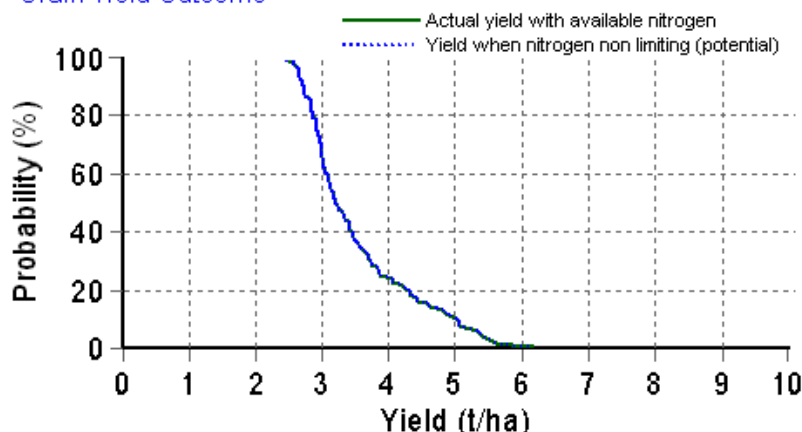


# Crop Report

Report name: Loxton Crop report  
 Report date: 29/09/2010  
 Last climate date available: 21/09/2010  
 Client name: MSF  
 Paddock name: Loxton Midslope  
 Report generated by: MSF  
 Date sown: 02-Jun  
 Crop type: Wheat  
 Variety sown: Yitpi  
 Sowing density: 120 plants/m<sup>2</sup>

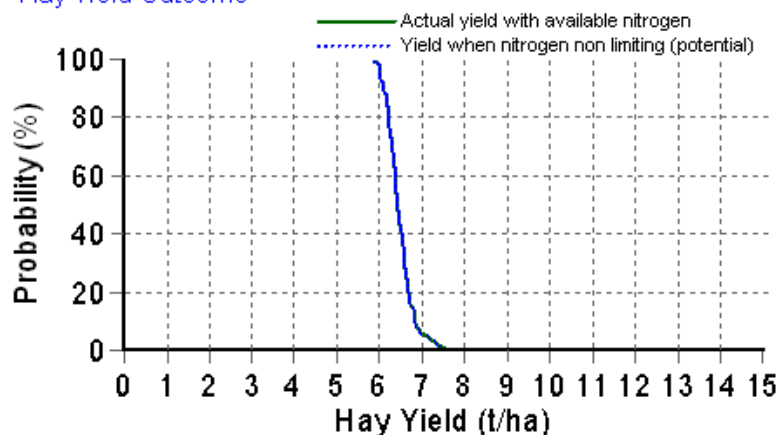
Weather station used: Loxton  
 Rainfall records used: Weather station  
 Soil type: Loxton-Moderate SSC  
 Maximum rooting depth: 180 cm  
 Roots constrained by EC: yes  
 Stubble type: wheat  
 Stubble amount: 250 kg/ha  
 Start of growing season: 01-Apr  
 Initial conditions date: 21-Apr  
 Growing season rainfall to date: 189.3 mm  
 Date of last rainfall entry: ?  
 Expected harvest date: 19-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 of the past 100 years. The yield results are used to produce this graph.

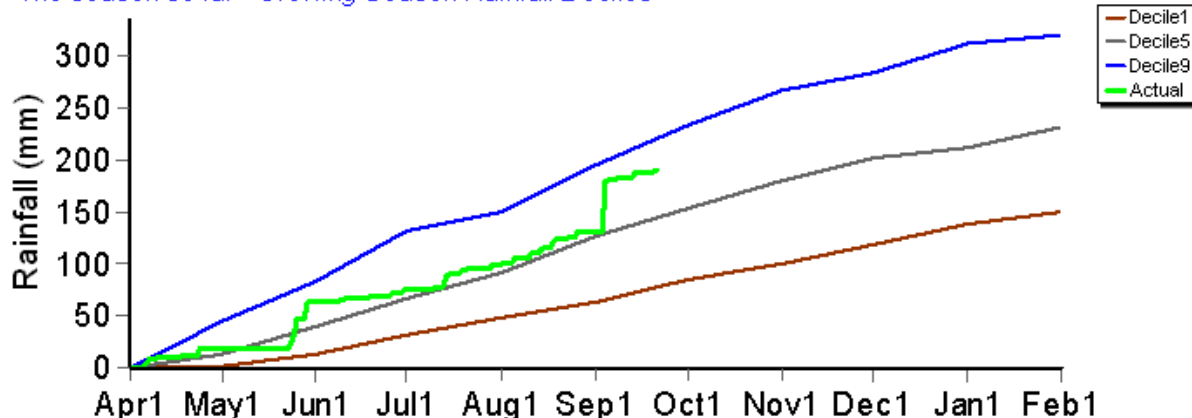
## Hay Yield Outcome



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: 6156 kg/ha

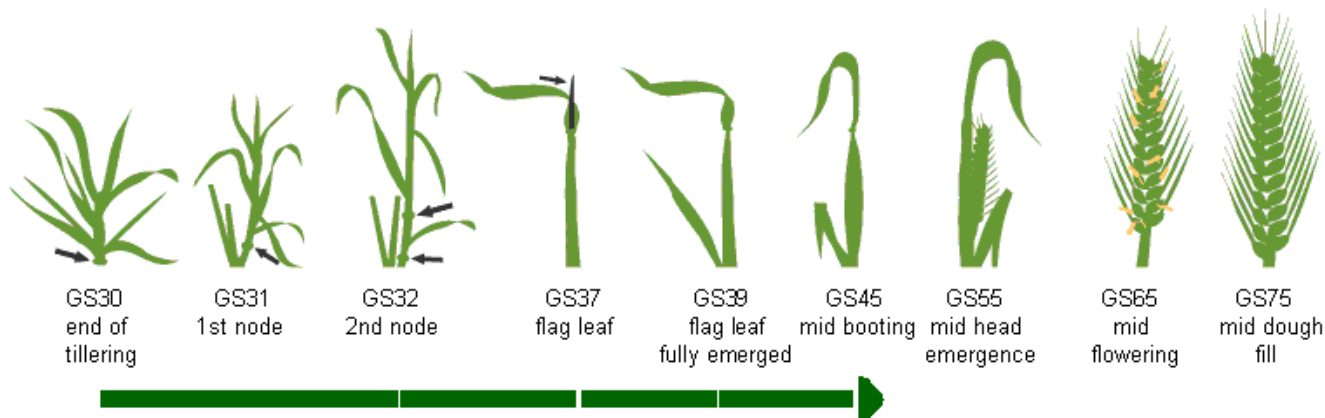
## The season so far - Growing Season Rainfall Deciles





**Predicted**

<b>Earliest</b>	12-Jun	26-Jun	8-Jul	18-Jul	28-Jul	6-Aug
<b>Median</b>	12-Jun	26-Jun	8-Jul	18-Jul	28-Jul	6-Aug
<b>Latest</b>	12-Jun	26-Jun	8-Jul	18-Jul	28-Jul	6-Aug

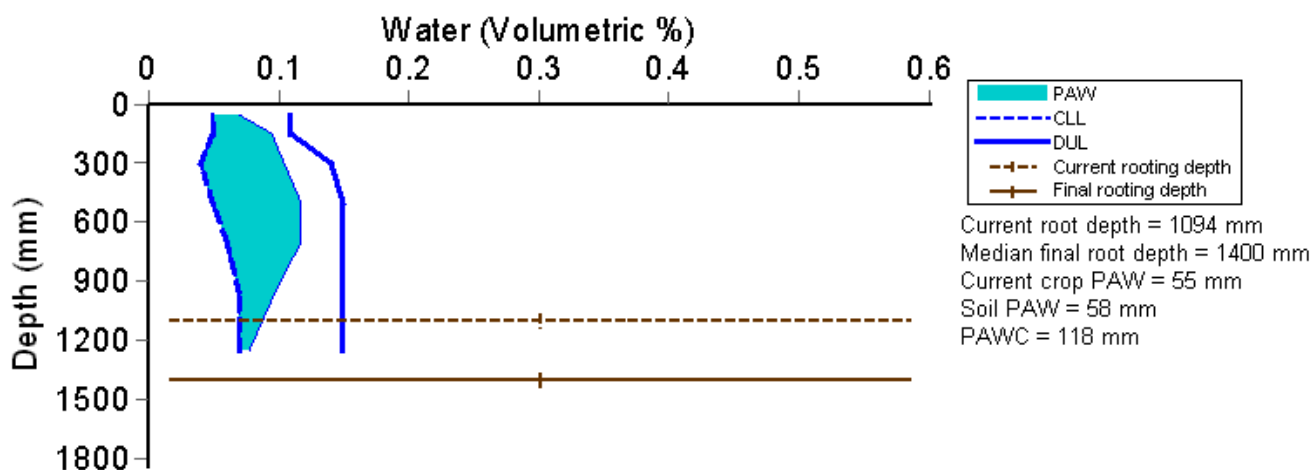


**Predicted**

<b>Earliest</b>	20-Aug	24-Aug	27-Aug	8-Sep	12-Sep	20-Sep	27-Sep	4-Oct	17-Oct
<b>Median</b>	20-Aug	24-Aug	27-Aug	8-Sep	12-Sep	20-Sep	30-Sep	8-Oct	24-Oct
<b>Latest</b>	20-Aug	24-Aug	27-Aug	8-Sep	12-Sep	20-Sep	2-Oct	12-Oct	31-Oct

<p><i>Percentage of years in which frost occurs</i></p> <p><b>Mild</b> Minimum temperature between 2 and 0°C during flowering (Z60-69) 6%</p> <p><b>Moderate</b> Minimum temperature between 0 and -2°C during flowering and early grain fill (Z60-75) 0%</p> <p><b>Severe</b> Minimum temperature less than -2°C during flowering and grain fill (Z60-79) 0%</p>		<p><i>Percentage of years in which heat shock occurs during grain fill (Z70-79)</i></p> <p><b>Mild</b> Maximum temperature between 32 and 34°C 61%</p> <p><b>Moderate</b> Maximum temperature between 34 and 36°C 46%</p> <p><b>Severe</b> Maximum temperature above 36° 29%</p>	
<p><i>Incidence of frost for this growing season</i></p> <p><b>Mild</b> Minimum temperature between 2 and 0°C during flowering (Z60-69) 0</p> <p><b>Moderate</b> Minimum temperature between 0 and -2°C during flowering and early grain fill (Z60-75) 0</p> <p><b>Severe</b> Minimum temperature less than -2°C during flowering and grain fill (Z60-79) 0</p>		<p><i>Incidence of heat shock for this growing season, during grain fill (Z70-79)</i></p> <p><b>Mild</b> Maximum temperature between 32 and 34°C 0</p> <p><b>Moderate</b> Maximum temperature between 34 and 36°C 0</p> <p><b>Severe</b> Maximum temperature above 36° 0</p>	

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 @ 21-Apr	46 mm
Rainfall since 21-Apr	178.1 mm
Irrigations	2-Jun: 3 mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
Evaporation since 21-Apr	97 mm
Transpiration since 21-Apr	76 mm
Deep drainage since 21-Apr	0 mm
Run-off since 21-Apr	0 mm

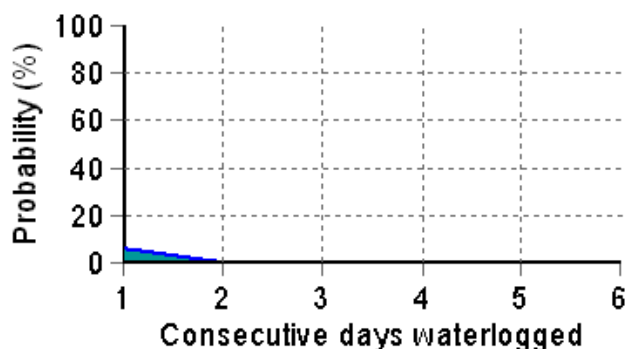
**Current PAW status: 58 mm**

Nitrogen Budget

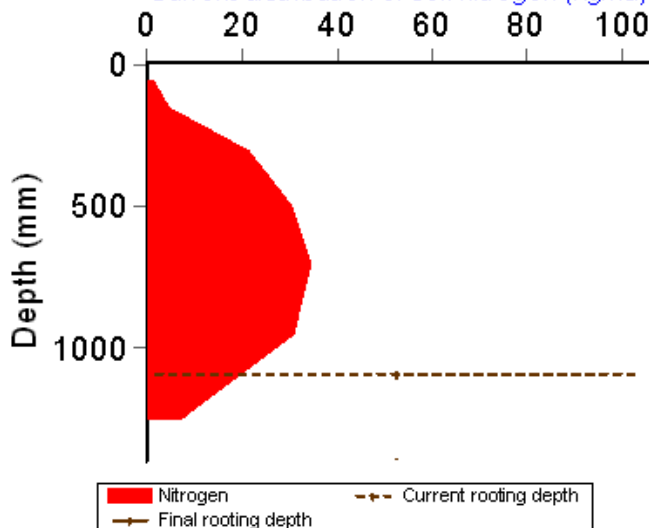
Initial N status @ 21-Apr	256 kg/ha
Mineralisation since 21-Apr	33 kg/ha
N applications	2-Jun: 4 kg/ha
	: kg/ha
	: kg/ha
	: kg/ha
	: kg/ha
Total N in plant	158 kg/ha
De-nitrification since 21-Apr	0 kg/ha
Leaching	0 kg/ha

**Current N status: 133 kg/ha**

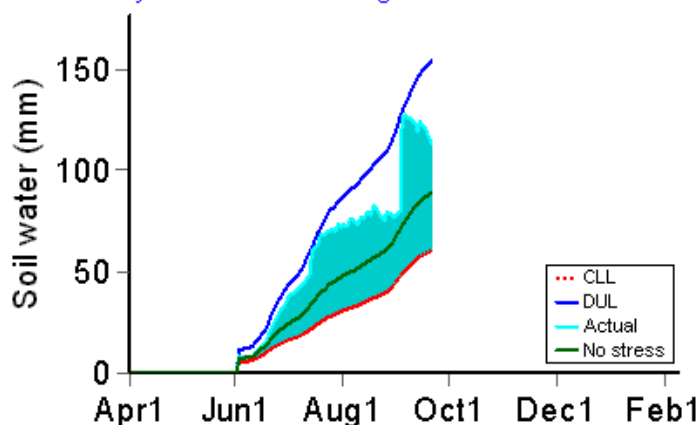
Probability of Future Waterlogging Events



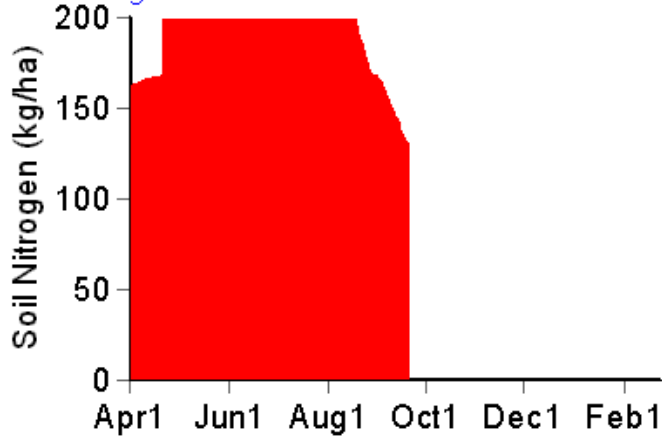
Current distribution of soil nitrogen (kg/ha)



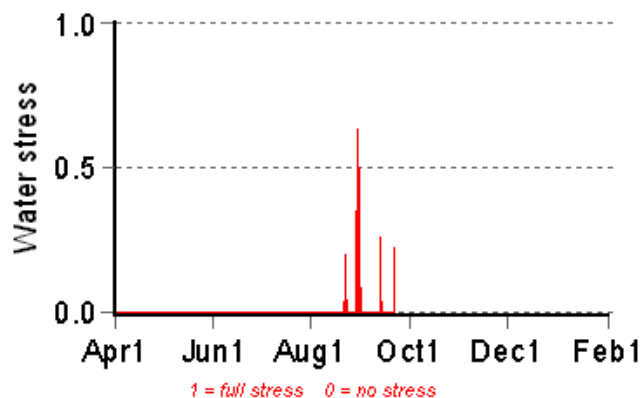
Availability of Water to Growing Roots



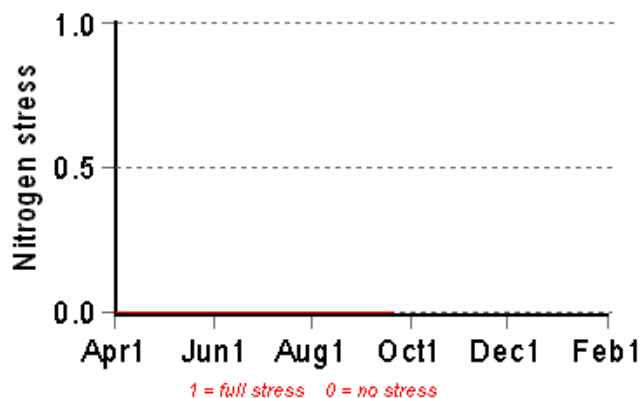
Soil Nitrogen



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.

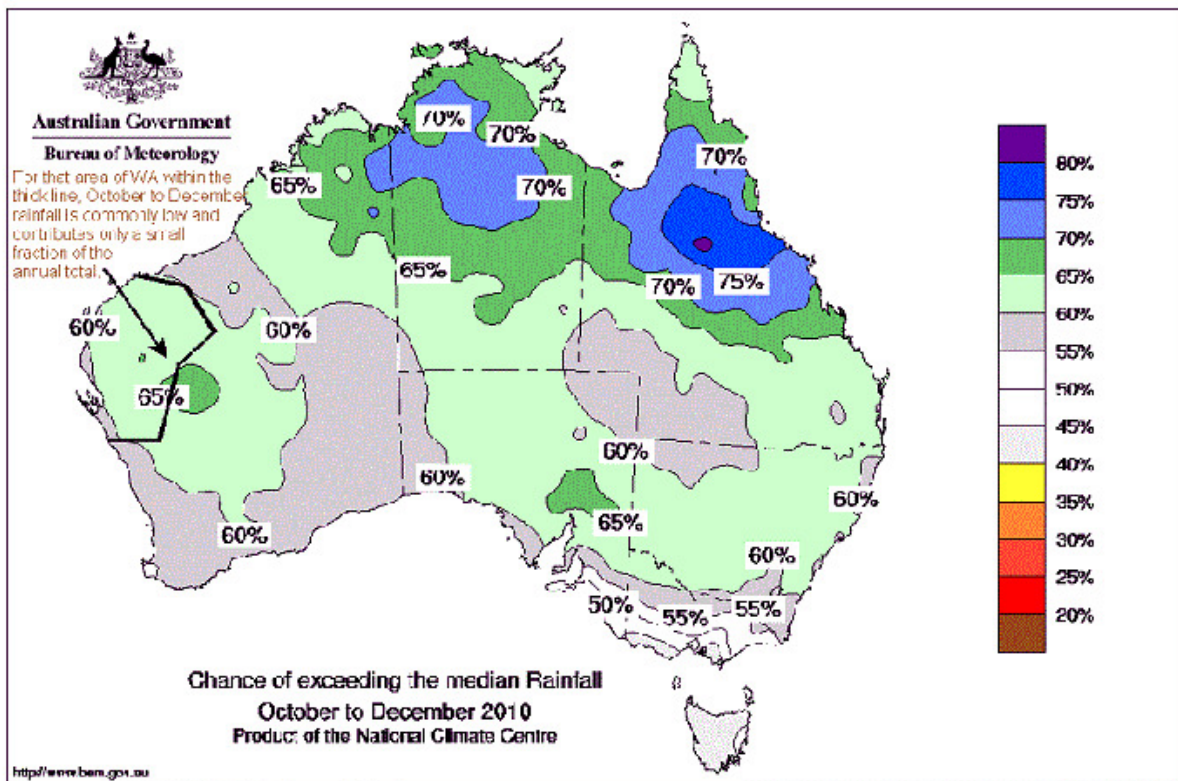
Mean projected crop performance and requirements for the next 10 days assuming no rain and no added fertiliser.

Date	Growth Stage	Evap (mm)	Daily water use (mm)	Daily N use (kg/ha)	Water available to roots above stress threshold (mm)	Water available to roots above crop lower limit (mm)	N available to roots (kg/ha)
29-Sep	55.9	0.6	1.7	0.0	5.8	35.0	126.0
30-Sep	57.0	0.6	1.6	0.0	4.0	33.4	126.4
1-Oct	58.2	0.6	1.5	0.0	2.4	31.9	126.7
2-Oct	59.3	0.6	1.5	0.0	0.8	30.6	127.1
3-Oct	60.5	0.5	1.4	0.0	-0.2	29.7	127.4
4-Oct	61.6	0.6	1.4	0.0	-1.8	28.3	127.8
5-Oct	62.8	0.5	1.3	0.0	-3.5	26.9	128.0
6-Oct	63.9	0.5	1.3	0.0	-4.3	26.2	128.3
7-Oct	65.0	0.5	1.2	0.0	-6.0	24.6	128.5
8-Oct	65.3	0.6	1.1	0.0	-7.3	23.6	128.6

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

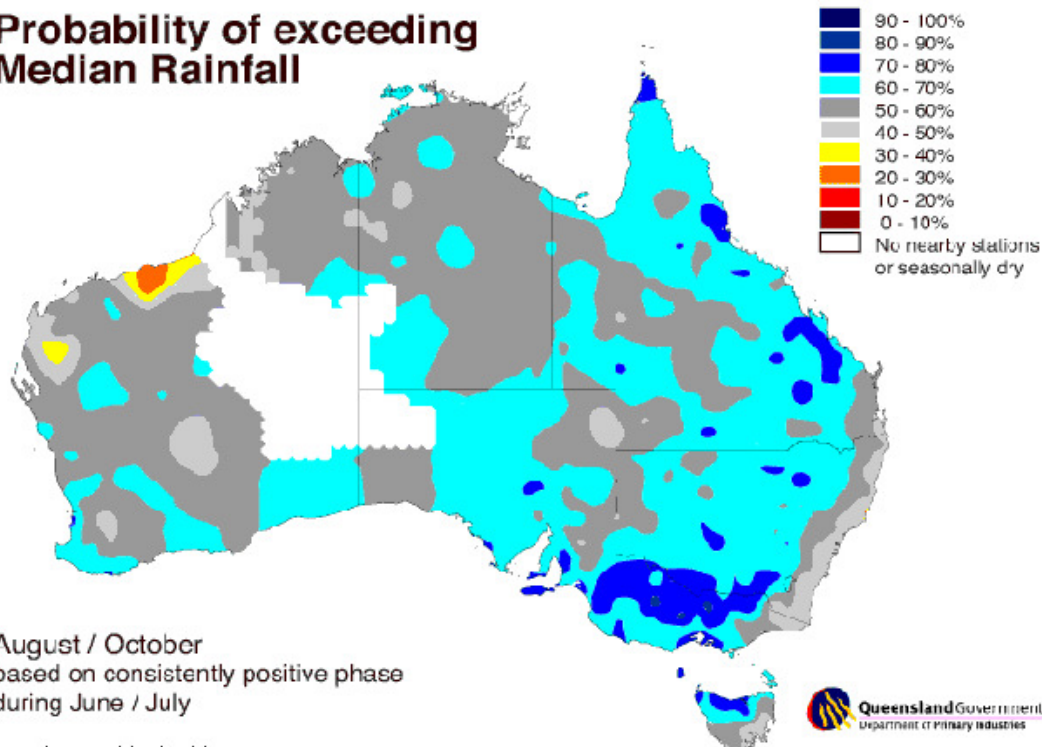


### National Seasonal Rainfall Outlook: probabilities October to December 2010

Issued by the bureau of Meteorology 23rd September 2010

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



### SOI Phase and analogue years

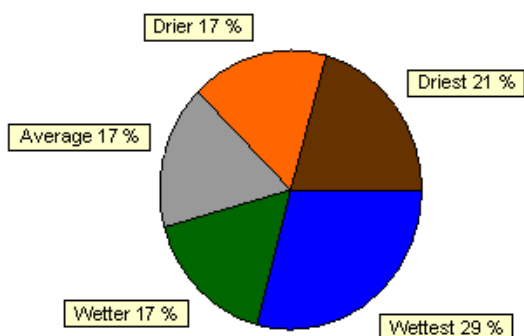
The SOI is currently in the Positive phase. The 31 day mean SOI for August was 17.0, in July it was 18.74.

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?

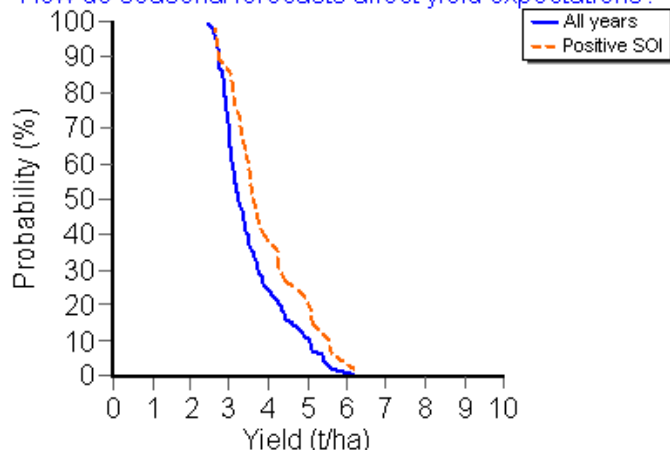
The SOI seasonal forecast for the next 3 months.



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 34 mm
Drier	34 to 56 mm
Average	56 to 71 mm
Wetter	71 to 93 mm
Wettertest	93 to 210 mm

### How do seasonal forecasts affect yield expectations?



The 31 day mean SOI for August was 17.0, in July it was 18.74.

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=0.044)

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