booting	GS55 mid head emergence	GS65 mid flowering	GS75 mid dough fill
Earliest	18-Aug	21-Aug	26-Aug	8-Sep	11-Sep	17-Sep	27-Sep	6-Oct	23-Oct
Median	18-Aug	22-Aug	26-Aug	8-Sep	13-Sep	21-Sep	2-Oct	11-Oct	28-Oct
Latest	18-Aug	22-Aug	26-Aug	8-Sep	15-Sep	28-Sep	8-Oct	18-Oct	6-Nov

Probability and Incidence of Frost and Heat Shock

<i>Percentage of years in which frost occurs during flowering</i>		<i>Percentage of years in which heat shock occurs during grain fill (Z70-79)</i>	
Mild		Mild	
Minimum temperature between 2 and 0°C during flowering (Z60-69)	40%	Maximum temperature between 32 and 34°C	38%
Moderate		Moderate	
Minimum temperature between 0 and -2°C during flowering and early grain fill (Z60-75)	6%	Maximum temperature between 34 and 36°C	19%
Severe		Severe	
Minimum temperature less than -2°C during flowering and grain fill (Z60-79)	1%	Maximum temperature above 36°	7%
<i>Incidence of frost for this growing season, during flowering</i>		<i>Incidence of heat shock for this growing season, during grain fill (Z70-79)</i>	
Mild		Mild	
Minimum temperature between 2 and 0°C during flowering (Z60-69)	0	Maximum temperature between 32 and 34°C	0
Moderate		Moderate	
Minimum temperature between 0 and -2°C during flowering and early grain fill (Z60-75)	0	Maximum temperature between 34 and 36°C	0
Severe		Severe	
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	1 mm
Rainfall since 9-Apr	200 mm
Irrigations	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
Evaporation since 9-Apr	103 mm
Transpiration since 9-Apr	26 mm
Deep drainage since 9-Apr	0 mm
Run-off since 9-Apr	11 mm

Current PAW status: 50 mm

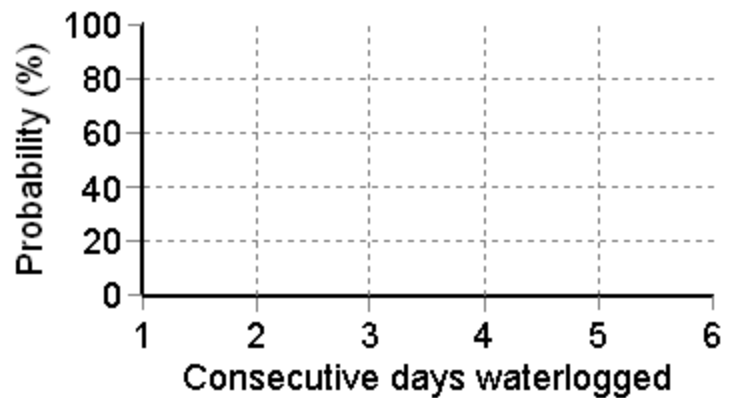
Nitrogen Budget

Initial N status @ 09-Apr	45 kg/ha
N mineralisation since 09-Apr	4 kg/ha
N tie up since 09-Apr	1 kg/ha
N applications	: kg/ha
	: kg/ha
	: kg/ha
	: kg/ha
	: kg/ha
Total N in plant	29 kg/ha
De-nitrification since 09-Apr	1 kg/ha
Leaching	0 kg/ha

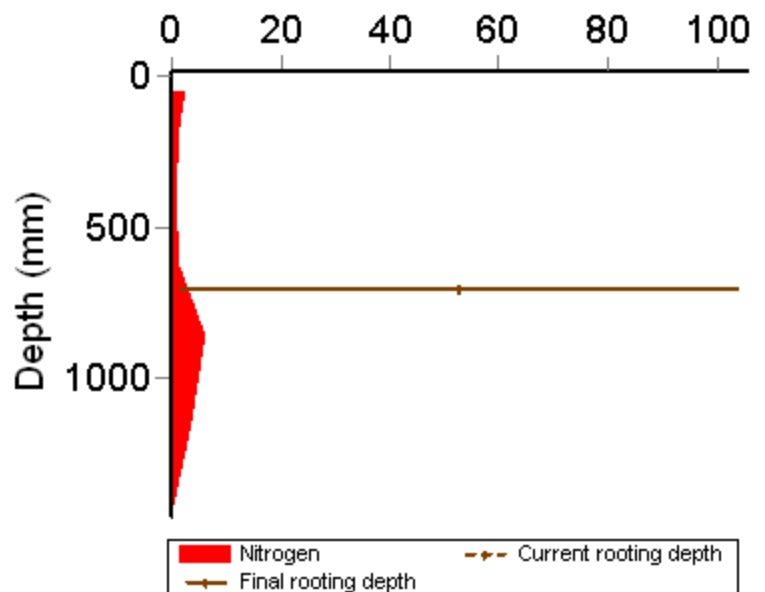
Current N status: 18 kg/ha

Median N mineralisation to maturity = 7 kg/ha
 Median N tie up to maturity = 0 kg/ha

Probability of Future Waterlogging Events

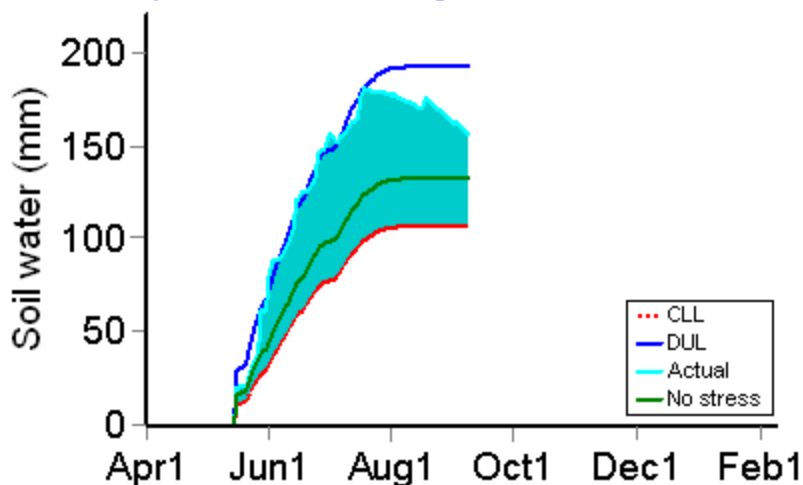


Current distribution of soil nitrogen (kg/ha)

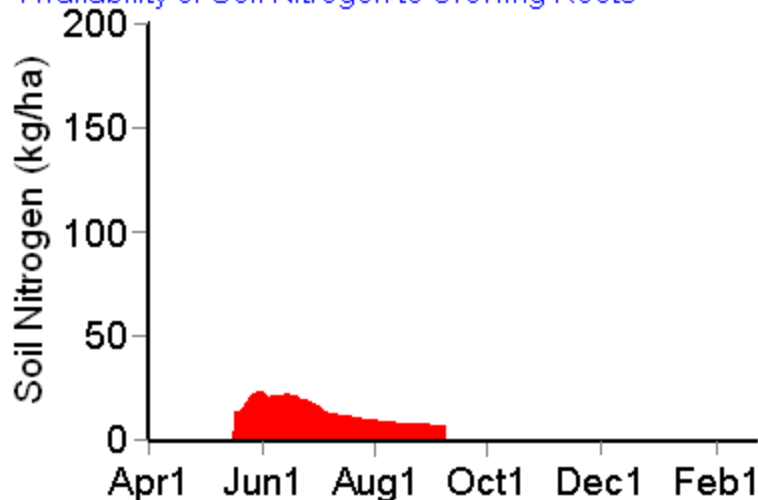


Current Crop Available N = 8 kg/ha
 Total Soil N = 18 kg/ha

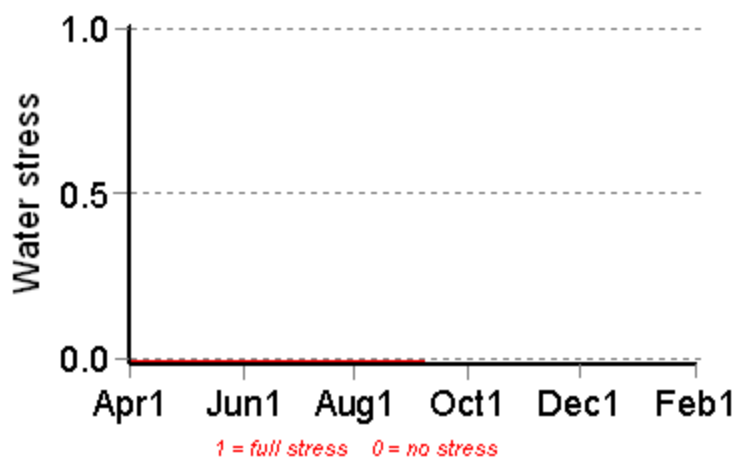
Availability of Water to Growing Roots



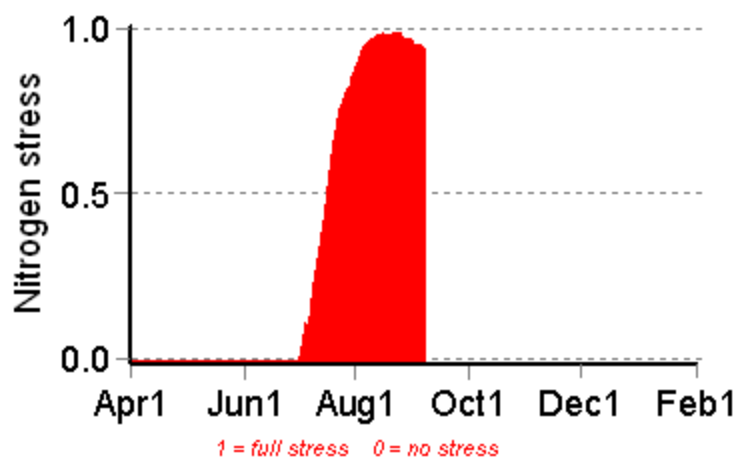
Availability of Soil Nitrogen to Growing Roots



Water Stress



Nitrogen Stress



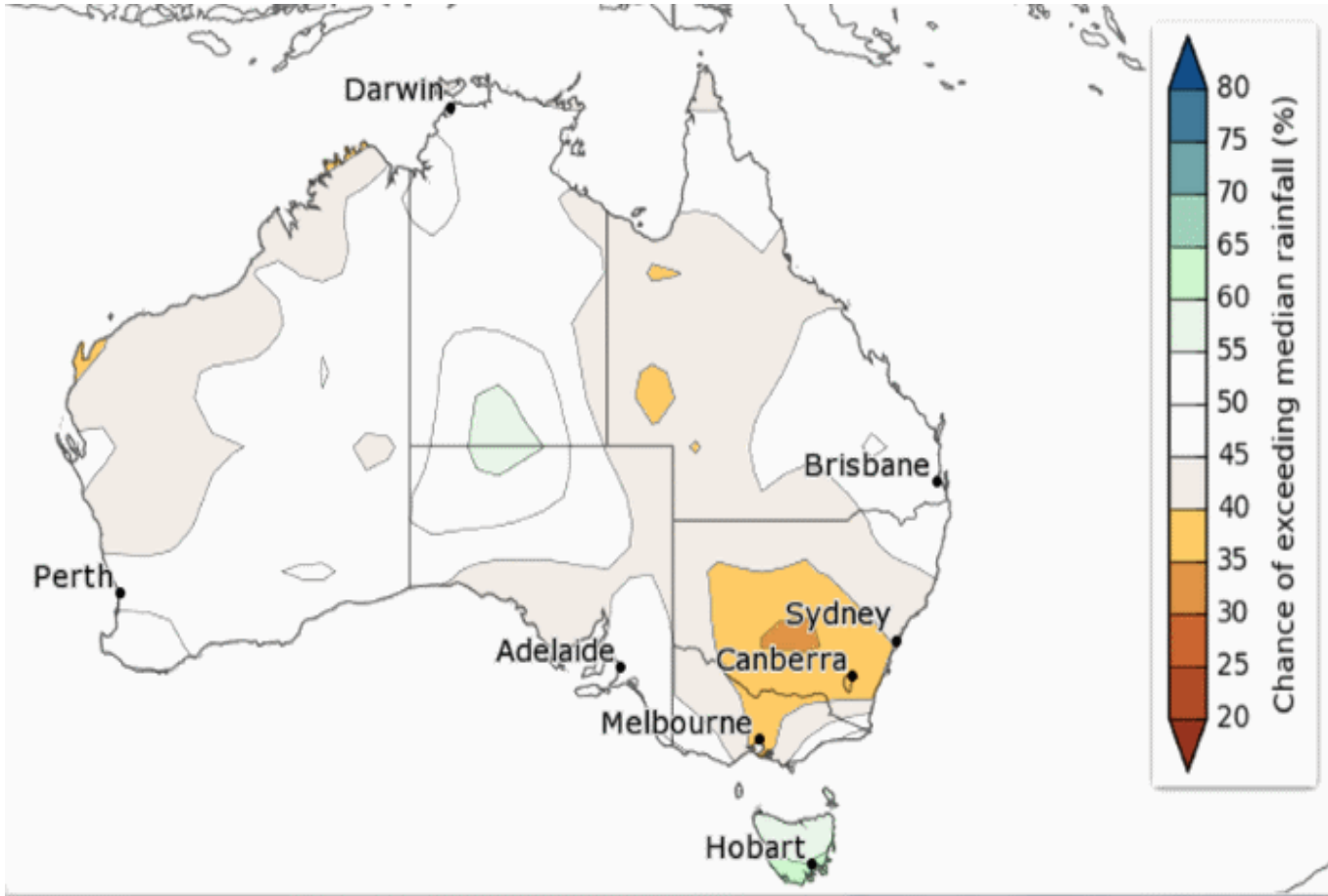
Brief periods of mild to moderate stress do not necessarily lead to reduced yield. To see the likely impacts of additional nitrogen fertiliser rates use the Nitrogen and Nitrogen Profit reports.

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)
9-Sep	38.0	0.2	0.5	0.1	23.0	48.7	7.9	0.1	0.0
10-Sep	38.4	0.2	0.6	0.1	22.3	47.9	7.9	0.1	0.0
11-Sep	38.8	0.2	0.6	0.1	21.7	47.3	7.9	0.1	0.0
12-Sep	39.2	0.4	0.6	0.1	21.3	46.9	7.8	0.1	0.0
13-Sep	39.7	0.5	0.6	0.1	21.7	47.4	7.8	0.1	0.0
14-Sep	40.1	0.5	0.6	0.1	21.9	47.6	7.8	0.1	0.0
15-Sep	40.9	0.7	0.7	0.1	22.0	47.6	7.8	0.1	0.0
16-Sep	41.9	0.6	0.6	0.1	22.3	47.9	7.8	0.1	0.0
17-Sep	42.8	0.7	0.7	0.1	21.9	47.6	7.7	0.1	0.0
18-Sep	43.6	0.6	0.7	0.1	21.4	47.0	7.7	0.1	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



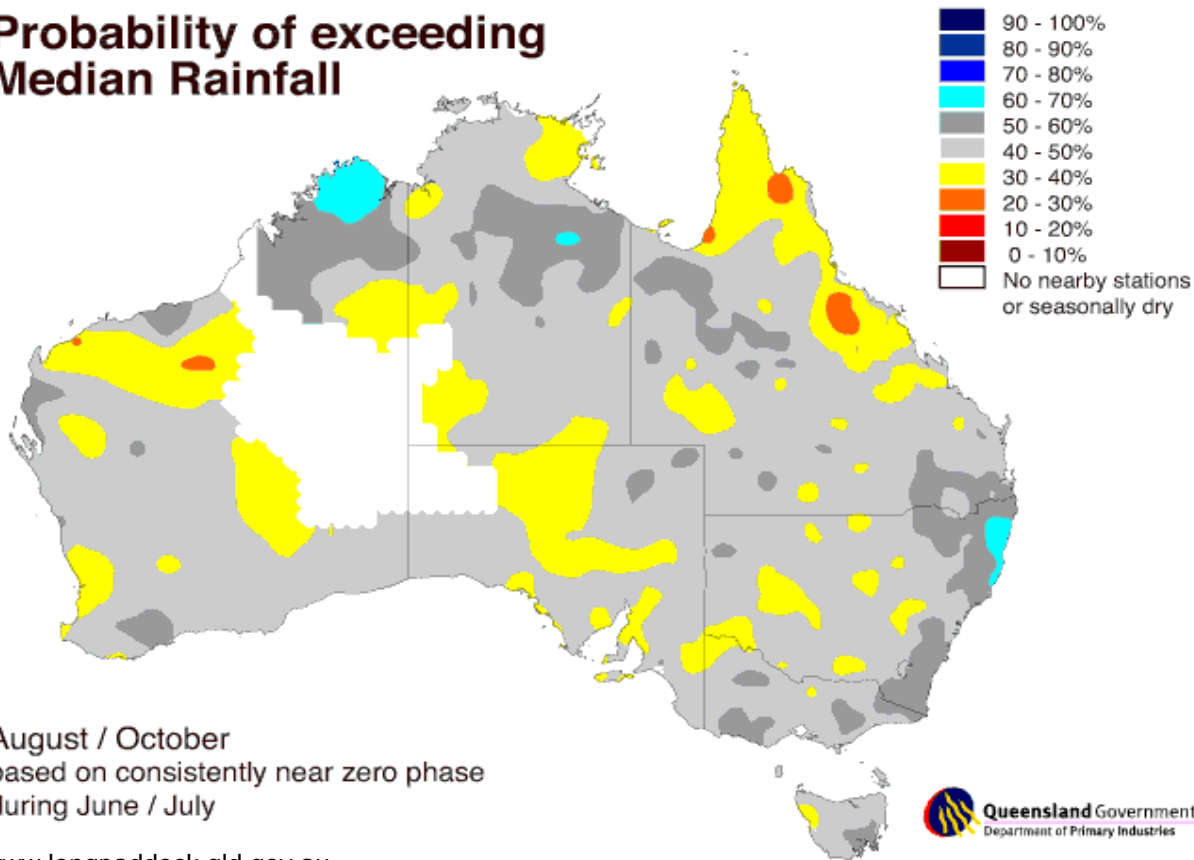
National Seasonal Rainfall Outlook: probabilities September to November 2014

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"

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

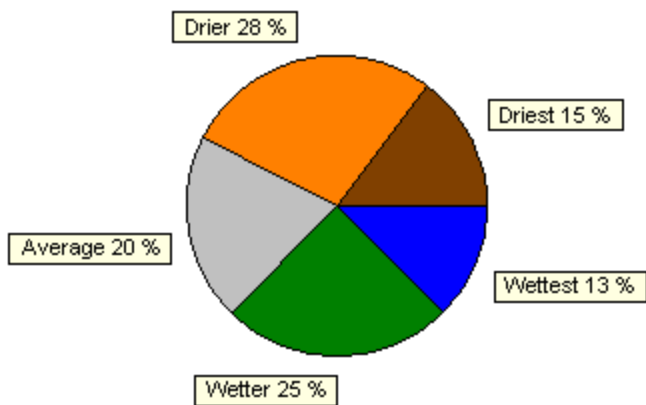
The SOI is currently in the Zero phase. The 31 day mean SOI for July was -4.0. In June the 30 day mean SOI was -0.8.

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?

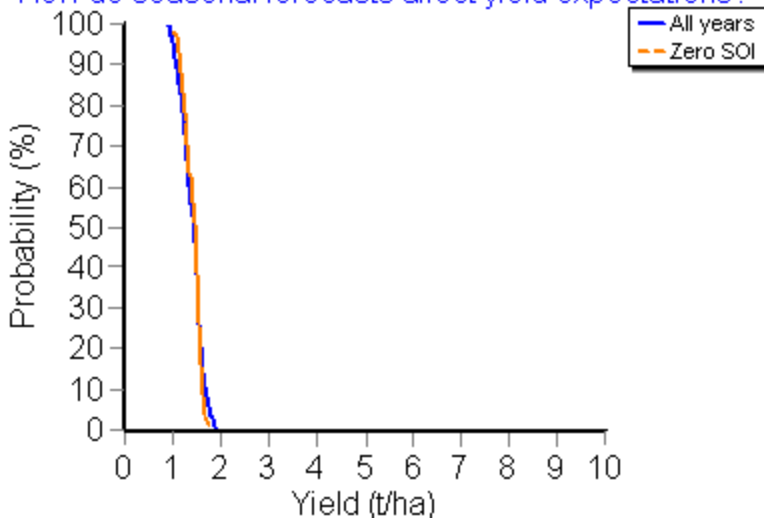
The SOI seasonal forecast for the next 3 months.



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=0.850)