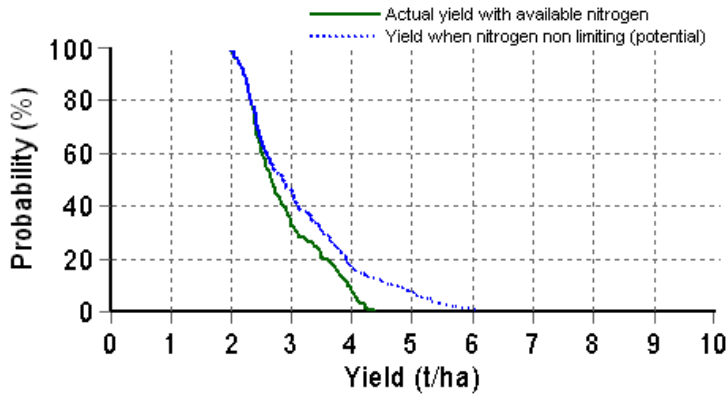


# Crop Report

Report name: Natya Crop report  
 Report date: 06/09/2010  
 Last climate date available: 4/09/2010  
 Client name: MSF  
 Paddock name: Natya Swale  
 Report generated by: MSF  
 Date sown: 15-May  
 Crop type: Wheat  
 Variety sown: Yitpi  
 Sowing density: 120 plants/m<sup>2</sup>

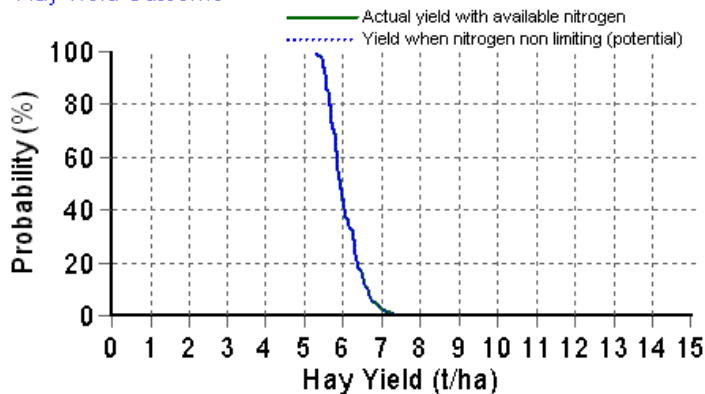
Weather station used: Annuello  
 Rainfall records used: Weather station  
 Soil type: Sandy Clay Loam (generic)  
 Maximum rooting depth: 60 cm  
 Roots constrained by EC: no  
 Stubble type: wheat  
 Stubble amount: 250 kg/ha  
 Start of growing season: 01-Apr  
 Initial conditions date: 05-May  
 Growing season rainfall to date: 171.8 mm  
 Date of last rainfall entry: ?  
 Expected harvest date: 8-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.

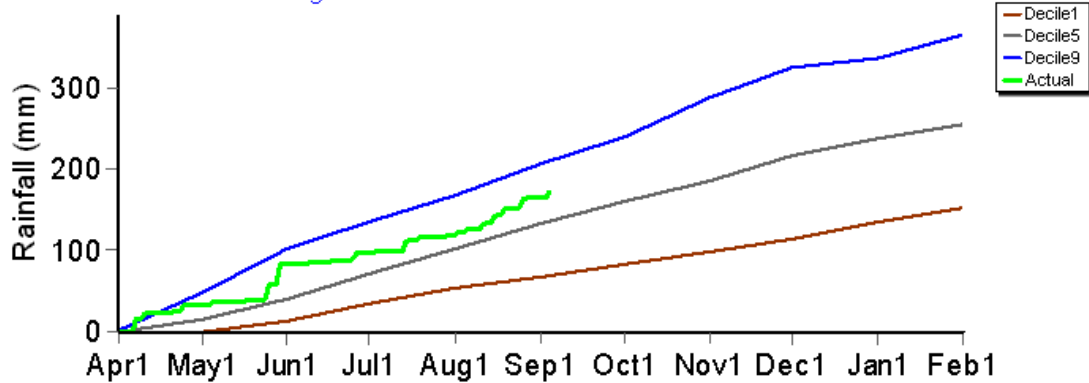
## Hay Yield Outcome

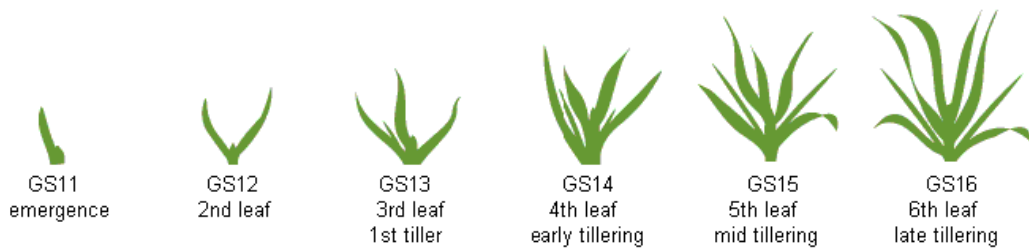


This graph show the probability of exceeding a range of hay yield outcomes this season. It takes into account the same factors as the grain yield graph above. When above ground dry matter is below 2t/ha, hay yield is assumed to be 70% of dry matter, with a moisture content of 13%. When dry matter is 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: 5523 kg/ha

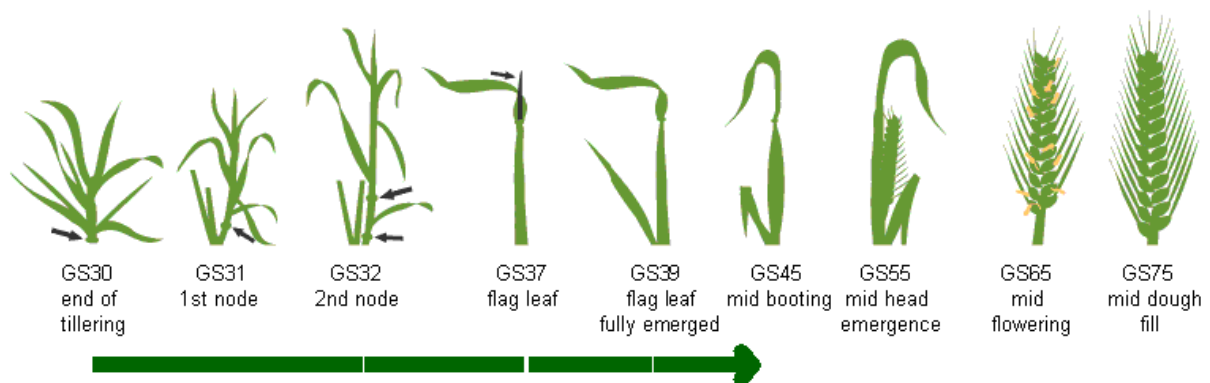
## The season so far - Growing Season Rainfall Deciles





**Predicted**

<b>Earliest</b>	23-May	6-Jun	17-Jun	24-Jun	6-Jul	17-Jul
<b>Median</b>	23-May	6-Jun	17-Jun	24-Jun	6-Jul	17-Jul
<b>Latest</b>	23-May	6-Jun	17-Jun	24-Jun	6-Jul	17-Jul

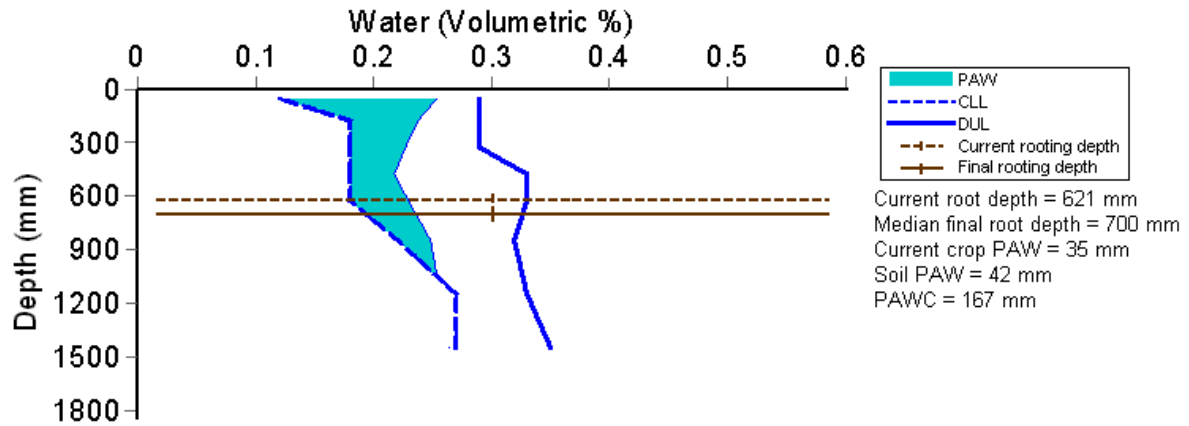


**Predicted**

<b>Earliest</b>	2-Aug	5-Aug	10-Aug	23-Aug	29-Aug	6-Sep	13-Sep	21-Sep	8-Oct
<b>Median</b>	2-Aug	5-Aug	10-Aug	23-Aug	29-Aug	6-Sep	16-Sep	26-Sep	12-Oct
<b>Latest</b>	2-Aug	5-Aug	10-Aug	23-Aug	29-Aug	6-Sep	20-Sep	2-Oct	19-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) 16%</p> <p><b>Moderate</b> Minimum temperature between 0 and -2°C during flowering and early grain fill (Z60-75) 1%</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 46%</p> <p><b>Moderate</b> Maximum temperature between 34 and 36°C 17%</p> <p><b>Severe</b> Maximum temperature above 36° 10%</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 @ 5-May	41 mm
Rainfall since 5-May	138.2 mm
Irrigations	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
Evaporation since 5-May	72 mm
Transpiration since 5-May	62 mm
Deep drainage since 5-May	0 mm
Run-off since 5-May	0 mm

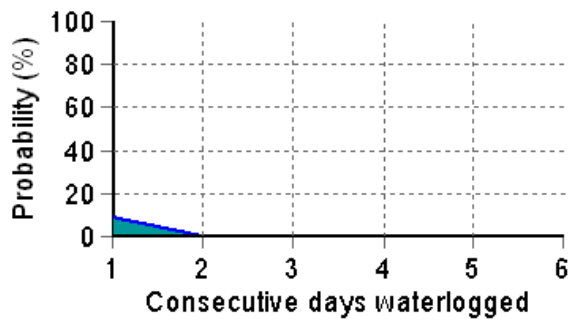
**Current PAW status:** 42 mm

Nitrogen Budget

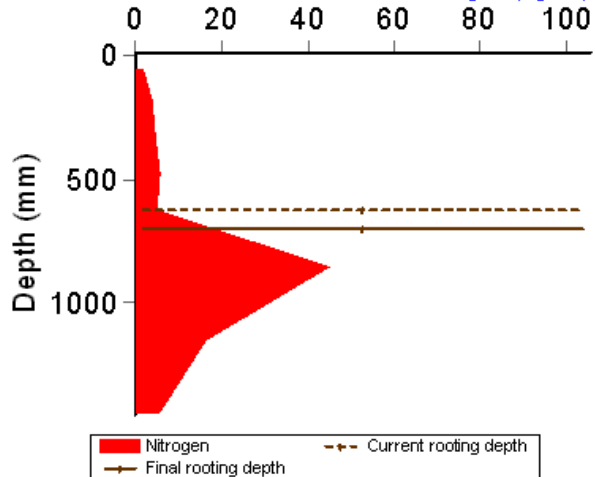
Initial N status @ 05-May	188 kg/ha
Mineralisation since 05-May	3 kg/ha
N applications	: kg/ha
	: kg/ha
	: kg/ha
	: kg/ha
	: kg/ha
	: kg/ha
Total N in plant	102 kg/ha
De-nitrification since 05-May	0 kg/ha
Leaching	0 kg/ha

**Current N status:** 89 kg/ha

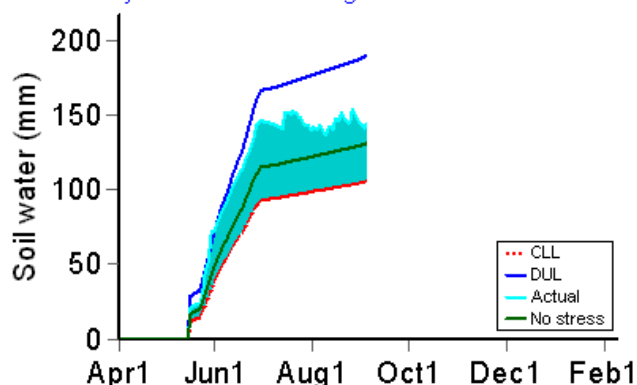
Probability of Future Waterlogging Events



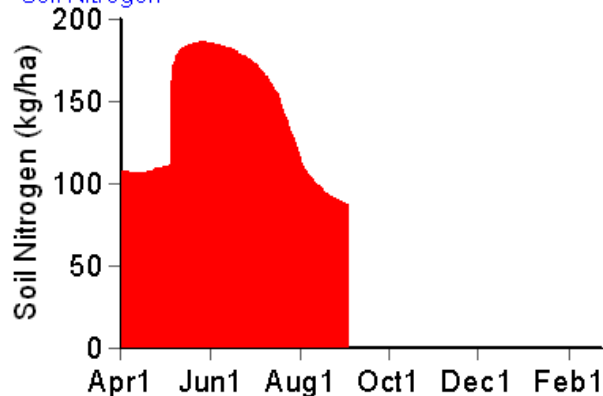
Current distribution of soil nitrogen (kg/ha)



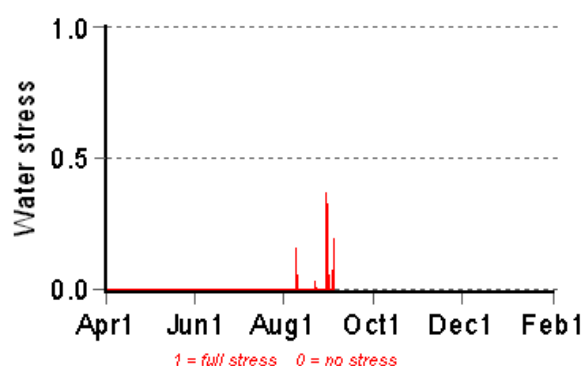
Availability of Water to Growing Roots



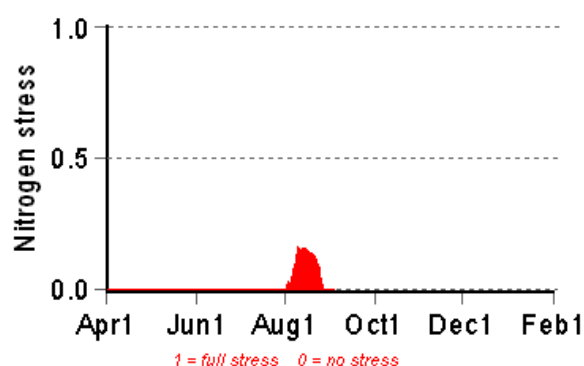
Soil Nitrogen



Water Stress



Nitrogen Stress



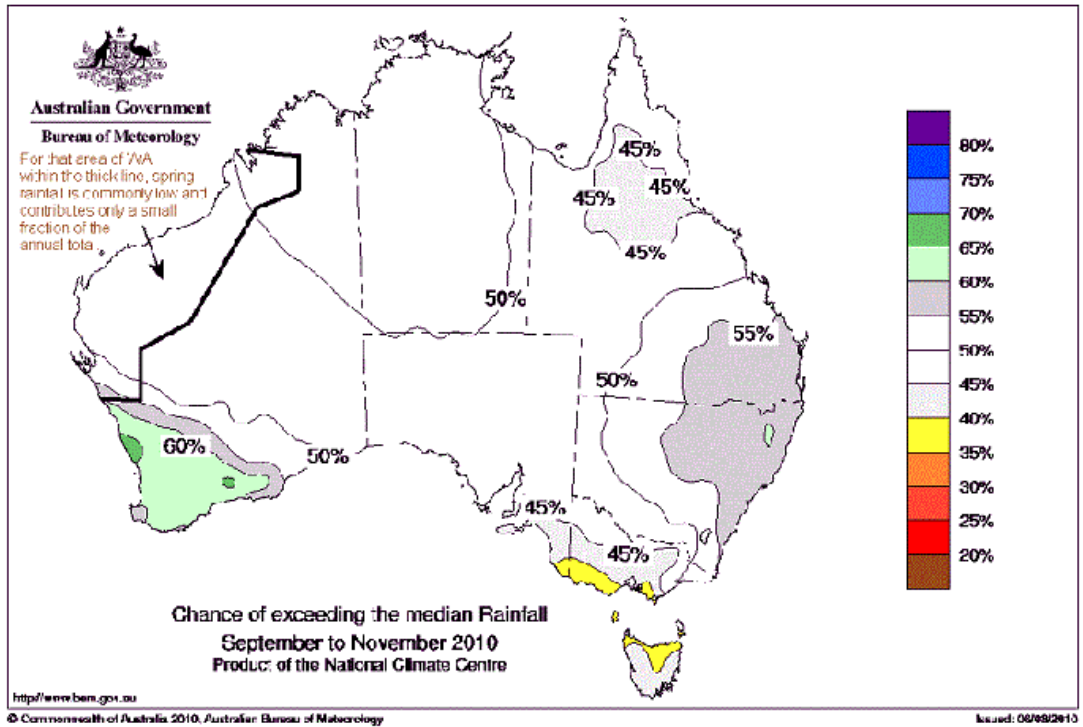
Brief periods of mild to moderate stress do not necessarily lead to reduced yield. To see the likely impacts of additional nitrogen fertiliser rates use the Nitrogen and Nitrogen Profit reports.

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)
6-Sep	46.6	0.7	1.8	0.3	8.8	33.9	18.3
7-Sep	47.5	0.6	1.7	0.3	6.9	32.1	18.1
8-Sep	48.4	0.7	1.6	0.3	5.5	30.7	18.0
9-Sep	49.4	0.7	1.5	0.2	3.7	29.0	17.9
10-Sep	50.4	0.7	1.4	0.2	2.1	27.4	17.8
11-Sep	51.5	0.7	1.3	0.2	0.5	25.9	17.7
12-Sep	52.5	0.7	1.2	0.2	-0.6	24.8	17.7
13-Sep	53.5	0.7	1.2	0.2	-1.6	23.9	17.6
14-Sep	54.4	0.7	1.1	0.2	-2.1	23.5	17.5
15-Sep	55.5	0.7	1.1	0.2	-2.9	22.8	17.5

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

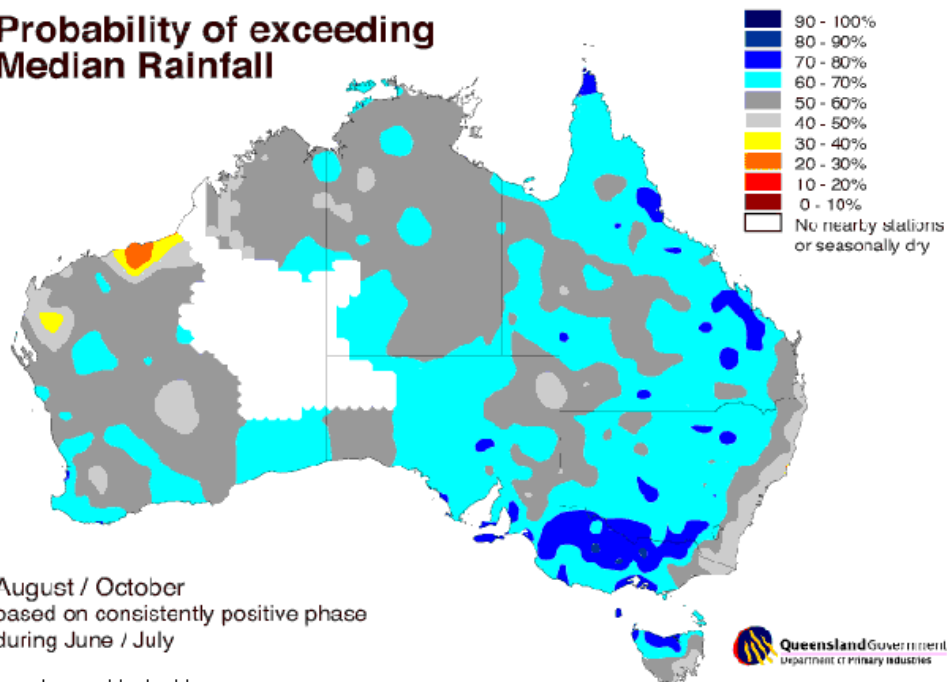


**National Seasonal Rainfall Outlook: probabilities September to November 2010**

Issued by the bureau of Meteorology 24th August 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

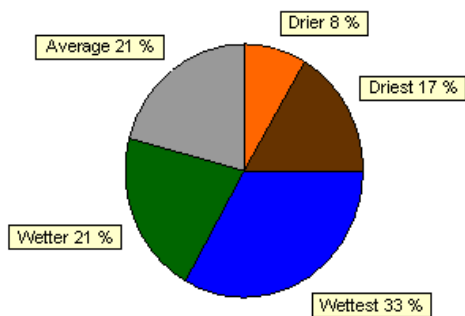
The SOI is currently in the Positive phase. The 31 day mean SOI for August was 17.0, in July it was 18.74.

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?

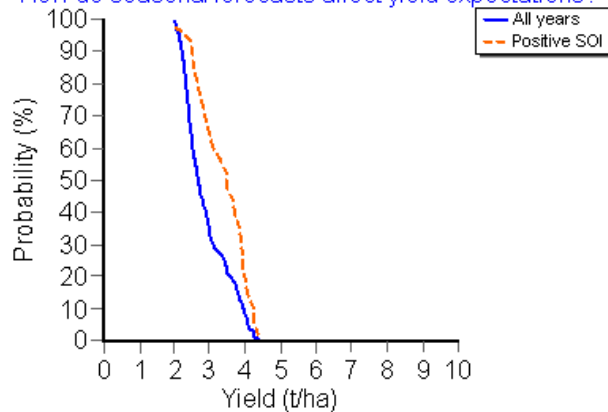
The SOI seasonal forecast for the next 3 months.



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 31 mm
Drier	31 to 59 mm
Average	59 to 78 mm
Wetter	78 to 113 mm
Wettest	113 to 314 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=0.001)

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