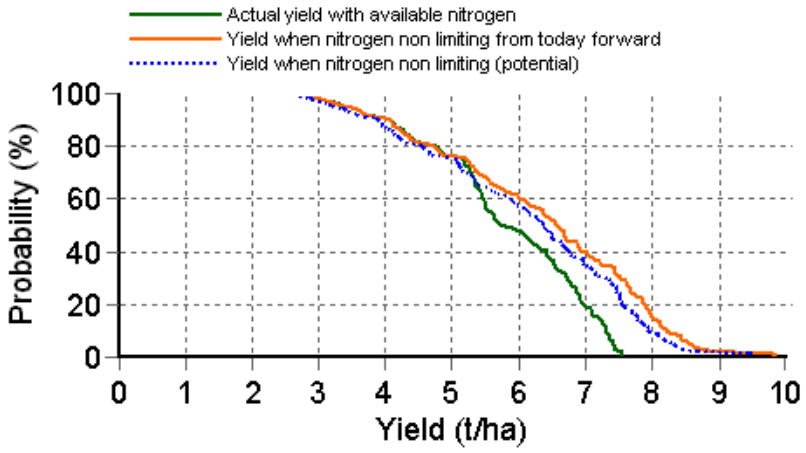
Crop Report

Report name: Block 501W Crop Report (Complete)
Report date: 28/08/2013
Last climate date available: 26/08/2013
Client name: EH Graham Centre
Paddock name: Block 501W
Report generated by: EH Graham Centre
Date sown: 15-Apr
Crop type: Wheat
Variety sown: Wedgetail
Sowing density: 70 plants/m2

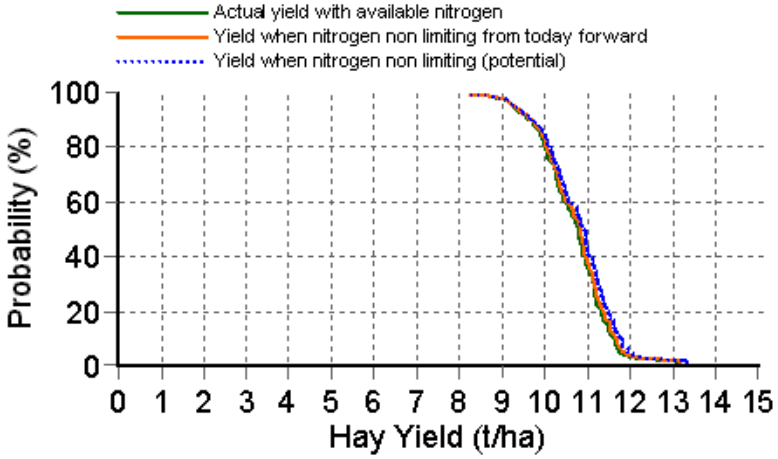
Weather station used: Wagga Wagga Agricultural Institute
Rainfall records used: Weather station
Soil type: Red Kandosol (Dirnaseer No544)
Maximum rooting depth: 100 cm
Stubble type: Wheat
Stubble amount: 4000 kg/ha
Number of tillage operations: 0
Stubble % incorporated into the top 10cm: 0 %
Initial conditions date: 01-Apr
Rainfall since 1-Apr: 204.1 mm
Date of last rainfall entry: ?
Expected maturity date: 17-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.

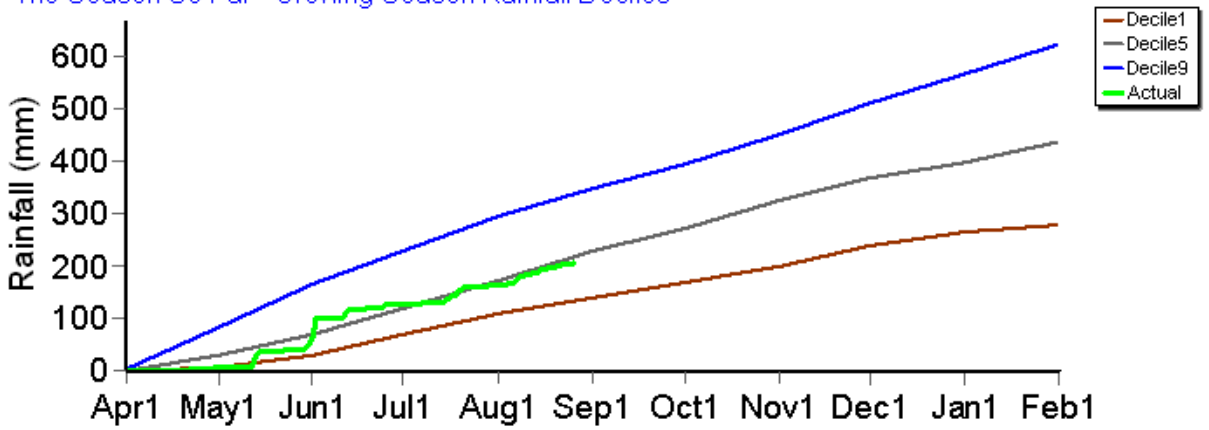
Hay Yield Outcome



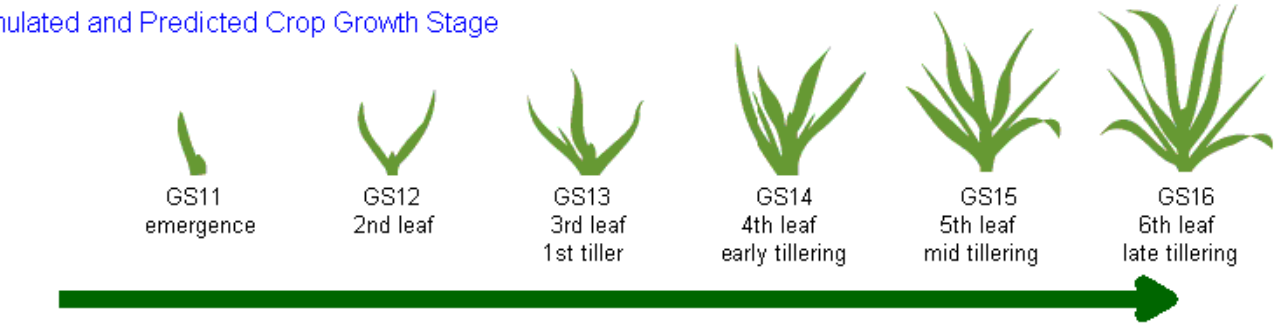
This graph show the probability of exceeding a range of hay yield outcomes this season. It takes into account the same factors as the grain yield graph above. When above ground dry matter is below 2t/ha, hay yield is assumed to be 70% of dry matter, with a moisture content of 13%. When dry matter is 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: 6543 kg/ha

The Season So Far - Growing Season Rainfall Deciles



Simulated and Predicted Crop Growth Stage



Predicted						
Earliest	26-Apr	7-May	13-May	22-May	31-May	8-Jun
Median	26-Apr	7-May	13-May	22-May	31-May	8-Jun
Latest	26-Apr	7-May	13-May	22-May	31-May	8-Jun

Predicted									
Earliest	26-Aug	29-Aug	2-Sep	8-Sep	10-Sep	14-Sep	20-Sep	25-Sep	12-Oct
Median	27-Aug	30-Aug	4-Sep	12-Sep	15-Sep	20-Sep	28-Sep	4-Oct	22-Oct
Latest	27-Aug	2-Sep	8-Sep	20-Sep	27-Sep	4-Oct	11-Oct	17-Oct	4-Nov

Probability and Incidence of Frost and Heat Shock

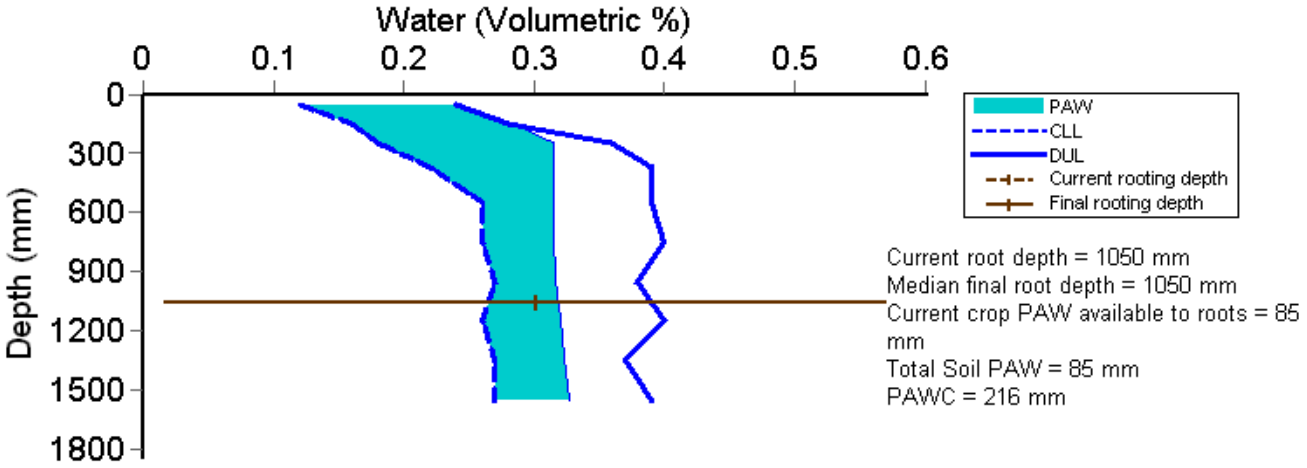
Percentage of years in which frost occurs during flowering	
Mild	
Minimum temperature between 2 and 0°C during flowering (Z60-69)	20%
Moderate	
Minimum temperature between 0 and -2°C during flowering and early grain fill (Z60-75)	4%
Severe	
Minimum temperature less than -2°C during flowering and grain fill (Z60-79)	0%

Percentage of years in which heat shock occurs during grain fill (Z70-79)	
Mild	
Maximum temperature between 32 and 34°C	32%
Moderate	
Maximum temperature between 34 and 36°C	14%
Severe	
Maximum temperature above 36°	6%

Incidence of frost for this growing season, during flowering	
Mild	
Minimum temperature between 2 and 0°C during flowering (Z60-69)	0
Moderate	
Minimum temperature between 0 and -2°C during flowering and early grain fill (Z60-75)	0
Severe	
Minimum temperature less than -2°C during flowering and grain fill (Z60-79)	0

Incidence of heat shock for this growing season, during grain fill (Z70-79)	
Mild	
Maximum temperature between 32 and 34°C	0
Moderate	
Maximum temperature between 34 and 36°C	0
Severe	
Maximum temperature above 36°	0

Current Distribution of PAW



Current root depth = 1050 mm
Median final root depth = 1050 mm
Current crop PAW available to roots = 85 mm
Total Soil PAW = 85 mm
PAWC = 216 mm

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

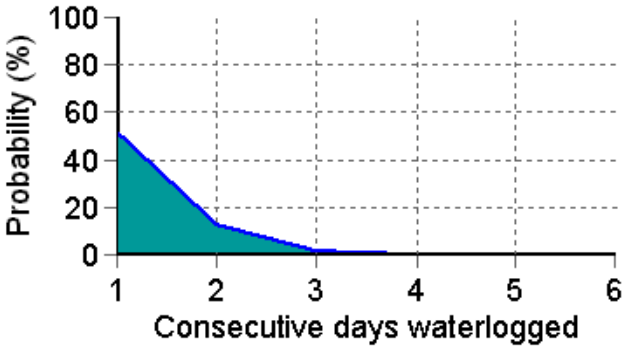
Initial PAW status @ 1-Apr	43 mm
Rainfall since 1-Apr	204.1 mm
Irrigations	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
Evaporation since 1-Apr	55 mm
Transpiration since 1-Apr	70 mm
Deep drainage since 1-Apr	0 mm
Run-off since 1-Apr	3 mm
Current PAW status:	**85 mm**

Nitrogen Budget

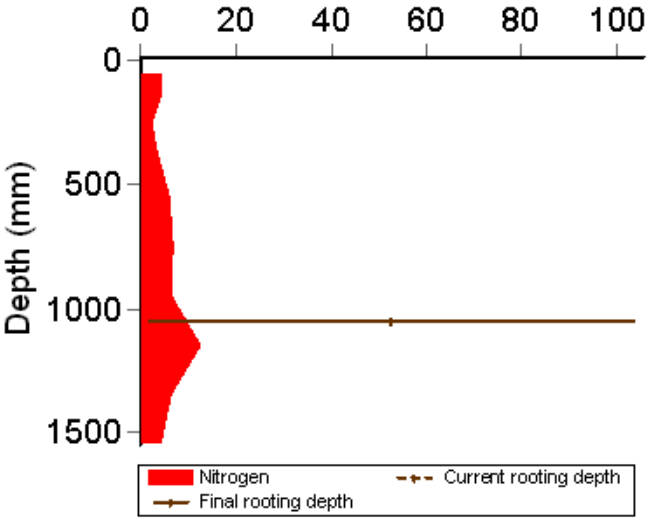
Initial N status @ 01-Apr	200 kg/ha
N mineralisation since 01-Apr	7 kg/ha
N tie up since 01-Apr	21 kg/ha
N applications	21-Apr: 6 kg/ha
	2-Jul: 46 kg/ha
	16-Aug: 46 kg/ha
	: kg/ha
	: kg/ha
Total N in plant	219 kg/ha
De-nitrification since 01-Apr	1 kg/ha
Leaching	0 kg/ha
Current N status:	**60 kg/ha**

Median N mineralisation to maturity = 3 kg/ha
Median N tie up to maturity = 3 kg/ha

Probability of Future Waterlogging Events

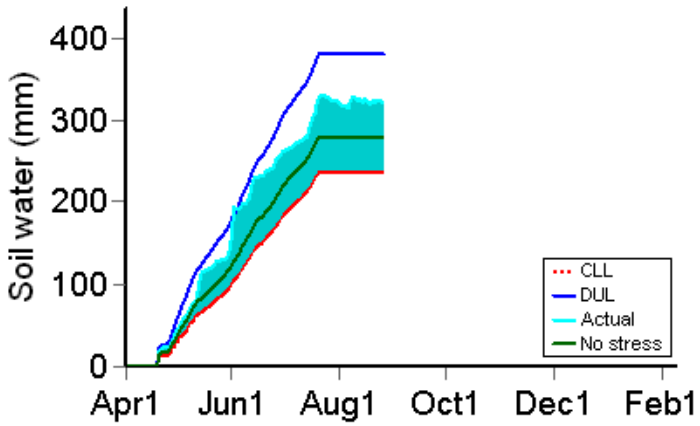


Current distribution of soil nitrogen (kg/ha)

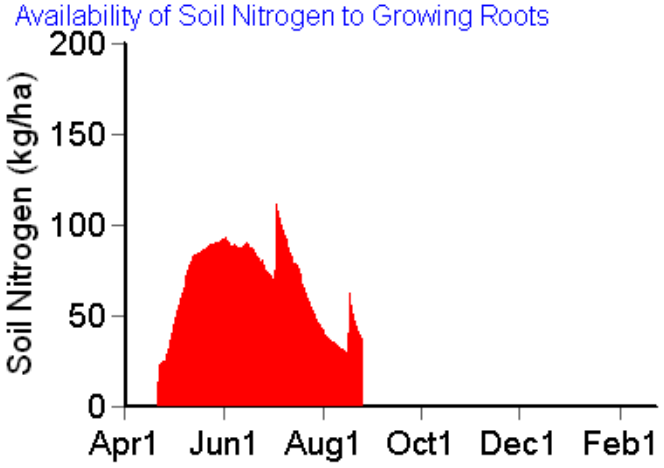


Current Crop Available N = 36 kg/ha
Total Soil N = 60 kg/ha

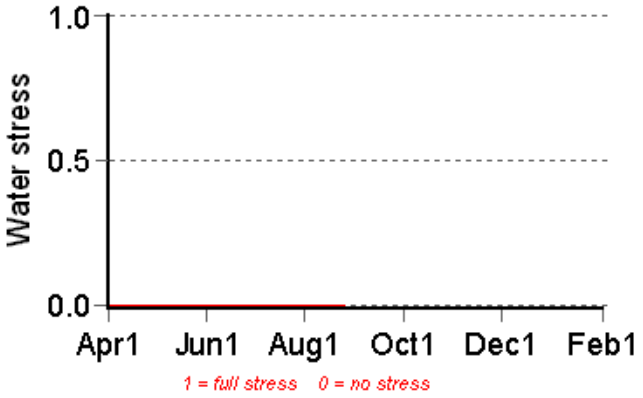
Availability of Water to Growing Roots



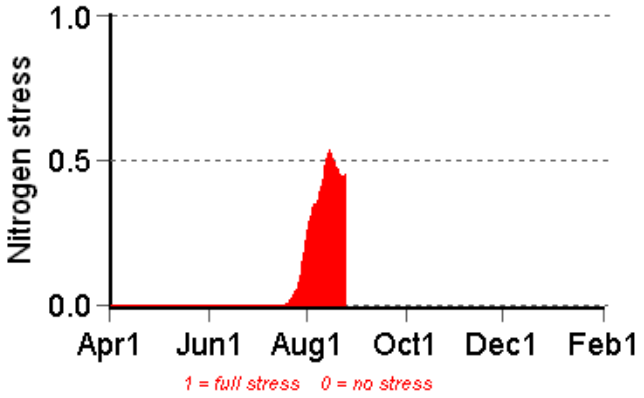
Availability of Soil Nitrogen to Growing Roots



Water Stress



Nitrogen Stress



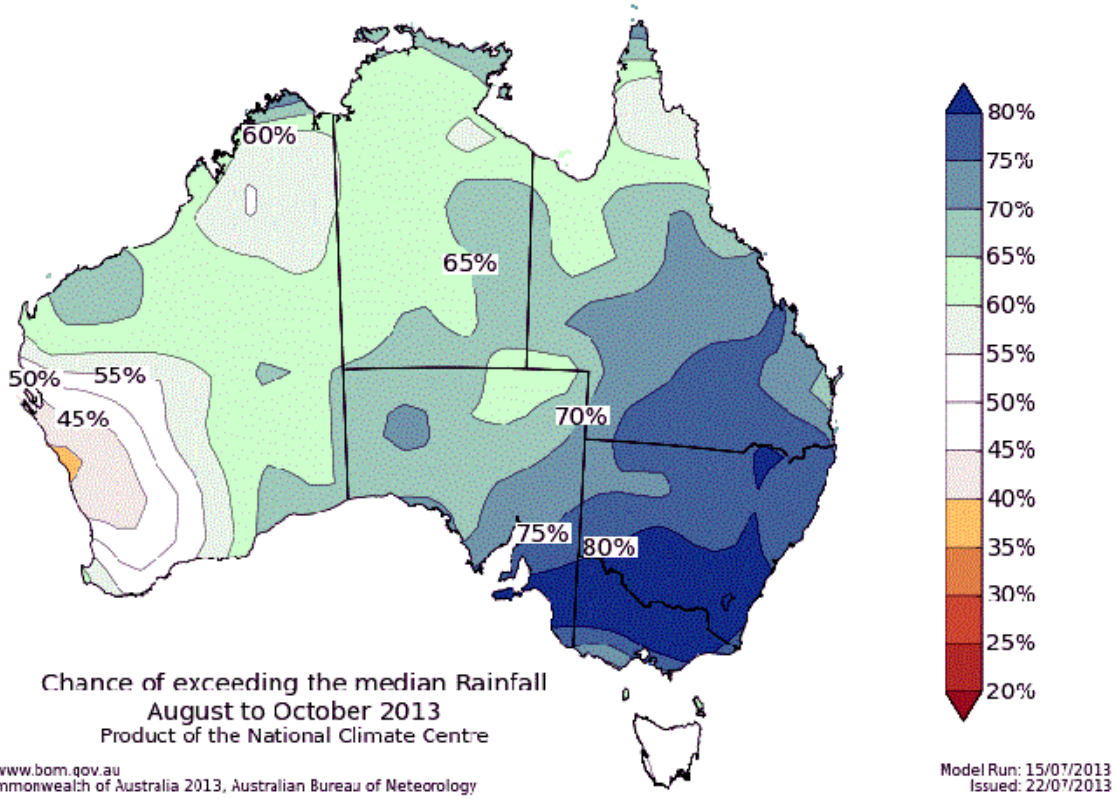
Brief periods of mild to moderate stress do not necessarily lead to reduced yield. To see the likely impacts of additional nitrogen fertiliser rates use the Nitrogen and Nitrogen Profit reports.

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)
28-Aug	30.8	0.3	1.6	0.9	38.0	81.1	32.6	0.0	0.1
29-Aug	31.0	0.4	1.7	0.8	36.6	79.7	31.7	0.0	0.1
30-Aug	31.3	0.4	1.5	0.7	35.9	79.0	30.8	0.0	0.1
31-Aug	31.6	0.3	1.7	0.7	34.7	77.7	29.9	0.0	0.1
1-Sep	31.9	0.4	1.9	0.6	34.1	77.2	29.2	0.0	0.1
2-Sep	32.0	0.4	1.8	0.6	34.0	77.1	28.5	0.0	0.1
3-Sep	32.7	0.4	2.1	0.5	33.2	76.2	27.8	0.0	0.1
4-Sep	33.3	0.4	2.2	0.5	31.7	74.7	27.2	0.0	0.1
5-Sep	33.9	0.4	1.9	0.5	34.0	77.0	26.6	0.0	0.1
6-Sep	34.5	0.4	2.0	0.4	32.7	75.7	26.0	0.0	0.1

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.

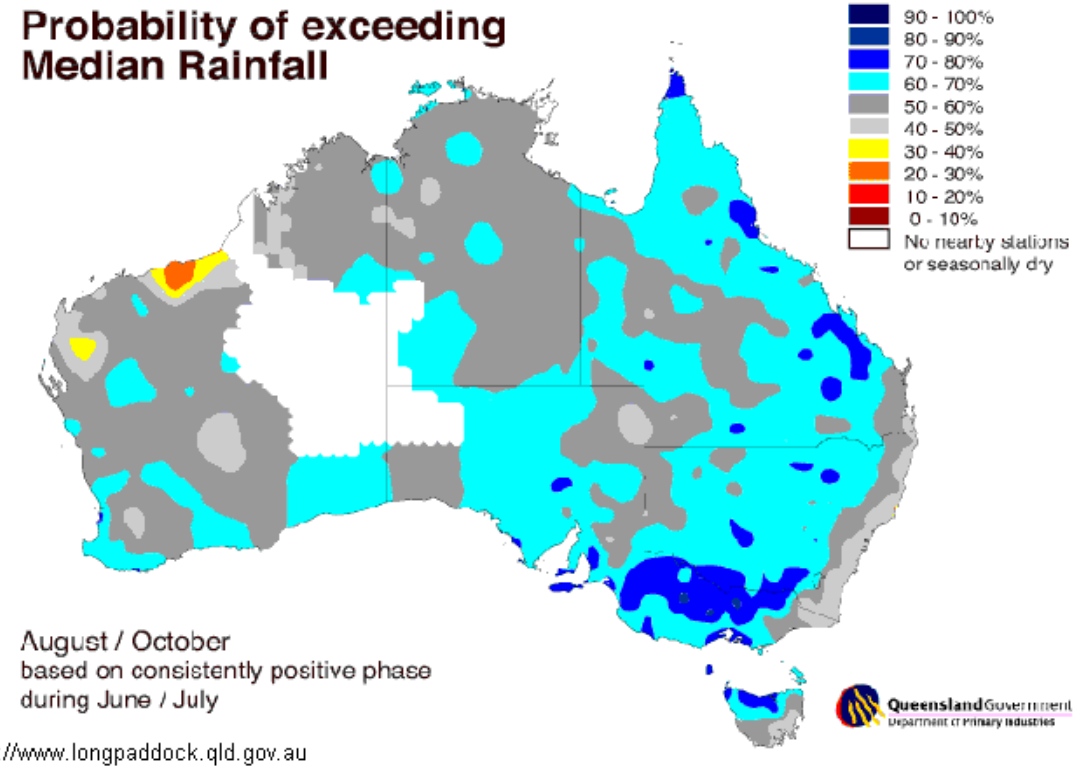
How much rainfall can I expect?
The Bureau of Meteorology Forecast for the next 3 months



National Seasonal Rainfall Outlook: probabilities August to October 2013

Issued by the bureau of Meteorology 22nd July 2013

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



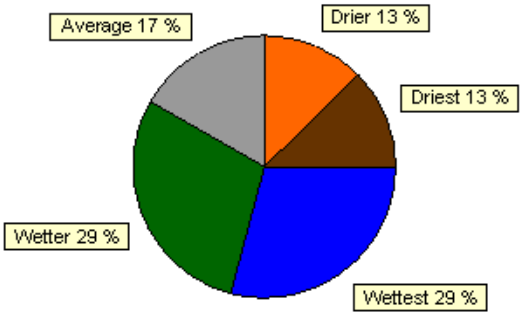
http://www.longpaddock.qld.gov.au

SOI Phase and analogue years

The SOI is currently in the Positive phase. The 31 day mean SOI for July was 7.4. In June it was 10.6.

The years in history with the same SOI phase:
1892, 1893, 1900, 1909, 1910, 1915, 1916, 1917, 1920, 1924, 1938, 1947, 1950, 1955, 1956, 1958, 1960, 1973, 1974, 1975, 1981, 1988, 1996, 1998

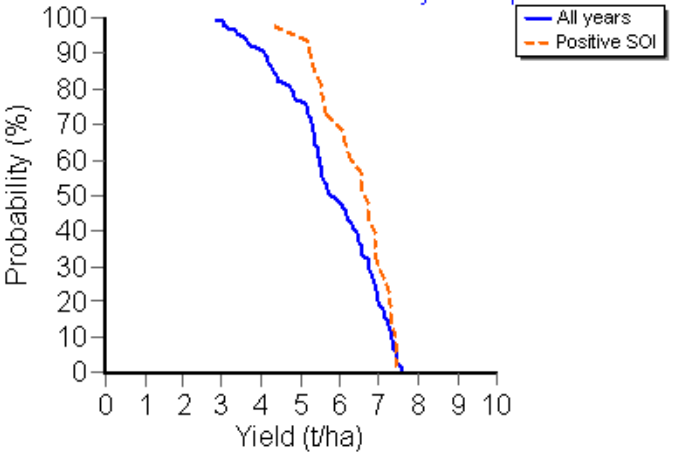
How much rainfall can I expect?
The SOI seasonal forecast for the next 3 months.



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 88 mm
Drier	88 to 114 mm
Average	114 to 144 mm
Wetter	144 to 184 mm
Wettest	184 to 328 mm

How do seasonal forecasts affect yield expectations?



The 31 day mean SOI for July was 7.4. In June it was 10.6.

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=0.035)
