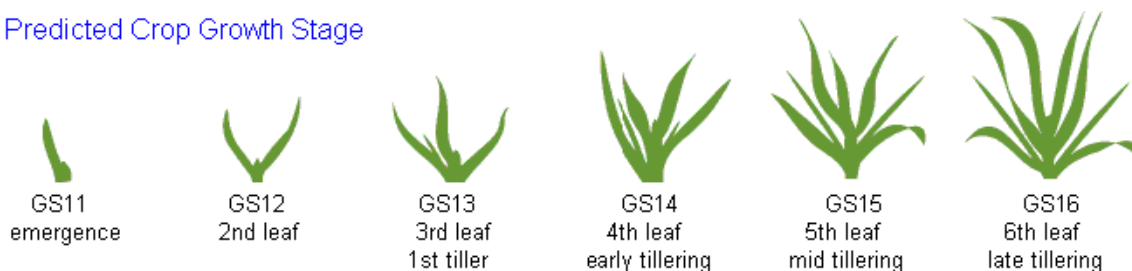
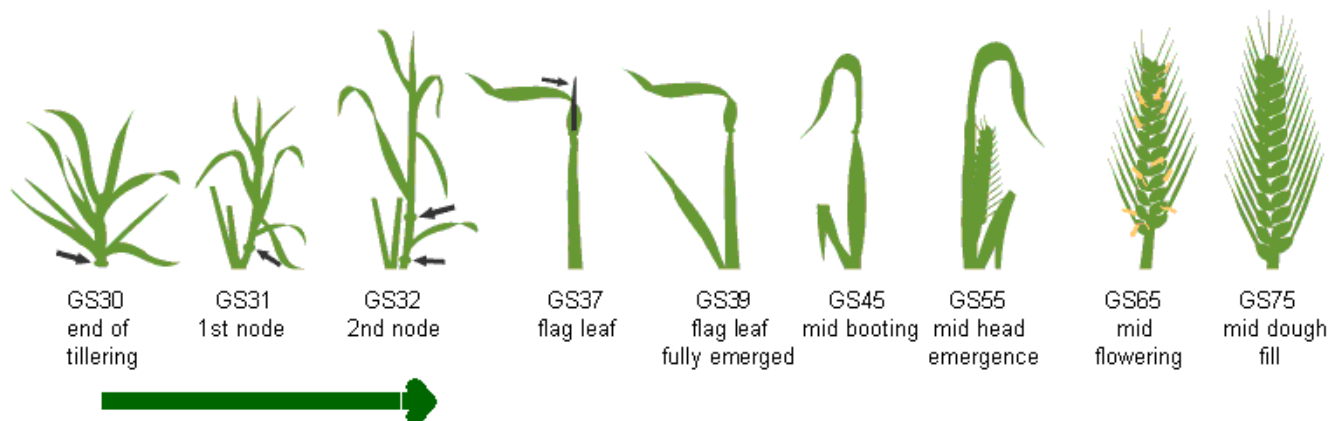


Simulated and Predicted Crop Growth Stage



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



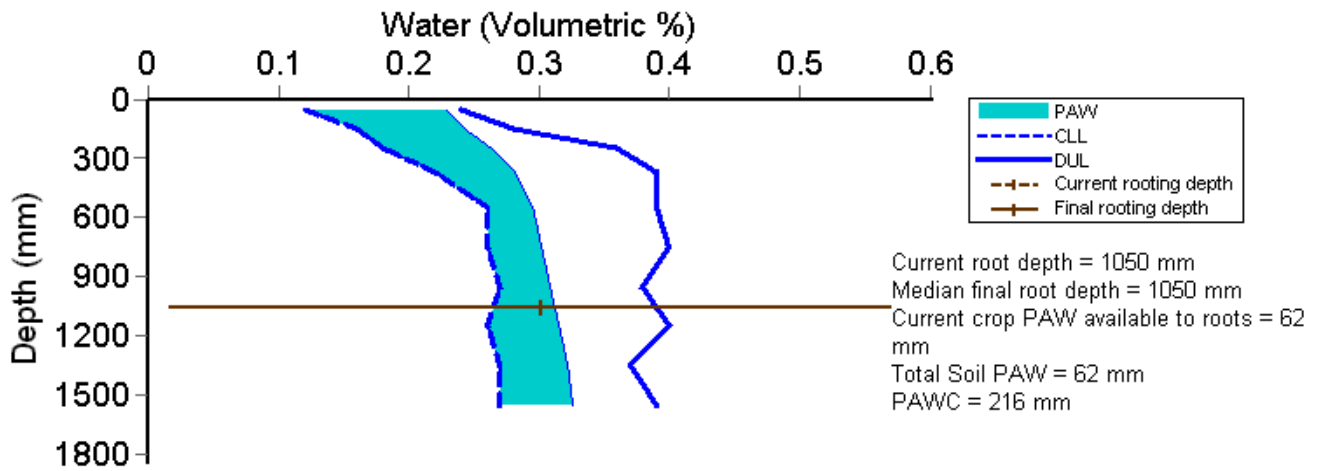
Predicted

Earliest	26-Aug	29-Aug	2-Sep	8-Sep	10-Sep	14-Sep	20-Sep	26-Sep	11-Oct
Median	27-Aug	30-Aug	2-Sep	10-Sep	13-Sep	19-Sep	26-Sep	3-Oct	20-Oct
Latest	27-Aug	30-Aug	2-Sep	14-Sep	19-Sep	28-Sep	7-Oct	13-Oct	1-Nov

Probability and Incidence of Frost and Heat Shock

<p><i>Percentage of years in which frost occurs during flowering</i></p> <p>Mild Minimum temperature between 2 and 0°C during flowering (Z60-69) 20%</p> <p>Moderate Minimum temperature between 0 and -2°C during flowering and early grain fill (Z60-75) 6%</p> <p>Severe 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>Mild Maximum temperature between 32 and 34°C 32%</p> <p>Moderate Maximum temperature between 34 and 36°C 11%</p> <p>Severe Maximum temperature above 36° 5%</p>
<p><i>Incidence of frost for this growing season, during flowering</i></p> <p>Mild Minimum temperature between 2 and 0°C during flowering (Z60-69) 0</p> <p>Moderate Minimum temperature between 0 and -2°C during flowering and early grain fill (Z60-75) 0</p> <p>Severe 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>Mild Maximum temperature between 32 and 34°C 0</p> <p>Moderate Maximum temperature between 34 and 36°C 0</p> <p>Severe 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 @ 1-Apr	43 mm
Rainfall since 1-Apr	200.7 mm
Irrigations	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
Evaporation since 1-Apr	58 mm
Transpiration since 1-Apr	90 mm
Deep drainage since 1-Apr	0 mm
Run-off since 1-Apr	3 mm

Current PAW status: 62 mm

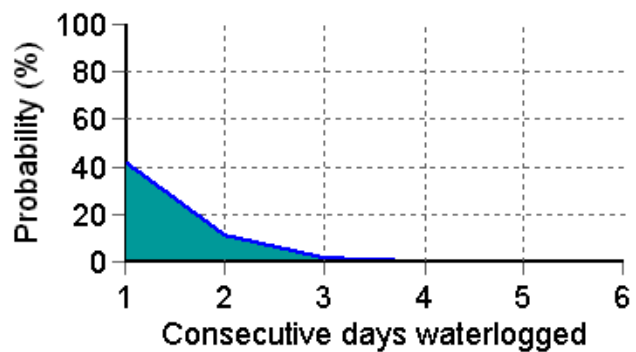
Nitrogen Budget

Initial N status @ 01-Apr	200 kg/ha
N mineralisation since 01-Apr	7 kg/ha
N tie up since 01-Apr	23 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	224 kg/ha
De-nitrification since 01-Apr	1 kg/ha
Leaching	0 kg/ha

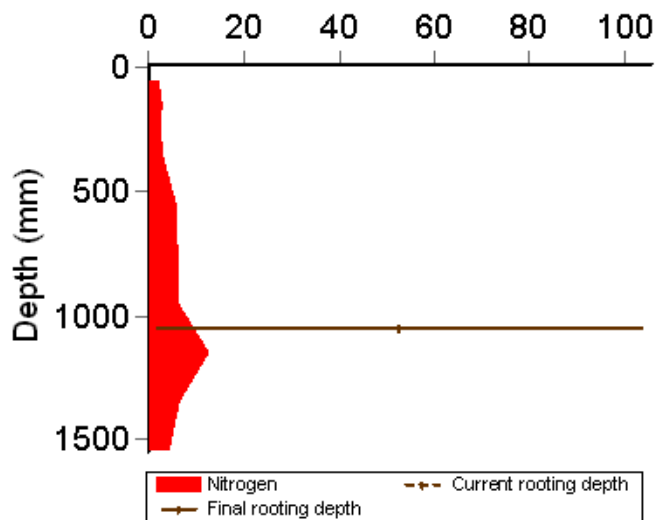
Current N status: 53 kg/ha

Median N mineralisation to maturity = 3 kg/ha
 Median N tie up to maturity = 2 kg/ha

Probability of Future Waterlogging Events

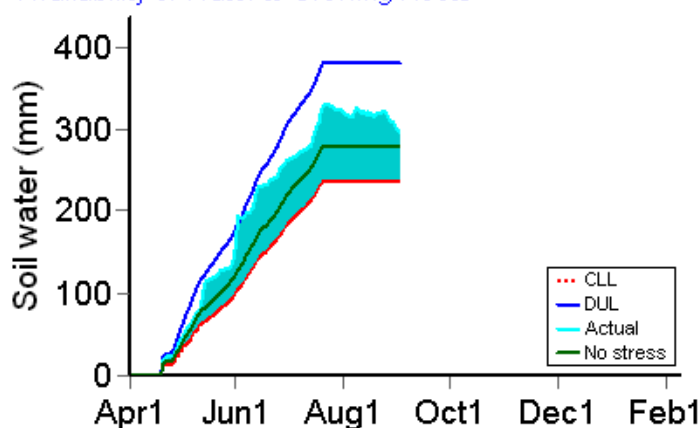


Current distribution of soil nitrogen (kg/ha)

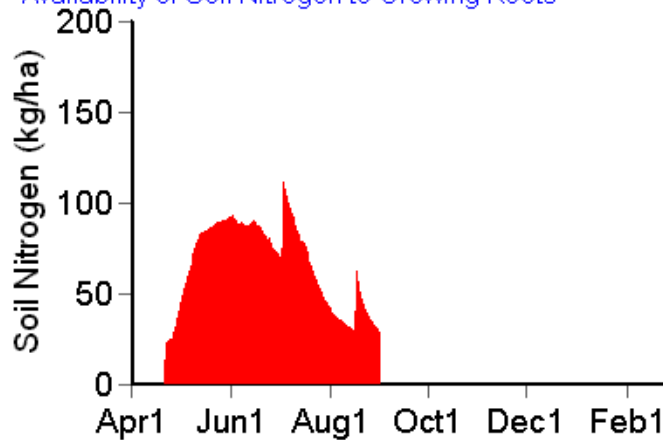


Current Crop Available N = 29 kg/ha
Total Soil N = 53 kg/ha

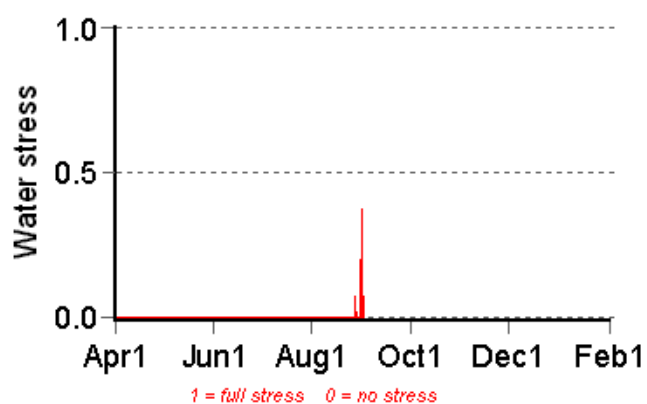
Availability of Water to Growing Roots



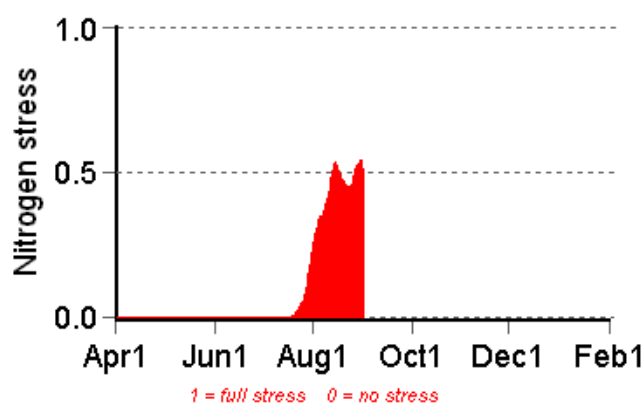
Availability of Soil Nitrogen to Growing Roots



Water Stress



Nitrogen Stress



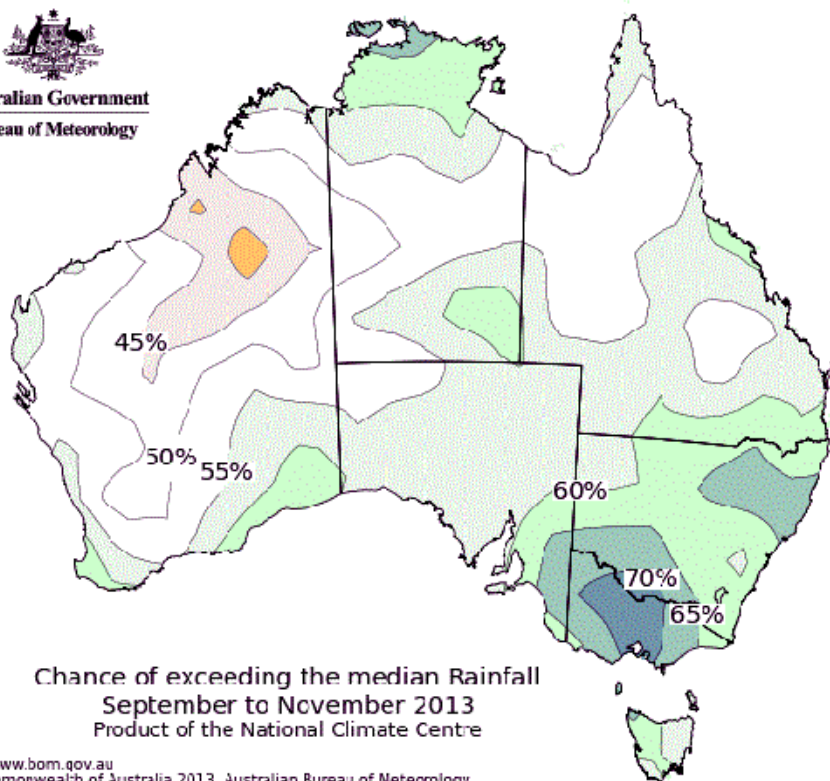
Brief periods of mild to moderate stress do not necessarily lead to reduced yield. To see the likely impacts of additional nitrogen fertiliser rates use the Nitrogen and Nitrogen Profit reports.

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)
3-Sep	33.9	0.4	2.2	0.4	14.9	58.0	28.5	0.0	0.1
4-Sep	34.5	0.4	2.3	0.4	13.2	56.3	28.1	0.0	0.1
5-Sep	35.1	0.4	2.1	0.4	12.6	55.6	27.7	0.0	0.1
6-Sep	35.6	0.4	2.1	0.4	12.0	55.1	27.3	0.0	0.1
7-Sep	36.2	0.4	2.3	0.3	11.1	54.1	26.8	0.0	0.1
8-Sep	36.8	0.4	2.3	0.3	9.8	52.8	26.5	0.0	0.1
9-Sep	37.4	0.4	2.2	0.3	9.1	52.1	26.1	0.0	0.1
10-Sep	38.0	0.4	2.2	0.3	7.4	50.5	25.8	0.0	0.1
11-Sep	38.6	0.4	2.1	0.3	7.8	50.9	25.5	0.0	0.1
12-Sep	39.2	0.4	2.1	0.3	6.8	49.9	25.1	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



Chance of exceeding the median Rainfall
 September to November 2013
 Product of the National Climate Centre

<http://www.bom.gov.au>
 © Commonwealth of Australia 2013, Australian Bureau of Meteorology

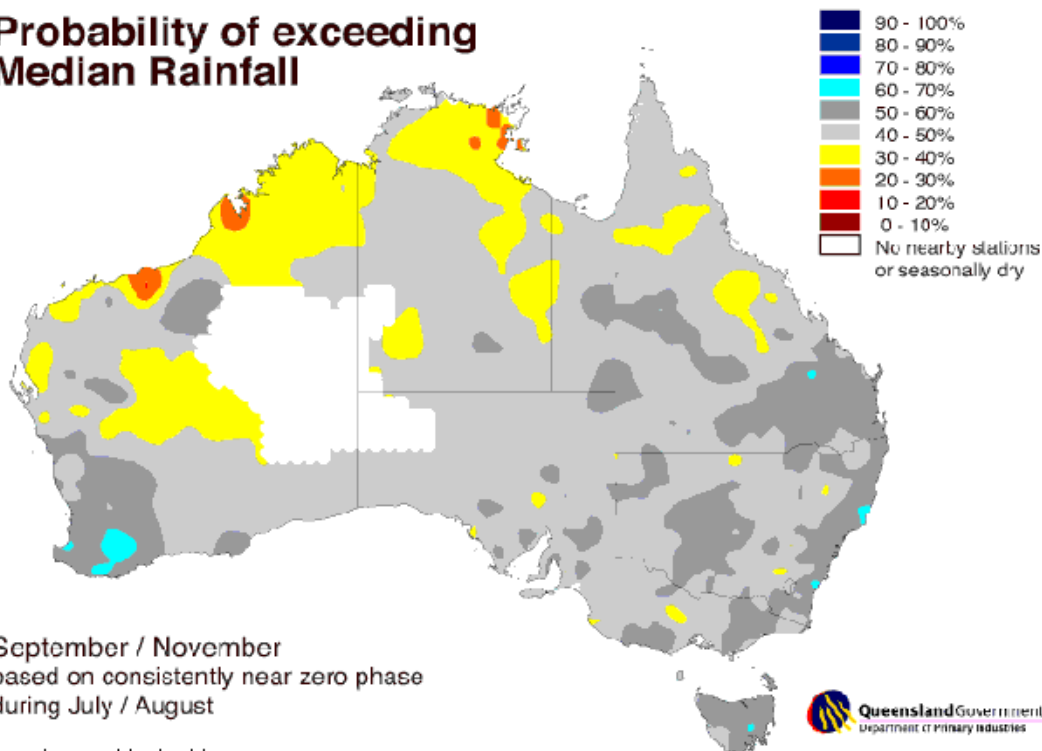
Model Run: 19/08/2013
 Issued: 21/08/2013

National Seasonal Rainfall Outlook: probabilities September to November 2013

Issued by the bureau of Meteorology 28th August 2013

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



September / November
 based on consistently near zero phase
 during July / August

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



SOI Phase and analogue years

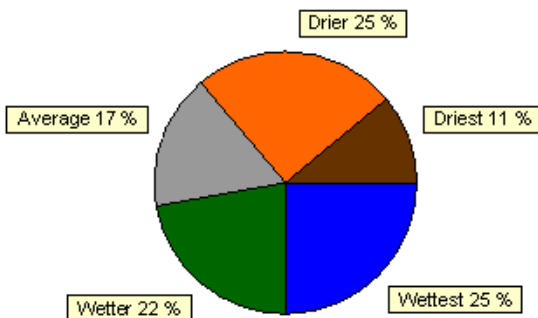
The SOI is currently in the Zero phase. The 31 day mean SOI for August was -0.2. In July it was 7.4.

The years in history with the same SOI phase:

1895, 1897, 1898, 1904, 1905, 1907, 1912, 1913, 1915, 1918, 1919, 1927, 1929, 1930, 1931, 1933, 1937, 1944, 1948, 1952, 1959, 1961, 1963, 1966, 1968, 1978, 1980, 1984, 1985, 1986, 1992, 1995, 1999, 2003, 2004, 2007

How much rainfall can I expect?

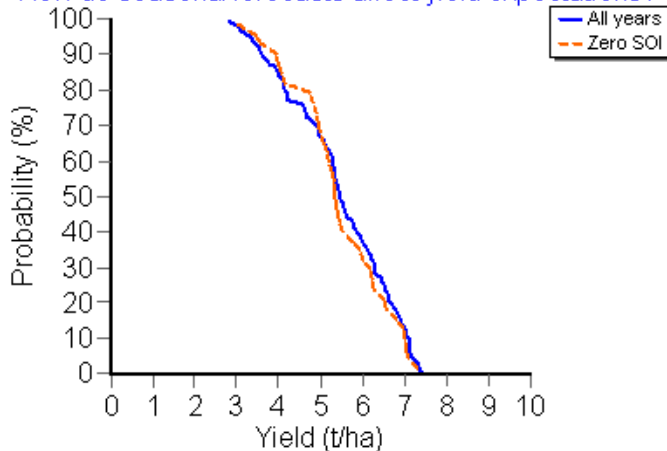
The SOI seasonal forecast for the next 3 months.



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 72 mm
Drier	72 to 109 mm
Average	109 to 133 mm
Wetter	133 to 182 mm
Wettest	182 to 367 mm

How do seasonal forecasts affect yield expectations?



The 31 day mean SOI for August was -0.2. In July it was 7.4.

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=0.716)

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