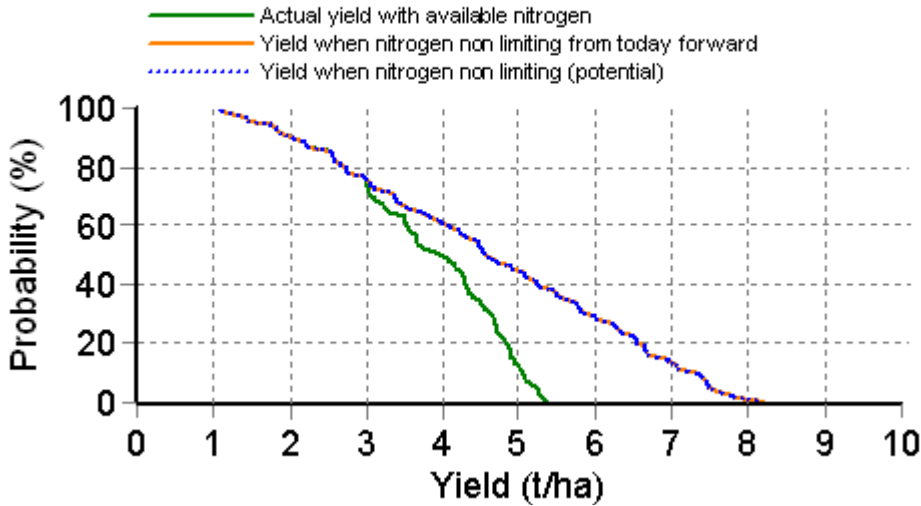


Crop Report

Report name: Crop Sequence High N Crop Report (Complete)
 Report date: 31/07/2014
 Last climate date available: 30/07/2014
 Client name: EH Graham Centre
 Paddock name: Crop Sequence High 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)

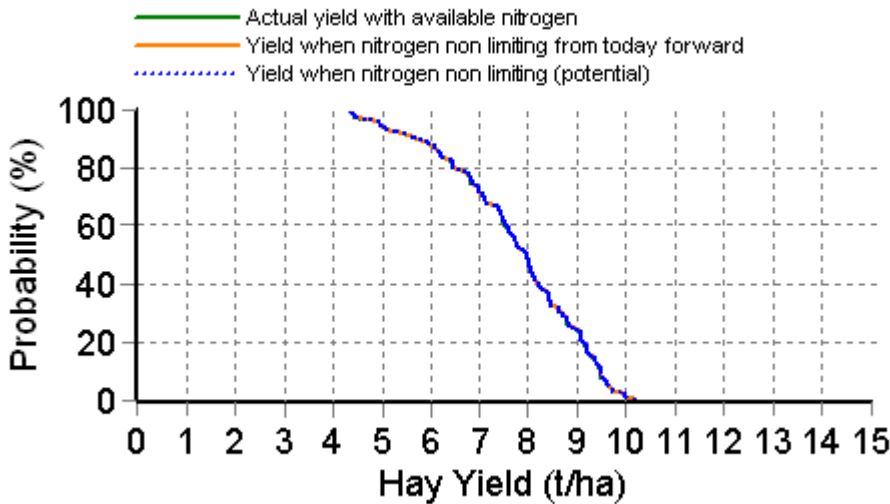
SILO station used: Wagga Wagga AMO
 Rainfall records used: SILO
 Temperature records used: SILO
 Maximum rooting depth: 100 cm
 Stubble type: None
 Stubble amount: kg/ha
 Number of tillage operations: 0
 Stubble % incorporated into the top 10cm: 0 %
 Rainfall since 9-Apr: 188 mm
 Date of last rainfall 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.

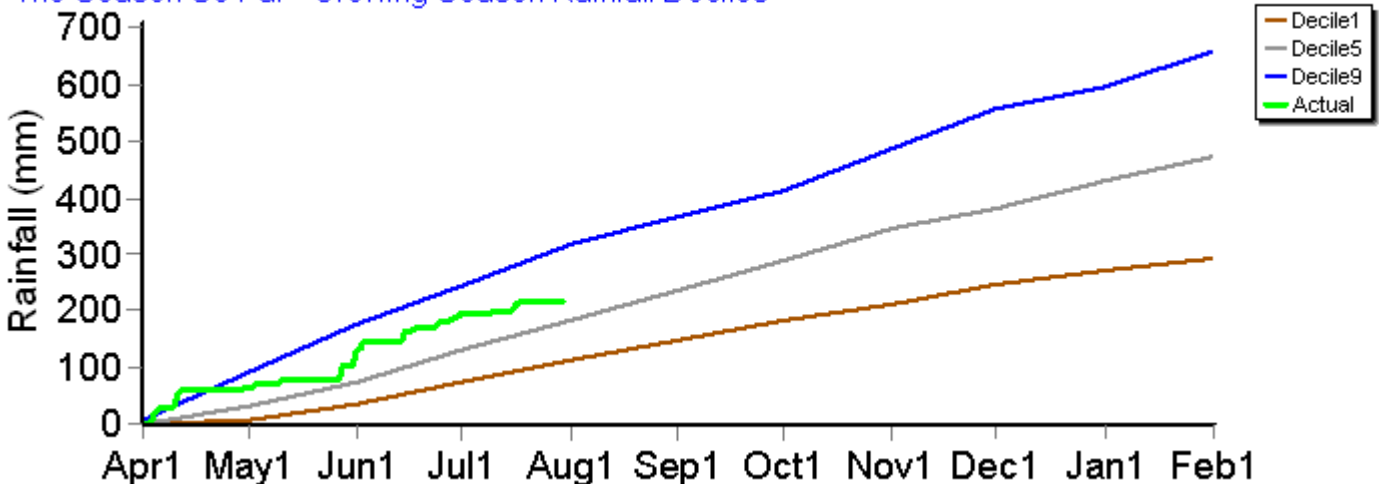
Hay Yield Outcome



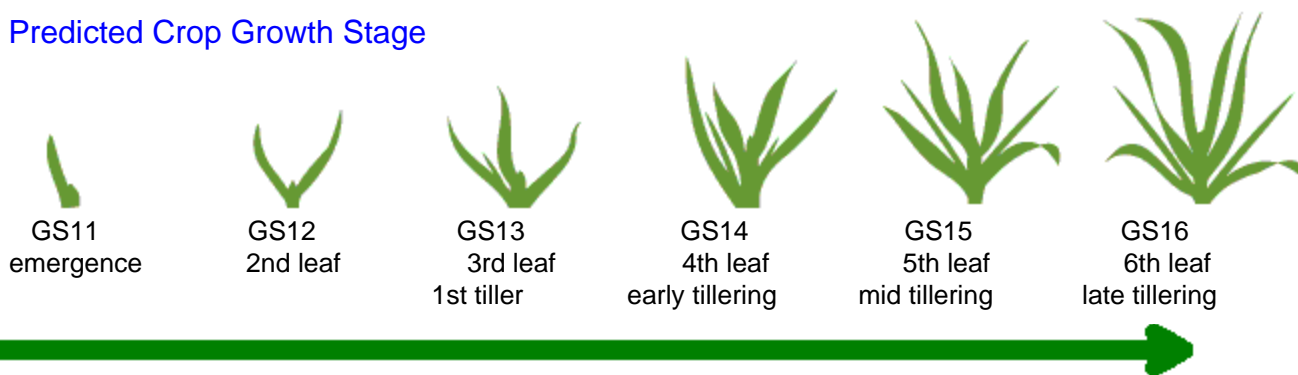
This graph show the probability of exceeding a range of hay yield outcomes this season. It takes into account the same factors as the grain yield graph above. When above ground dry matter is below 2t/ha, hay yield is assumed to be 70% of dry matter, with a moisture content of 13%. When dry matter is 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: 1188 kg/ha

The Season So Far - Growing Season Rainfall Deciles

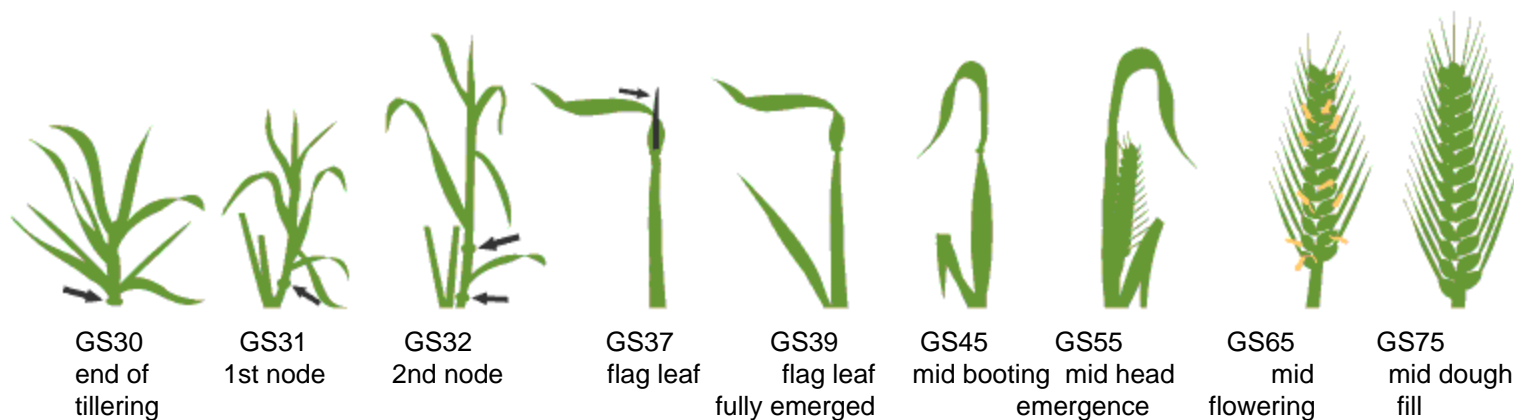


Simulated and Predicted Crop Growth Stage



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 |



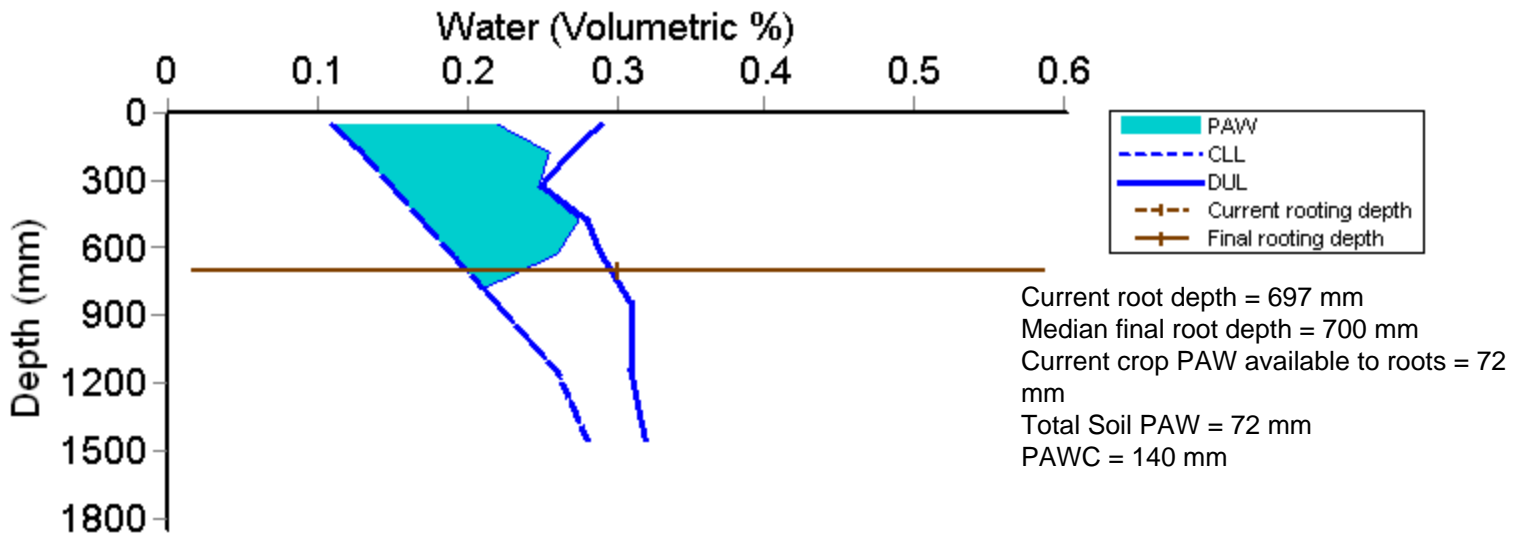
Predicted

| | 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 | 13-Aug | 17-Aug | 21-Aug | 2-Sep | 6-Sep | 13-Sep | 22-Sep | 3-Oct | 19-Oct |
| Median | 18-Aug | 21-Aug | 26-Aug | 7-Sep | 12-Sep | 21-Sep | 1-Oct | 11-Oct | 28-Oct |
| Latest | 21-Aug | 25-Aug | 31-Aug | 14-Sep | 19-Sep | 28-Sep | 11-Oct | 20-Oct | 11-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



Water Budget

| | |
|----------------------------|--------|
| Initial PAW status @ 9-Apr | 3 mm |
| Rainfall since 9-Apr | 188 mm |
| Irrigations | : mm |
| | : mm |
| | : mm |
| | : mm |
| | : mm |
| | : mm |
| | : mm |
| | : mm |
| | : mm |
| | : mm |
| | : mm |
| | : mm |
| Evaporation since 9-Apr | 87 mm |
| Transpiration since 9-Apr | 12 mm |
| Deep drainage since 9-Apr | 0 mm |
| Run-off since 9-Apr | 12 mm |

Current PAW status: 72 mm

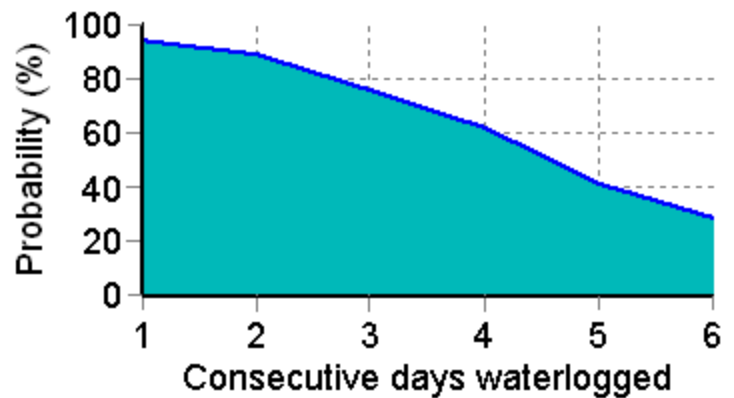
Nitrogen Budget

| | |
|-------------------------------|------------------|
| Initial N status @ 09-Apr | 92 kg/ha |
| N mineralisation since 09-Apr | 3 kg/ha |
| N tie up since 09-Apr | 1 kg/ha |
| N applications | 15-May: 25 kg/ha |
| | : kg/ha |
| | : kg/ha |
| | : kg/ha |
| | : kg/ha |
| Total N in plant | 58 kg/ha |
| De-nitrification since 09-Apr | 3 kg/ha |
| Leaching | 0 kg/ha |

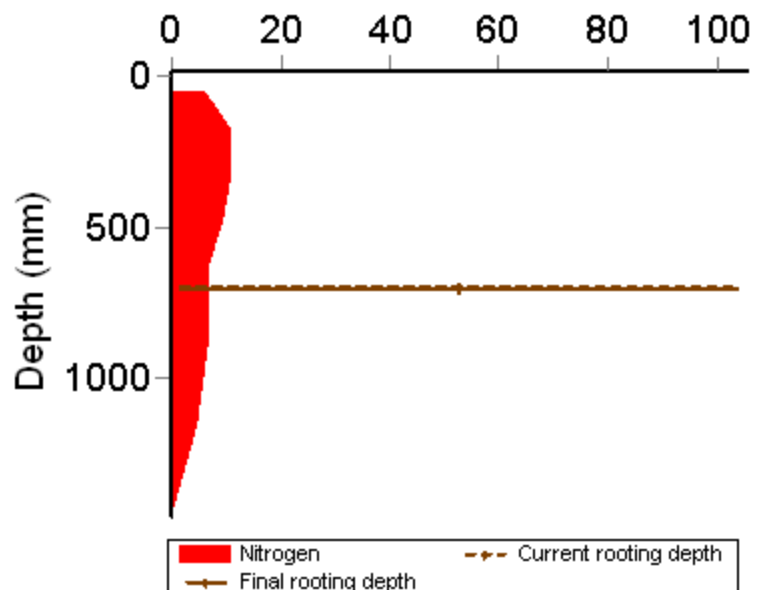
Current N status: 59 kg/ha

Median N mineralisation to maturity = 4 kg/ha
 Median N tie up to maturity = 0 kg/ha

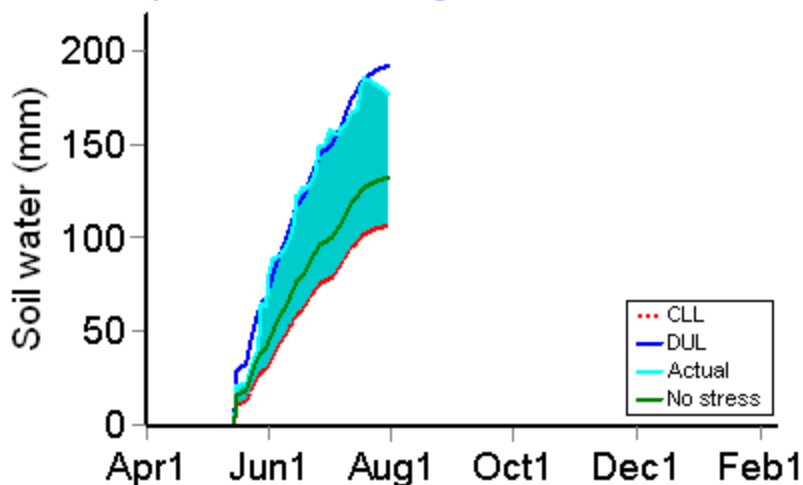
Probability of Future Waterlogging Events



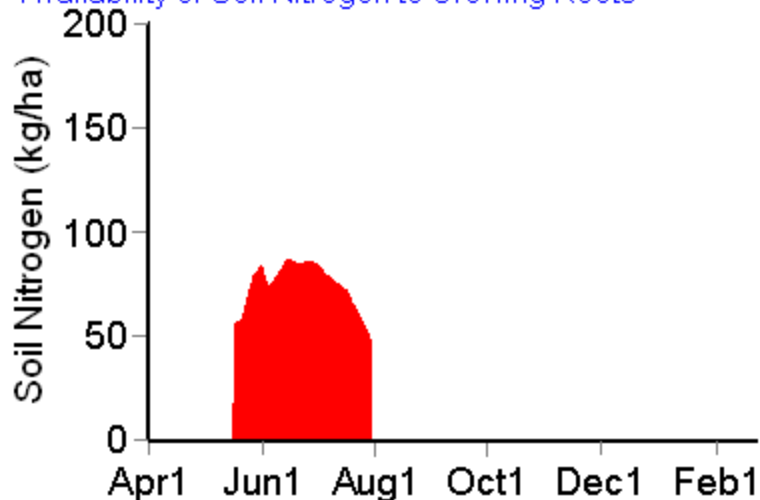
Current distribution of soil nitrogen (kg/ha)



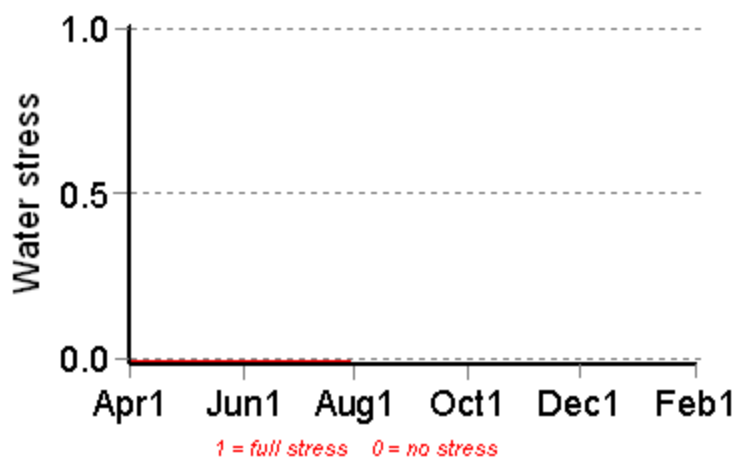
Availability of Water to Growing Roots



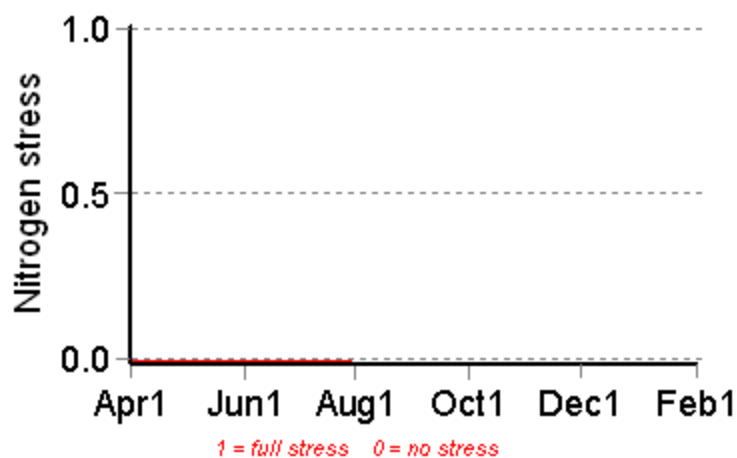
Availability of Soil Nitrogen to Growing Roots



Water Stress



Nitrogen Stress



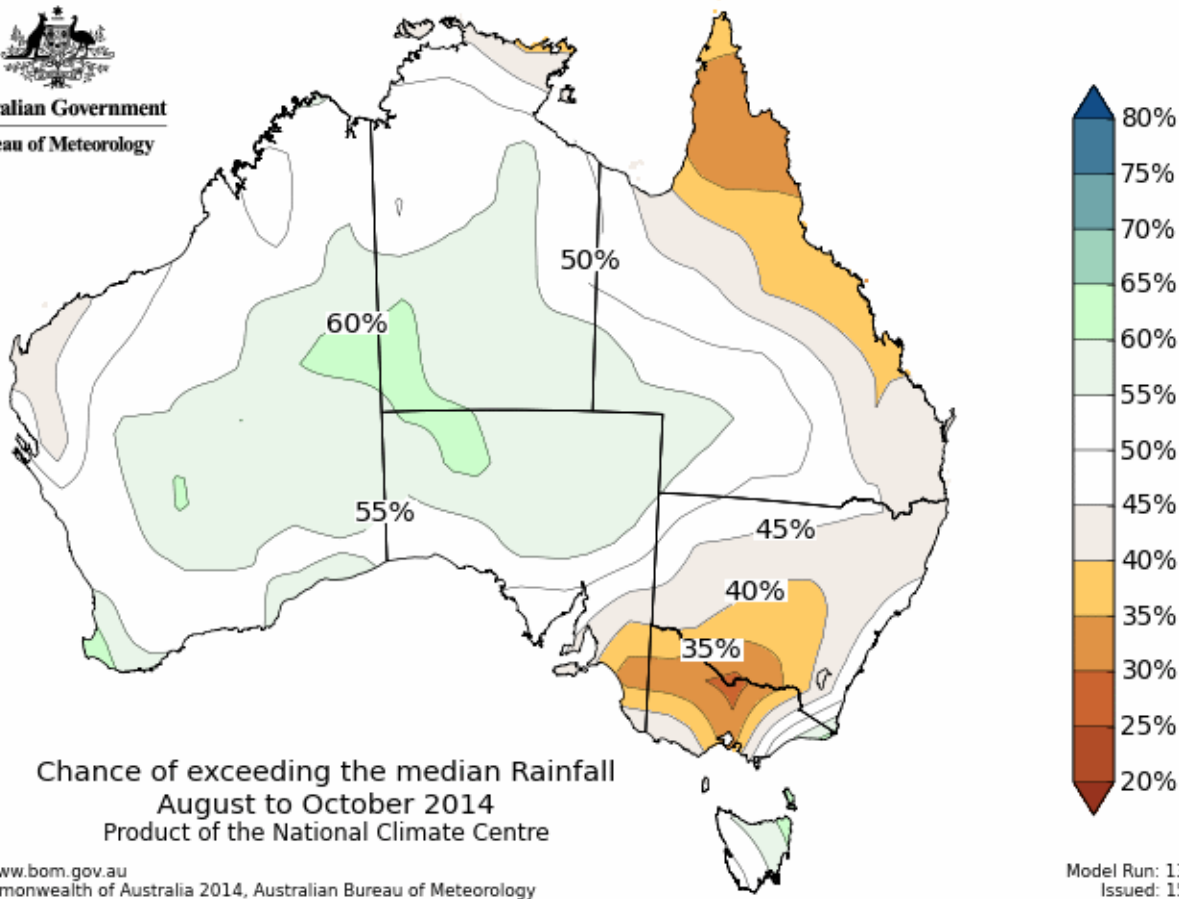
Brief periods of mild to moderate stress do not necessarily lead to reduced yield. To see the likely impacts of additional nitrogen fertiliser rates use the Nitrogen and Nitrogen Profit reports.

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) |
|--------|--------------|------------|----------------|---------------|--|---|------------------------------|------------------------|------------------|
| 31-Jul | 16.0 | 0.4 | 0.5 | 2.4 | 44.5 | 70.0 | 41.9 | 0.0 | 0.0 |
| 1-Aug | 16.0 | 0.4 | 0.5 | 2.4 | 44.4 | 70.0 | 39.8 | 0.0 | 0.0 |
| 2-Aug | 16.0 | 0.5 | 0.5 | 2.4 | 44.9 | 70.5 | 37.6 | 0.0 | 0.0 |
| 3-Aug | 16.0 | 0.5 | 0.6 | 2.2 | 45.4 | 71.0 | 35.3 | 0.0 | 0.0 |
| 4-Aug | 16.0 | 0.5 | 0.7 | 2.0 | 44.9 | 70.5 | 33.3 | 0.0 | 0.0 |
| 5-Aug | 16.0 | 0.5 | 0.7 | 1.8 | 45.3 | 70.9 | 31.4 | 0.0 | 0.0 |
| 6-Aug | 16.0 | 0.5 | 0.7 | 1.6 | 46.7 | 72.3 | 29.8 | 0.0 | 0.0 |
| 7-Aug | 16.0 | 0.5 | 0.7 | 1.4 | 46.9 | 72.5 | 28.3 | 0.0 | 0.0 |
| 8-Aug | 16.0 | 0.5 | 0.8 | 1.3 | 47.7 | 73.3 | 27.1 | 0.0 | 0.0 |
| 9-Aug | 16.0 | 0.5 | 0.8 | 1.2 | 49.7 | 75.4 | 26.0 | 0.0 | 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



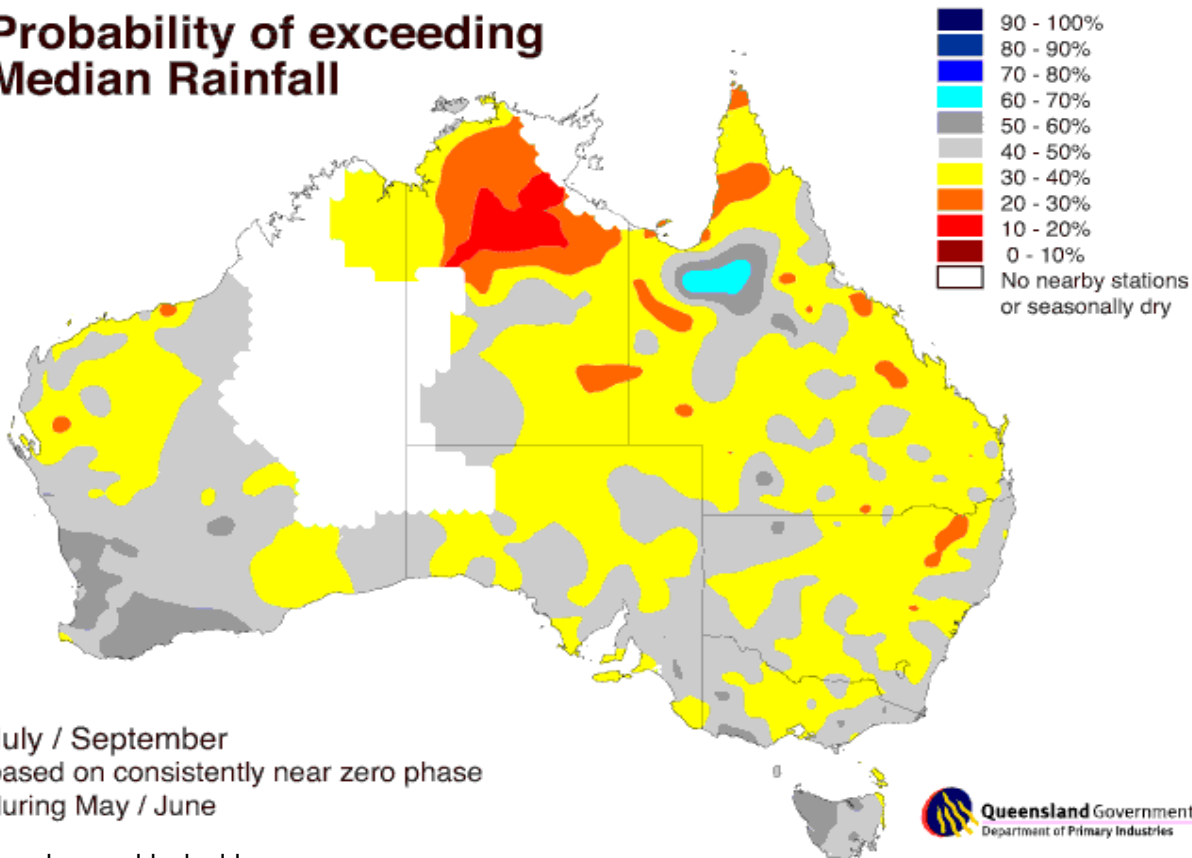
National Seasonal Rainfall Outlook: probabilities August to October 2014

Issued by the Bureau of Meteorology 24th July 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



SOI Phase and analogue years

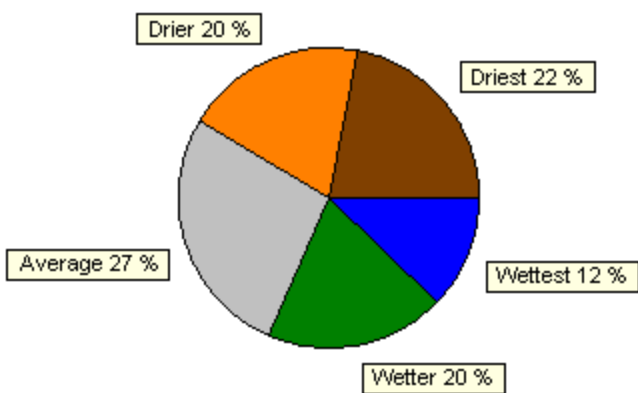
The SOI is currently in the Zero phase. The 30 day mean SOI for June was -0.8. In May the 31 day mean was 4.3.

The years in history with the same SOI phase:

1890, 1891, 1894, 1895, 1897, 1902, 1904, 1907, 1908, 1913, 1915, 1922, 1927, 1929, 1930, 1932, 1935, 1942, 1944, 1953, 1957, 1958, 1959, 1961, 1962, 1966, 1967, 1969, 1971, 1978, 1980, 1983, 1990, 1991, 2000, 2001, 2002, 2005, 2006, 2008, 2009

How much rainfall can I expect?

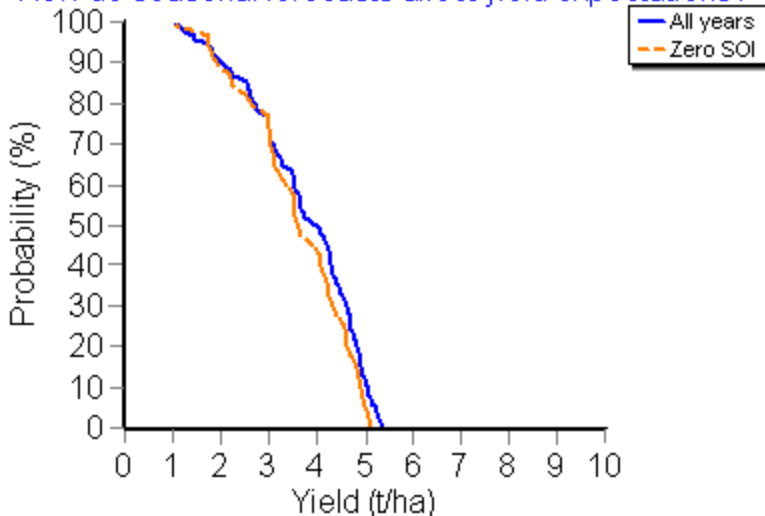
The SOI seasonal forecast for the next 3 months.



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 97 mm |
| Drier | 97 to 131 mm |
| Average | 131 to 158 mm |
| Wetter | 158 to 202 mm |
| Wettest | 202 to 347 mm |

How do seasonal forecasts affect yield expectations?



The 30 day mean SOI for June was -0.8. In May the 31 day mean was 4.3.

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=0.320)