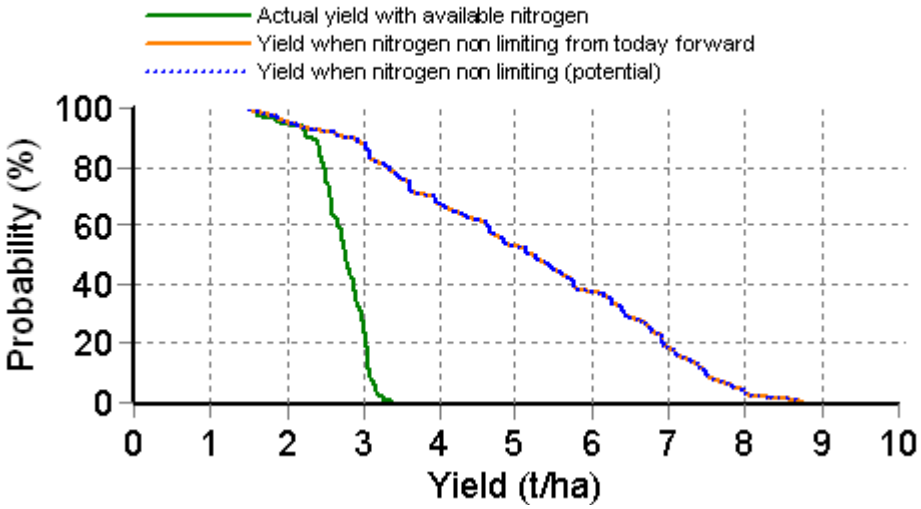
Crop Report

Report name: Graham Centre Field Site Crop Report (Complete)
Report date: 08/07/2015
Last climate date available: 7/07/2015
Client name: EH Graham Centre
Paddock name: Graham Centre Field Site
Report generated by: EH Graham Centre
Date sown: 22-May
Crop type: Wheat
Variety sown: Gregory
Sowing density: 150 plants/m2
Initial conditions date: 05-Mar
Soil type: Red Kandosol (No498-Generic)

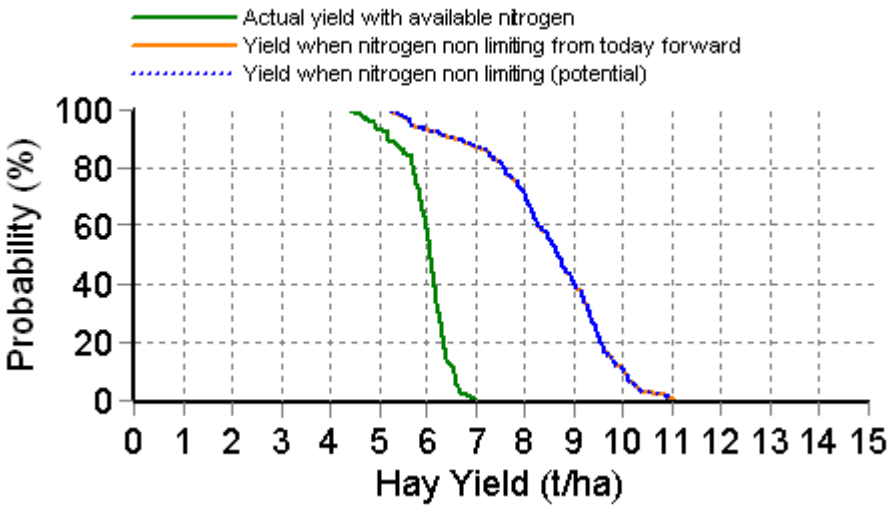
SILO station used: Wagga Wagga AMO
Rainfall records used: SILO
Temperature records used: SILO
Maximum rooting depth: 100 cm
Stubble type: None
Stubble amount: kg/ha
Number of tillage operations: 0
Stubble % incorporated into the top 10cm: 0 %
Rainfall since 5-Mar: 185.2 mm
Date of last rainfall entry: ?
Expected maturity date: 27-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.

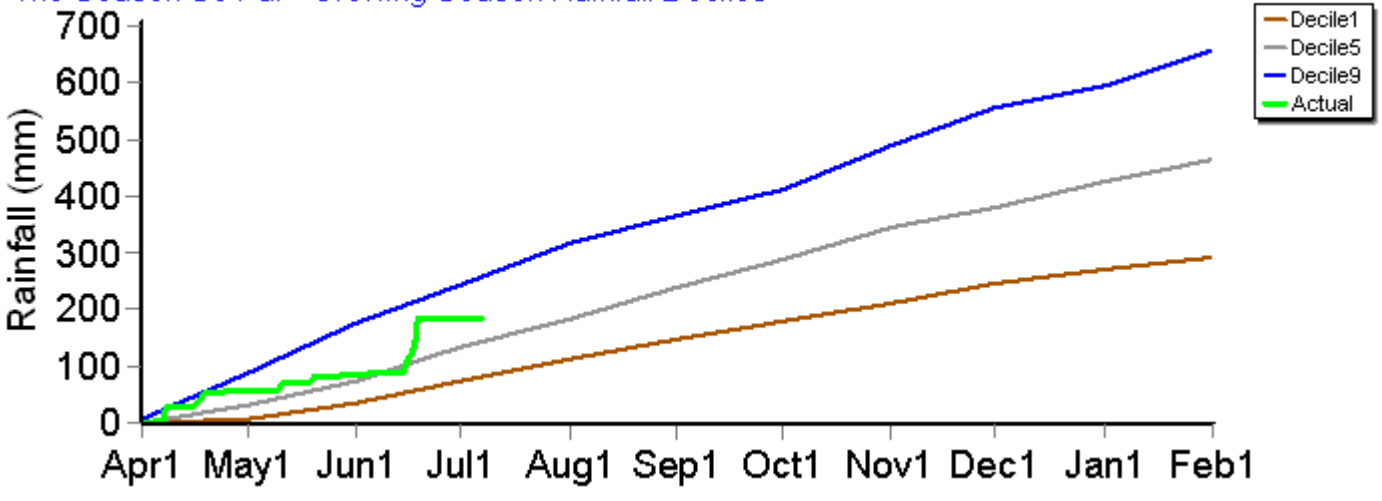
Hay Yield Outcome



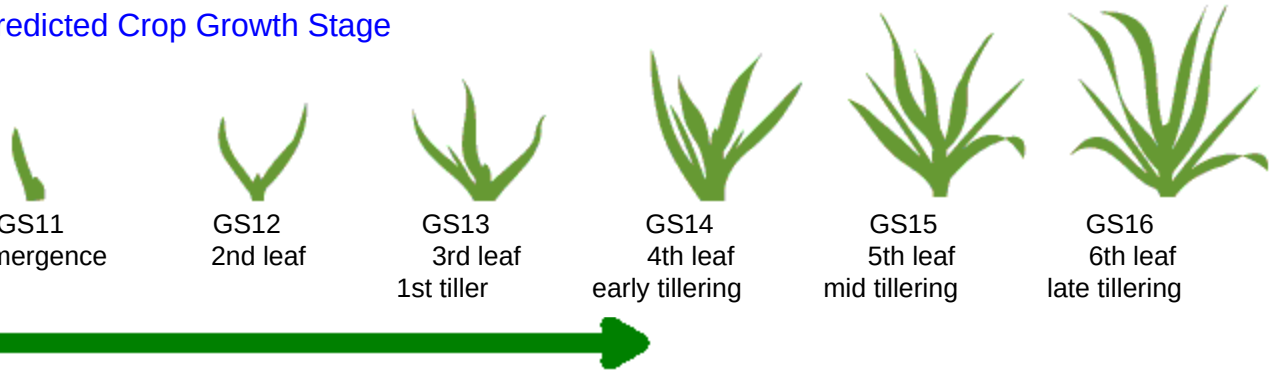
This graph show the probability of exceeding a range of hay yield outcomes this season. It takes into account the same factors as the grain yield graph above. When above ground dry matter is below 2t/ha, hay yield is assumed to be 70% of dry matter, with a moisture content of 13%. When dry matter is 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: 166 kg/ha

The Season So Far - Growing Season Rainfall Deciles



Simulated and Predicted Crop Growth Stage



	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
Predicted						
Earliest	1-Jun	16-Jun	28-Jun	11-Jul	20-Jul	30-Jul
Median	1-Jun	16-Jun	28-Jun	12-Jul	25-Jul	5-Aug
Latest	1-Jun	16-Jun	28-Jun	14-Jul	30-Jul	12-Aug

	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
Predicted									
Earliest	20-Aug	24-Aug	28-Aug	7-Sep	11-Sep	19-Sep	29-Sep	8-Oct	24-Oct
Median	27-Aug	30-Aug	4-Sep	15-Sep	20-Sep	28-Sep	8-Oct	17-Oct	2-Nov
Latest	2-Sep	5-Sep	10-Sep	23-Sep	29-Sep	7-Oct	17-Oct	28-Oct	17-Nov

Probability and Incidence of Frost and Heat Shock

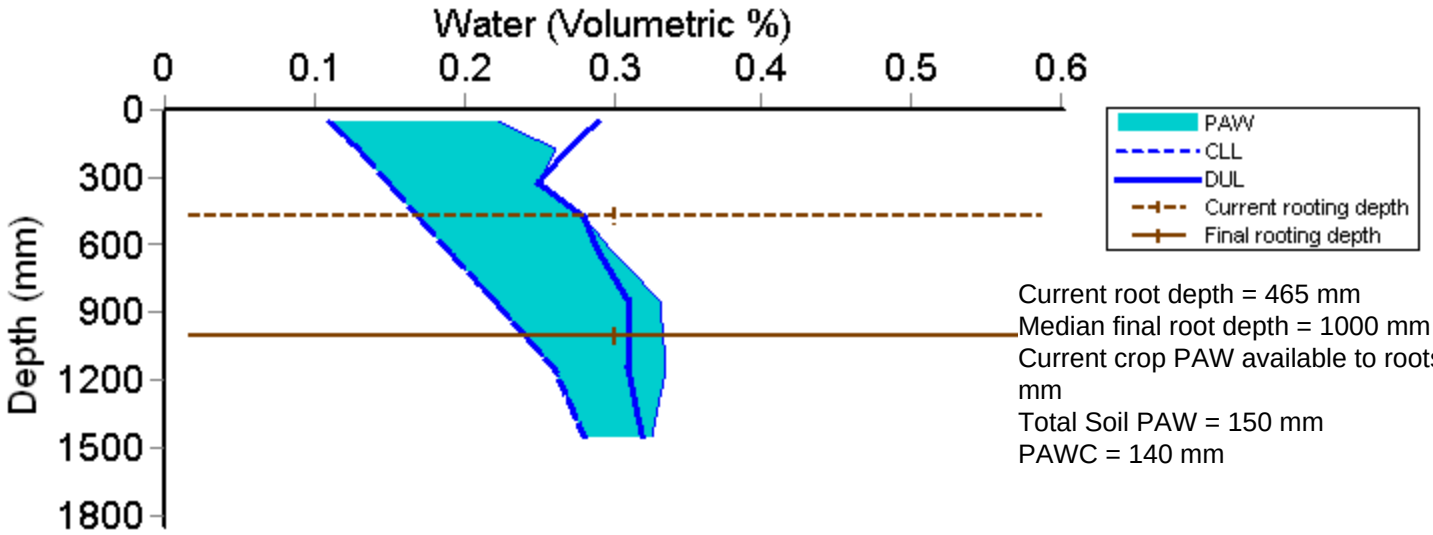
Percentage of years in which frost occurs during flowering	
Mild	
Minimum temperature between 2 and 0°C during flowering (Z60-69)	32%
Moderate	
Minimum temperature between 0 and -2°C during flowering and early grain fill (Z60-75)	2%
Severe	
Minimum temperature less than -2°C during flowering and grain fill (Z60-79)	1%

Percentage of years in which heat shock occurs during grain fill (Z70-79)	
Mild	
Maximum temperature between 32 and 34°C	44%
Moderate	
Maximum temperature between 34 and 36°C	29%
Severe	
Maximum temperature above 36°	9%

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 = 465 mm
Median final root depth = 1000 mm
Current crop PAW available to roots = 53 mm
Total Soil PAW = 150 mm
PAWC = 140 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

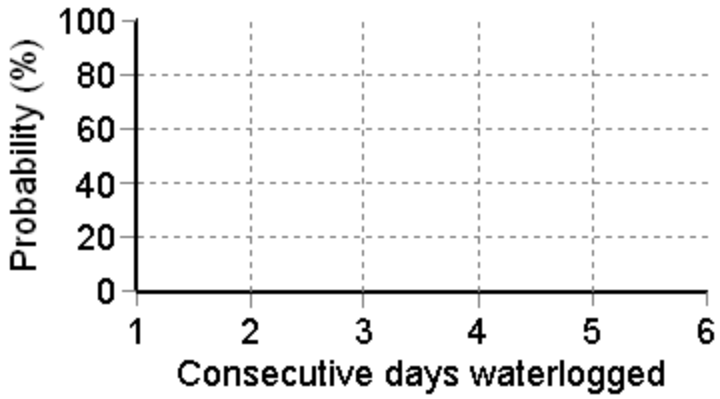
Initial PAW status @ 5-Mar	82 mm
Rainfall since 5-Mar	185.2 mm
Irrigations	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
	: mm
Evaporation since 5-Mar	78 mm
Transpiration since 5-Mar	2 mm
Deep drainage since 5-Mar	0 mm
Run-off since 5-Mar	37 mm
Current PAW status:	**150 mm**

Nitrogen Budget

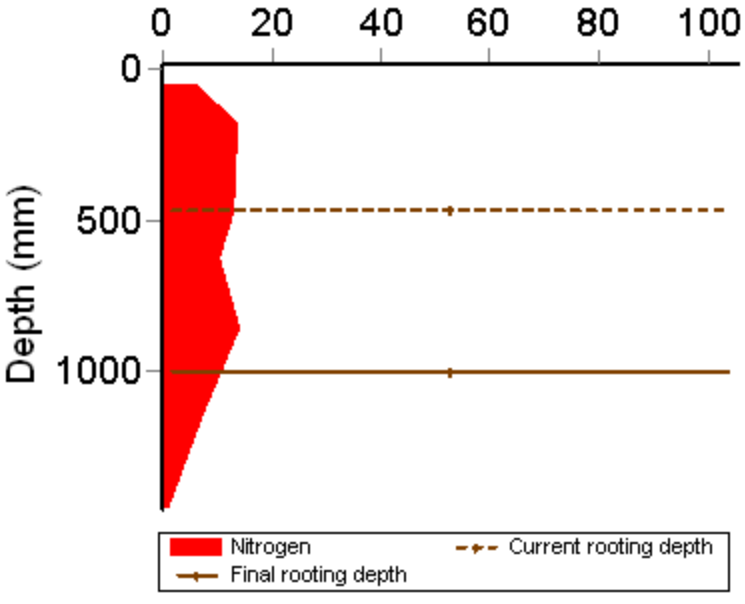
Initial N status @ 05-Mar	87 kg/ha
N mineralisation since 05-Mar	10 kg/ha
N tie up since 05-Mar	2 kg/ha
N applications	: kg/ha
	: kg/ha
	: kg/ha
	: kg/ha
	: kg/ha
Total N in plant	10 kg/ha
De-nitrification since 05-Mar	4 kg/ha
Leaching	0 kg/ha
Current N status:	**81 kg/ha**

Median N mineralisation to maturity = 11 kg/ha
Median N tie up to maturity = 0 kg/ha

Probability of Future Waterlogging Events

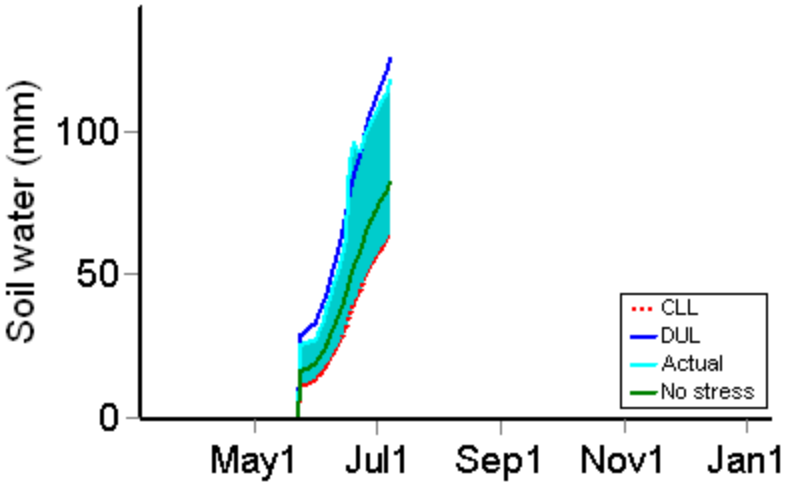


Current distribution of soil nitrogen (kg/ha)

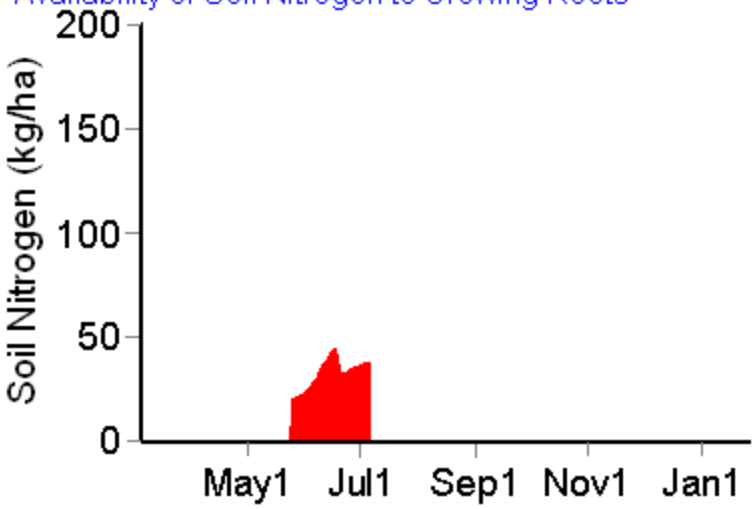


Current Crop Available N = 39 kg/ha
Total Soil N = 81 kg/ha

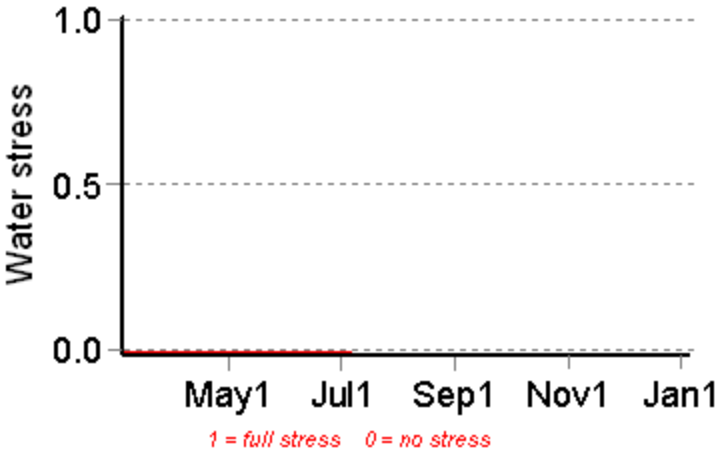
Availability of Water to Growing Roots



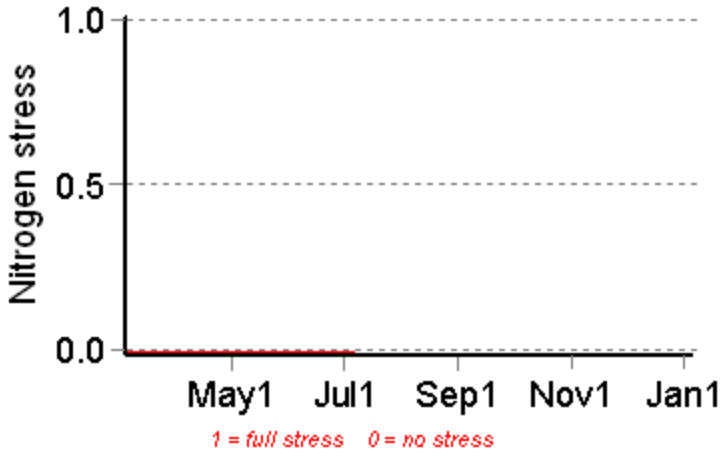
Availability of Soil Nitrogen to Growing Roots



Water Stress



Nitrogen Stress



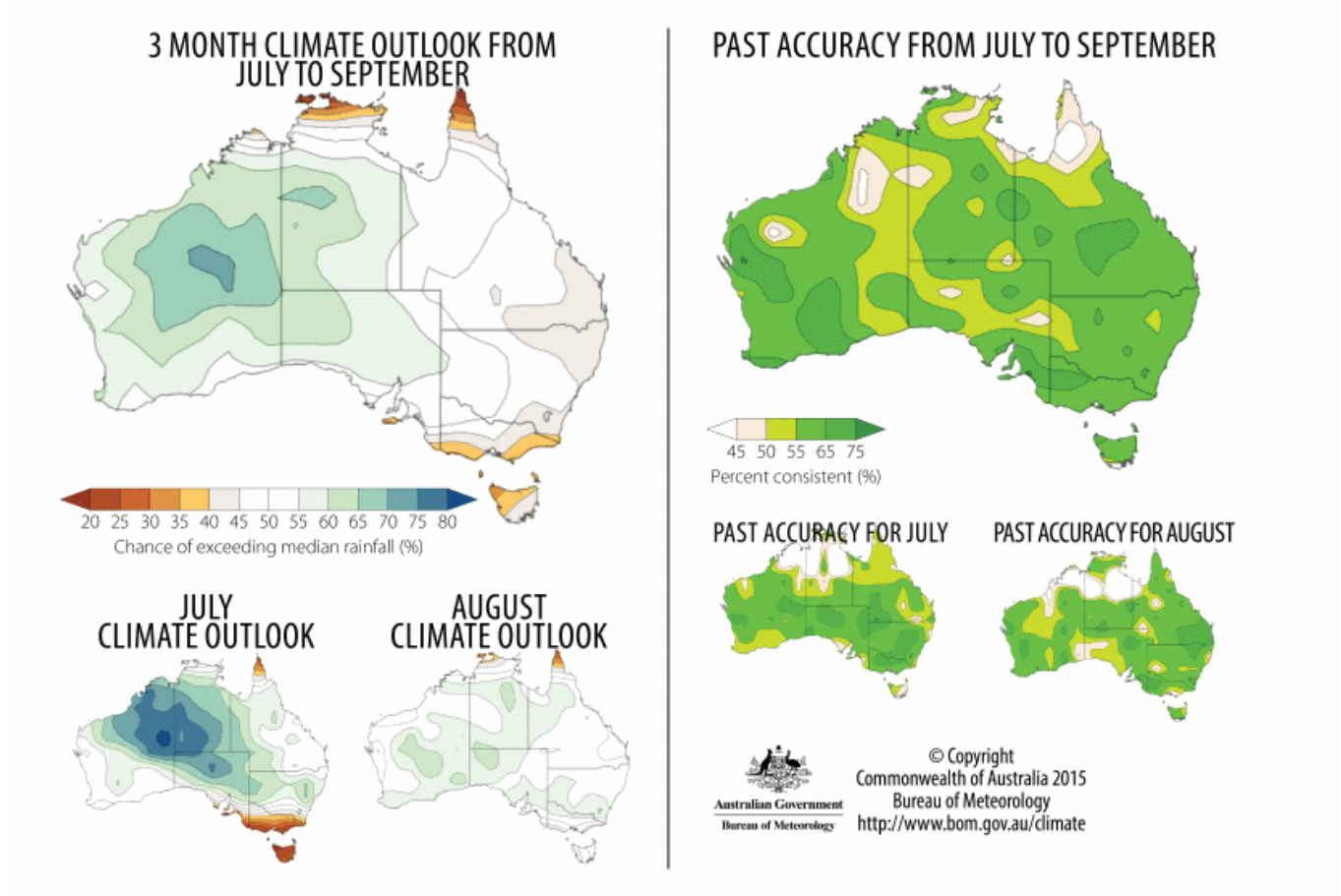
Brief periods of mild to moderate stress do not necessarily lead to reduced yield. To see the likely impacts of additional nitrogen fertiliser rates use the Nitrogen and Nitrogen Profit reports.

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)
8-Jul	13.8	0.2	0.1	0.6	35.2	53.9	39.8	0.0	0.0
9-Jul	13.8	0.2	0.1	0.6	35.7	54.7	40.0	0.0	0.0
10-Jul	13.9	0.5	0.1	0.7	36.2	55.5	40.2	0.1	0.0
11-Jul	14.0	0.4	0.1	0.7	37.2	56.7	40.4	0.1	0.0
12-Jul	14.1	0.6	0.1	0.7	37.9	57.7	40.5	0.1	0.0
13-Jul	14.2	0.5	0.1	0.7	39.2	59.1	40.5	0.0	0.0
14-Jul	14.2	0.6	0.1	0.8	40.4	60.6	40.5	0.1	0.0
15-Jul	14.3	0.6	0.1	0.9	42.6	63.6	40.4	0.1	0.0
16-Jul	14.4	0.7	0.1	0.9	44.7	65.7	40.3	0.1	0.0
17-Jul	14.5	0.7	0.1	0.9	45.7	67.1	40.1	0.1	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.

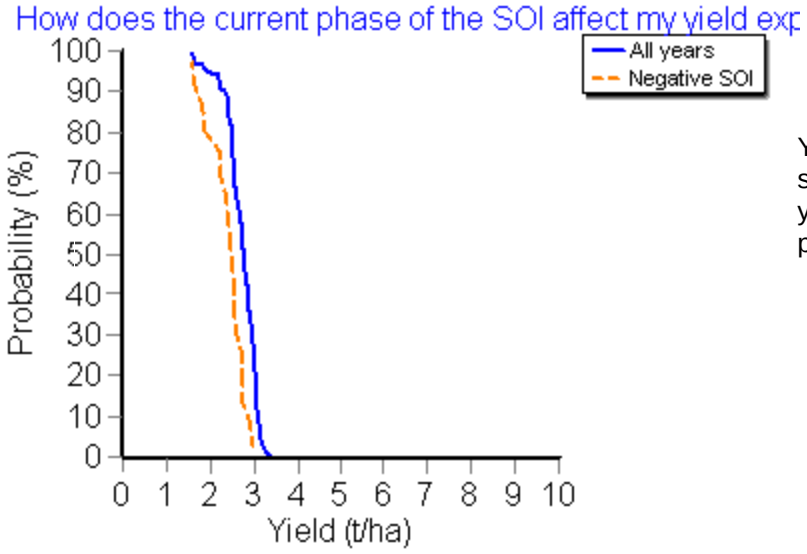
Bureau of Meteorology Seasonal and Monthly Outlooks



Southern Oscillation Index (SOI) Phase and Analagous Years

The SOI is currently in the Negative phase. The 30 day mean SOI for June was -10.3 . In May the 31 day mean was -13.11.

The years in history with the same SOI phase:
1896, 1899, 1905, 1911, 1914, 1919, 1940, 1941, 1946, 1972, 1977, 1982, 1987, 1992, 1993, 1994, 1997, 2004



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)

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.