

NSW Seasonal Conditions Report - June 2013

Highlights

- Wetter conditions expected across the state, with higher probabilities in central and eastern NSW.
- Cooler daytime temperatures & warmer night time temperatures likely.
- Widespread light rainfall & isolated heavier falls improved conditions during May.
- Yearly relative rainfall well below average in western & central NSW, with severe deficiencies in many areas.
- Monthly relative pasture growth was near average, with isolated pockets in Central and Riverina regions at lower levels.
- Modelled topsoil moisture levels have improved in most areas. Subsoil moisture generally static.
- Whilst general conditions have improved recovery will be dependent upon follow up rainfall in the coming months. As such it is important that farmers have a clear plan & an understanding of their options. Considerable resources are available to assist in management.

Details at

<http://www.dpi.nsw.gov.au/agriculture/emergency/drought/managing>

1. Summary

The outlook for NSW between June and August indicates that wetter conditions are likely across the state with higher probabilities of above median rainfall in central and eastern NSW.

Cooler than normal daytime temperatures are likely over this period, with lowest temperatures predicted in the central Western and northern Lachlan LHPA districts. Warmer than normal overnight temperatures are likely for southern and central NSW, with average overnight temperatures predicted for north western NSW.

Conditions deteriorated during the month for parts of the South East, Tablelands, Lachlan, Central West, Central North and New England LHPA districts, with significant rainfall deficiencies occurring. The balance of the State received average rainfall. Severe long term (12 month) rainfall deficiencies are evident in most regions west of the Great Dividing Range.

Reports from LHPA Rangers indicate that rainfall during May and early June has brought some relief. Hand feeding is common and there are widespread concerns over availability of stock water. Recent rainfall should assist winter

cropping programs particularly for those that have dry sown. Recent rainfall has enabled pasture to reshoot, however shorter days and frosts are likely to prolong hand feeding in most affected areas. While stock condition is stable this is a result of supplementary feeding. In many areas, stock condition is starting to decline and an increasing number of stock are being sold despite reduced prices.

During May widespread light rainfall fell over much of the State, typically in excess of 10mm with more isolated heavier falls of between 25-50mm. Higher falls were received in parts of the Hume (50-200mm), Cumberland (50-200mm), and Mid-Coast (50-300mm) LHPA districts.

Relative to historical records, rainfall for May was average for much of the State apart from a narrow band running north to south through portions of the South East, Tablelands, Lachlan, Central West, Central North and New England regions, which was below to well below average. Relative rainfall for the last six months was well below average or worse for much of central NSW and the southern Riverina.

Rainfall during May led to improvements in modelled topsoil moisture across most of NSW. Drier conditions persisted for parts of the Riverina, eastern Darling, northern Central West, northern Central North and eastern New England regions. Modelled subsoil moisture levels remained relatively static with small isolated declines.

Modelled pasture growth during May indicated relatively average growth across much of the State with small areas below average in the southern Riverina, northern Central West, eastern Central North and eastern North West regions. Over the last 12 months, relative growth has been very low. Modelled relative biomass levels across central NSW were variable, with large areas being well below average.

2. Seasonal outlook

Seasonal outlook information is sourced from Australian Bureau of Meteorology. The BoM seasonal forecasts are based on modelled output from dynamic models such as POAMA which are physics based. Full details on POAMA can be obtained at <http://poama.bom.gov.au/>.

2.3 Rainfall outlook (POAMA)

- For the 3 month period June – August there is at least a 60% chance of exceeding median rainfall across the state with higher probabilities in central (65-70%) and eastern NSW (70-75%).
- The outlook confidence (skill) for this forecast is moderate to high with poorest skill in the southern and border regions of NSW.

2.4 Temperature outlook (POAMA)

- There are low probabilities of exceeding median maximum temperatures across NSW, with high confidence (skill).
- There are high probabilities of exceeding median minimum temperatures across NSW, with moderate confidence (skill).

2.5 El Niño-Southern Oscillation (ENSO)

- The Pacific Ocean remains in a neutral ENSO state. The Bureau of Meteorology and international climate models indicate this state will continue however there is a possibility of a La Niña event forming later in the year. Predictions at this time have reasonable skill.
- Monthly sea surface temperatures indicate cooling of the eastern tropical Pacific compared to April. The remainder of tropical Pacific remains close to neutral. All seven international climate models surveyed by the bureau expect NINO 3.4 values to remain between -0.4 to +0.4°C by early spring.
- The latest Southern Oscillation Index (SOI) 30-day value is +10.2. Values of between -8 and +8 indicate neutral conditions, sustained values above +8 may indicate a La Niña event, and sustained values below -8 may indicate an El Niño event.
- The Indian Ocean Dipole (IOD) shows a negative pattern, following cooling of the western Indian Ocean in recent weeks; the eastern tropical Indian Ocean has remained consistently warm. The latest index value is at -0.5°C. Model outlooks suggest it will remain in the negative phase into spring, which increases the chances of above normal rainfall.

3. Rainfall

3.1 Relative rainfall

Relative rainfall is calculated by ranking actual rainfall against the same period from every year since 1900.

This means that if the current period has a rank of between 30th – 70th against all other years, it is regarded as being “average” and the conditions experienced will occur in about 4 out of every 10 years.

May

- Relative to historical records, rainfall for May was well below average to extremely low for parts of the South East, Tablelands, Lachlan, Central West, Central North and New England LHPA districts.
- The remainder of the State received generally average to above average rainfall.

March to May (3 months)

- Over the period from March to May, relative rainfall was average over most of the State, with slightly higher values seen in small parts of the Darling and Mid-Coast LHPA districts.
- Below average to well below average rainfall occurred in areas of the Western, Riverina, South East, Tablelands, Lachlan, Central North and New England LHPA districts.

December to May (6 months)

- Over the six months to May, relative rainfall was above average or better over the north eastern corner of NSW, covering parts of Cumberland, Mid-Coast, North Coast, New England and North West LHPA districts.
- A belt of below average to extremely low rainfall extended through the centre of the State and included areas of the Western, Darling, North West, Central West, Lachlan, Riverina, Hume, Tablelands and South East LHPA districts.
- The remainder of the State received average relative rainfall.

September to May (9 months, BoM)

- Over the 9 month period from September to May, relative rainfall across the State was below average to very much below average across western and central NSW.
- The North Coast and Mid North Coast received above average relative rainfall, with the remainder of eastern NSW receiving mostly average relative rainfall.

June to May (12 months)

- Relative rainfall for the last 12 months has been generally well below average to extremely low across most of western and central NSW.
- The Western, Darling, Riverina, Lachlan, Central West and Hume LHPA districts are worst affected, along with the western half of North West and the western edge of Tablelands LHPA districts.
- Areas of below average to well below average relative rainfall also occurred in areas of Central North, South East and New England LHPA districts.
- The eastern side of the Tablelands, North West Slopes and coastal areas generally had average relative rainfall, with the Mid and far North Coast having above average to well above average relative rainfall.

3.2 Total rainfall

May

- Light (10-25mm) to moderate (25-50mm) rainfall was received across the State during May.
- Lightest falls (1-10mm) were seen in the South East LHPA region.
- The coastal and the eastern Hume regions generally received between 50-200 mm with heaviest falls recorded along the eastern Mid North Coast (200-300mm).

December to May (6 months)

- Rainfall across the State during December to May period ranged from 25 mm to more than 1,600 mm.
- The lowest rainfall over the period (50-100 mm) occurred across the far west of Western LHPA district, and parts of the Darling and Riverina LHPA districts.
- The central areas of the State generally received 200-300 mm and the east 300 mm or more.
- Parts of the North West, South East, Tablelands and Central North LHPA districts received 400-600 mm.
- Most of Cumberland, Mid-Coast and New England LHPA districts received 400-800 mm, with some areas 800-1,200 mm or more. North Coast and areas of Mid-Coast received 800-1,600 mm over the period.

4. Temperature anomalies

- Maximum temperatures across most of the western and central areas of the State in May were generally 1 to 2°C above normal, with the northern western region areas 2 to 3°C above normal. The North West LHPA district, New England, and coastal LHPA districts had near normal maximum temperatures over the month.
- Minimum temperatures during the month were generally 1 to 2°C below normal for most of NSW with coolest temperatures experienced in parts of the Tablelands and southern Riverina, which were 2 to 3°C cooler than normal.
- Minimum temperatures in the Darling and far Western NSW were near normal.

5. Relative soil moisture

5.1 Topsoil

- Rainfall during May led to improvements in modelled topsoil moisture across most of NSW over the month.
- Drier conditions have persisted in parts of the southern Riverina, eastern Darling, northern Central West, northern Central North and eastern New England regions.
- Most of the coastal LHPA districts have moderate modelled topsoil moisture levels.

5.2 Subsoil

- Modelled subsoil moisture levels have remained relatively static during the month, with small declines the North Coast, New England and Mid-Coast LHPA regions.
- Levels across the cropping areas remain generally moderate. The most serious deficiencies are in the Riverina and Central West LHPA districts, in the west of the North West LHPA district between Walgett and Brewarrina, in the central area of Darling and the far south of the Western LHPA districts.

6. Pasture growth and biomass

6.1 Modelled pasture growth

- Modelled pasture growth varied significantly across NSW during May. Lowest values of <20kg DM/ha were seen in the southern Riverina, Central West, North Coast, New England, Mid-Coast, Cumberland, eastern Tablelands and South East LHPA regions.
- Highest values were seen in the eastern Riverina and western Hume LHPA regions, being between 200 to 1,000kg DM/ha. Elsewhere in the State rates of between 20 to 100 kg DM/ha are assumed.

6.2 Modelled biomass

- Modelled total standing dry matter (biomass) levels across most of NSW declined further to less than 500 kg/ha during May.
- Patches of modelled biomass of up to 1,000 kg DM/ha exist in some more favoured areas.

6.3 Relative pasture growth

Relative pasture growth and biomass estimates are calculated by ranking modelled pasture growth and biomass against the same period from every year since 1957.

This means that if the current period has a rank of between 30th – 70th against all other years, it is regarded as being “average” and the conditions experienced will occur in about 4 out of every 10 years.

May

Relative monthly pasture growth should be compared to modelled pasture growth for interpretation. “Average” levels of relative growth may correlate with modelled levels (in kg/ha) that are quite low or high at certain times of year.

- Relative pasture growth for May was average but variable across the State.
- Areas of restricted growth could be seen in the southern Riverina, eastern South East, Central West and eastern Central North LHPA districts.
- Higher growth rates being evident in the eastern Hume, eastern South East and Tablelands regions
- Patches of missing data occurred across most of Western LHPA district, and across some of the Darling and Riverina, as well as some areas of the North Coast, Mid-Coast and New England LHPA areas.

March to May (3 months)

- Over the three months to May, the eastern third of the State had above average to extremely high relative pasture growth. This included the eastern portion of the North West and most of Central North, New England, Mid-Coast, Cumberland, Tablelands, South East, eastern Hume and north Western LHPA districts.
- The remainder of the State had generally average relative pasture growth. Exceptions were an area from Enngonia to Bourke and Louth, along the Murray River from Wentworth to Barham and Moulamein, as well as Finley to Wagga Wagga, the Harden, Walgett and Dubbo areas. These areas had generally below average to well below average relative growth.

December to May (6 months)

- In the period to December to May, the eastern third of the State had generally average or better relative growth.
- The worst areas were in the southern Riverina, Lachlan, Central West, southern North West and central Darling LHPA districts.
- The remainder of the State had generally average relative growth over the period.

June to May (12 months)

- Relative pasture growth across the State over the last 12 months was generally below average to extremely low in the central, western and far eastern areas of the State.
- Only the tablelands and far north west had generally near average growth.
- Areas of extremely low relative growth occurred in the far west near Broken Hill, the northern and central areas of the Darling LHPA and the central area of the Riverina LHPA. Additional areas of extremely low relative growth occurred in patches in the North West, Central West, Tablelands, Lachlan and Hume LHPA regions.

6.4 Relative biomass

Relative monthly biomass should be compared to modelled biomass for interpretation. “Average” levels of relative biomass may correlate with modelled levels (in kg/ha) that are quite low or high at certain times of year.

- Modelled relative total standing dry matter (biomass) levels across central NSW were variable, with many areas being well below average for the month.

- Across the coast, tablelands and in far north western of NSW, modelled relative biomass was above average.
- Large areas of Western and Darling LHPA had near average relative biomass for the month.

7.0 Water storage and irrigation allocations

7.1 Storage levels

Storage levels are given as at 5th June 2013.

- Levels in water storages remain generally moderate, with the average effective capacity being 75%. Some of the major dams are now at levels of 38-50%, such as Burrinjuck and Burrendong.
- Storage levels have remained stable on average during the last month, with the major reductions/outflows being generally low.

Storage	Current Volume (GL)	Effective Capacity (%)	Monthly Change (%)
Toonumbar	11	100	-1
Glenbawn	739	99	0
Glennies	277	98	0
Lostock	20	101	-
Brogo	9	100	-1
Cochrane	0	-	-
Dartmouth	3607	93	1
Hume	1596	53	9
Blowering	1049	64	4
Burrinjuck	396	38	0
Brewster	-	-	-
Carcoar	22	62	-2
Cargelligo	23	54	0
Wyangala	778	64	-6
Glenlyon	227	-	-
Pindari	196	63	0
Copeton	1007	74	0
Chaffey	49	78	-1
Keepit	191	44	0
Split Rock	-	-	-
Burrendong	512	41	0
Oberon	38	83	-1
Windamere	-	-	-
Lake Cawndilla	388	55	-5
Lake Menindee	289	40	-6
Lake Pamamaroo	348	127	4
Menindee	-	-	-
Total Menindee	-	-	-
Wetherell	217	113	13
Total	11989		
Average		75	

- The greatest monthly changes were storage increases in Dartmouth, Hume, Blowering, Lake Pamamaroo and Wetherell with slight decreases in Toonumbar, Brogo, Carcoar, Wyangala, Chaffey, Oberon, Lake Cawndilla and Lake Menindee.

7.2 Irrigation allocations

- Most general security allocations are unchanged since May. Allocations are at 100% or more, except for the, Belubula, Macquarie-Cudgegong, Lower Namoi, Peel and Bega-Brogo river valleys where they are low to moderate.

* Carry over water may be available

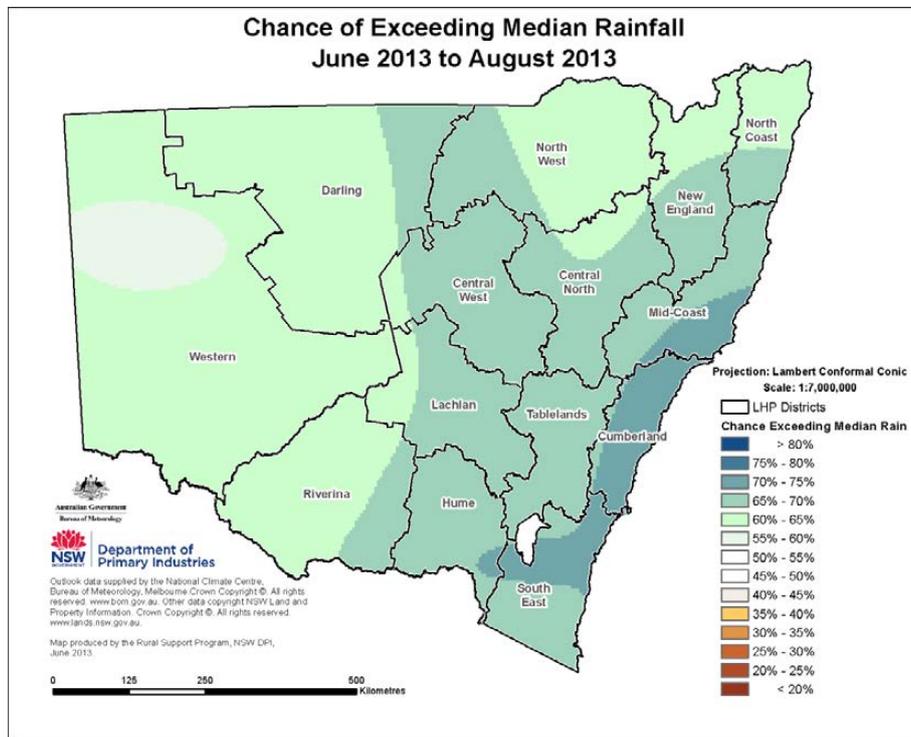
River valley	Allocation	Licence category
NSW Border Rivers	100%	General security A Class
	100%	General security B Class
	100%	High security
Richmond	100%	General security
	100%	High security
Gwydir	150%	General security
	100%	High security
Hunter	100%	General security
	100%	High security
Paterson	100%	General security
	100%	High security
Lachlan*	0%	General security
	100%	High security
Belubula*	39%	General security
	100%	High security
Lower Darling	100%	General security
	100%	High security
Macquarie and Cudgegong*	64%	General security
	100%	High security
Murray	100%	General security
	100%	High security
Murrumbidgee*	100%	General security
	100%	High security
Lower Namoi*	48%	General security
	100%	High security
Upper Namoi	100%	General security
	100%	High security
Peel	83%	General security
	100%	High security
Bega Brogo	75%	General security
	100%	High security

Appendix

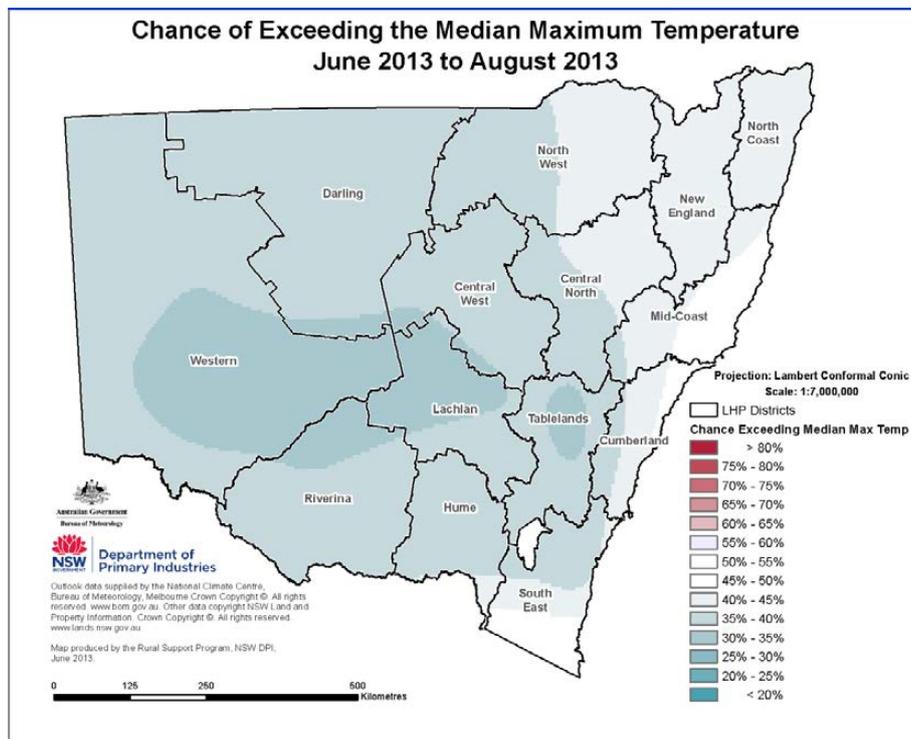
Maps and data used in the production of this report.

Seasonal outlook

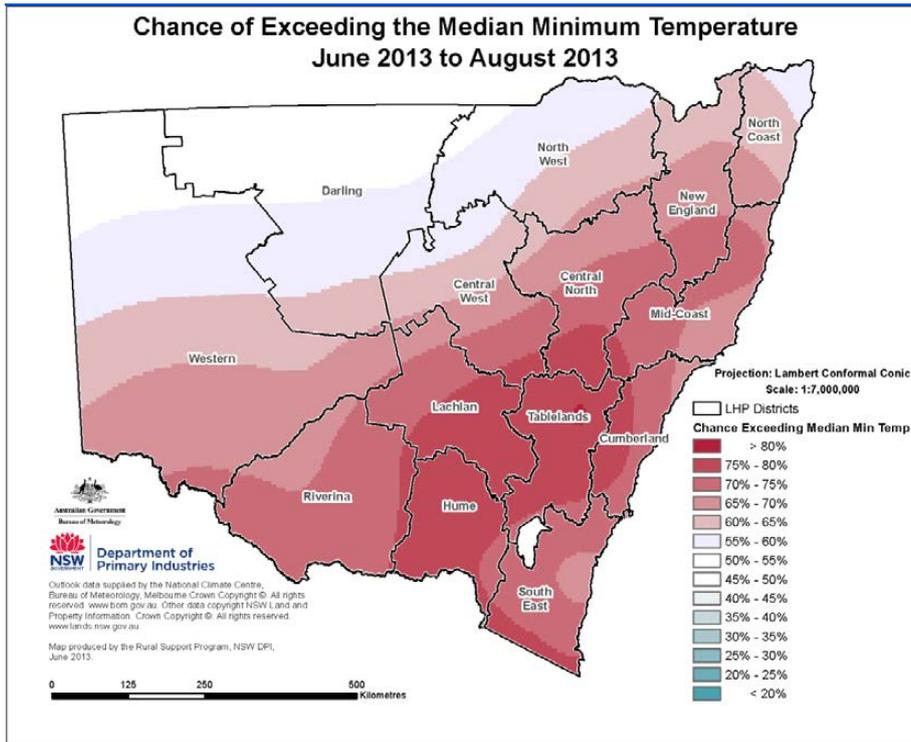
Quarterly rainfall outlook



Quarterly maximum temperature outlook

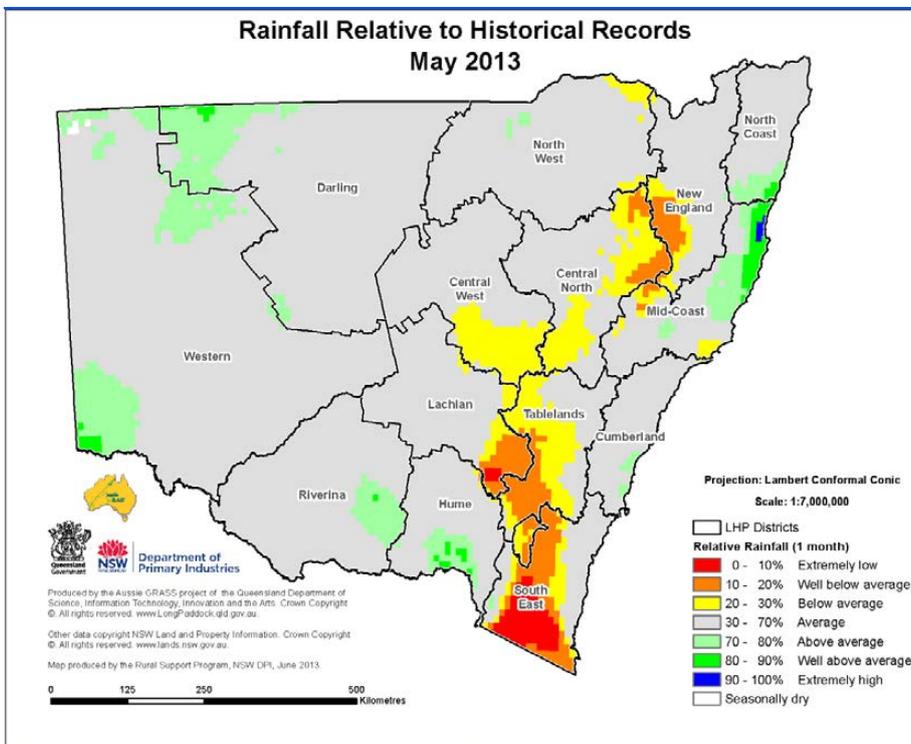


Quarterly minimum temperature outlook

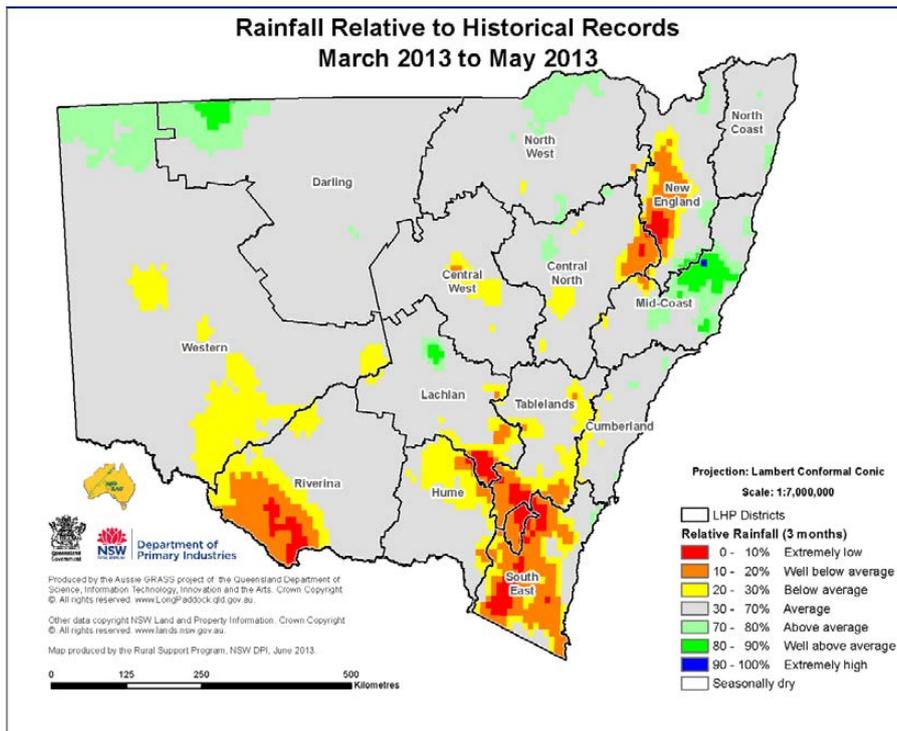


Rainfall

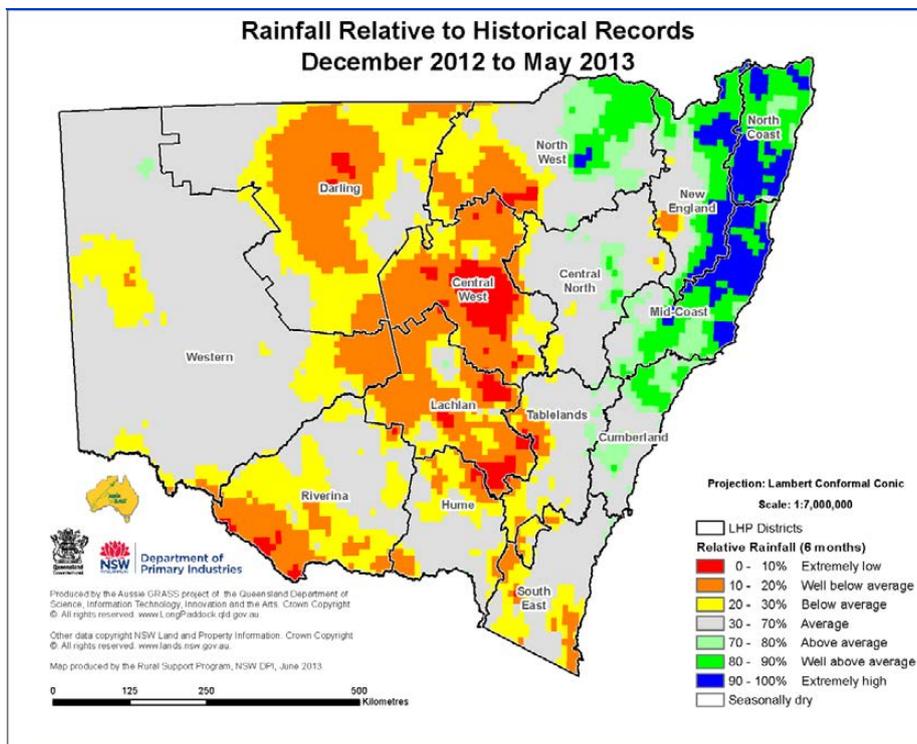
Relative rainfall – monthly



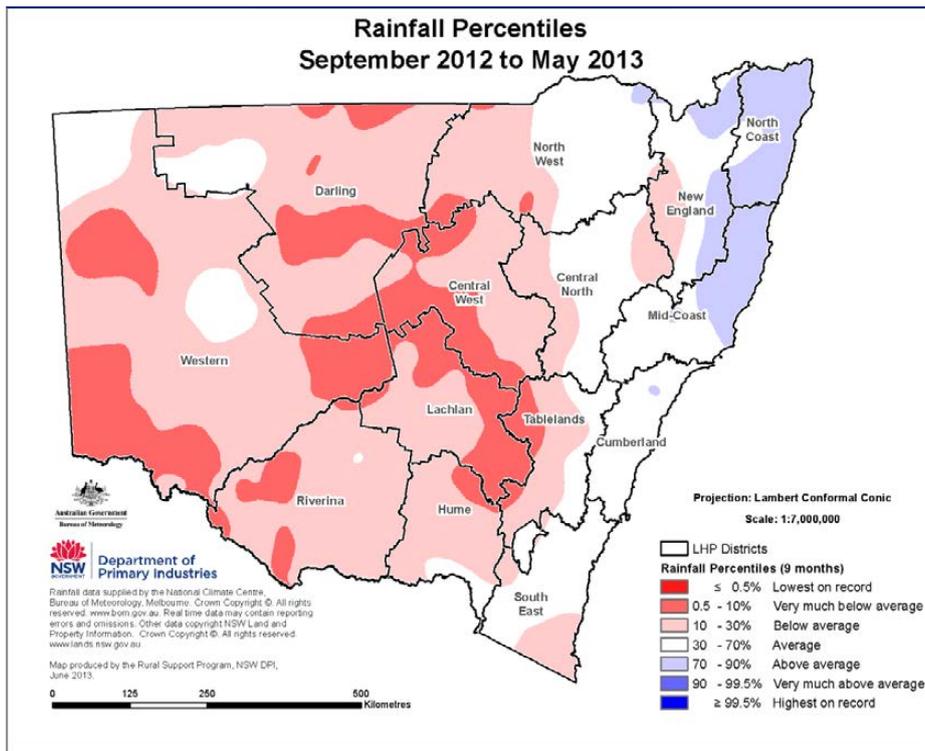
Relative rainfall – quarterly



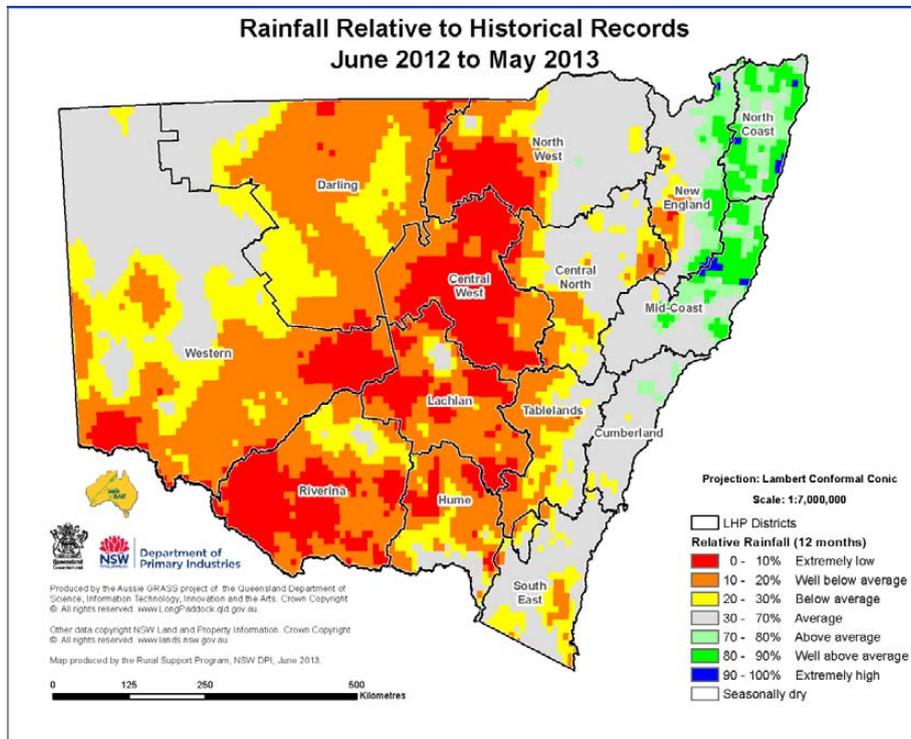
Relative rainfall – half yearly



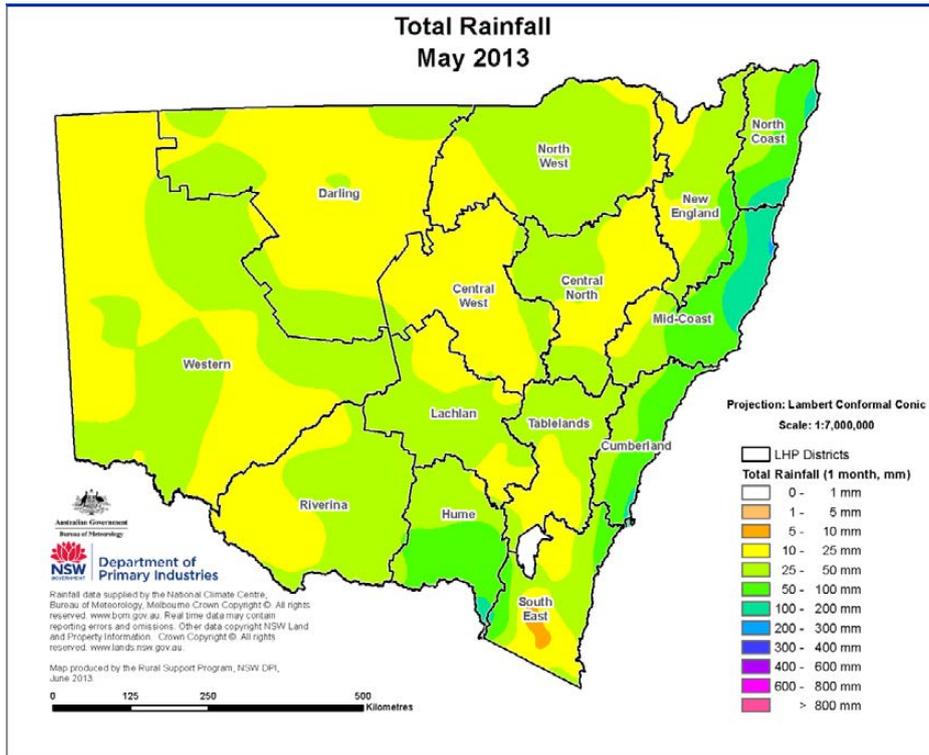
Relative rainfall – nine monthly



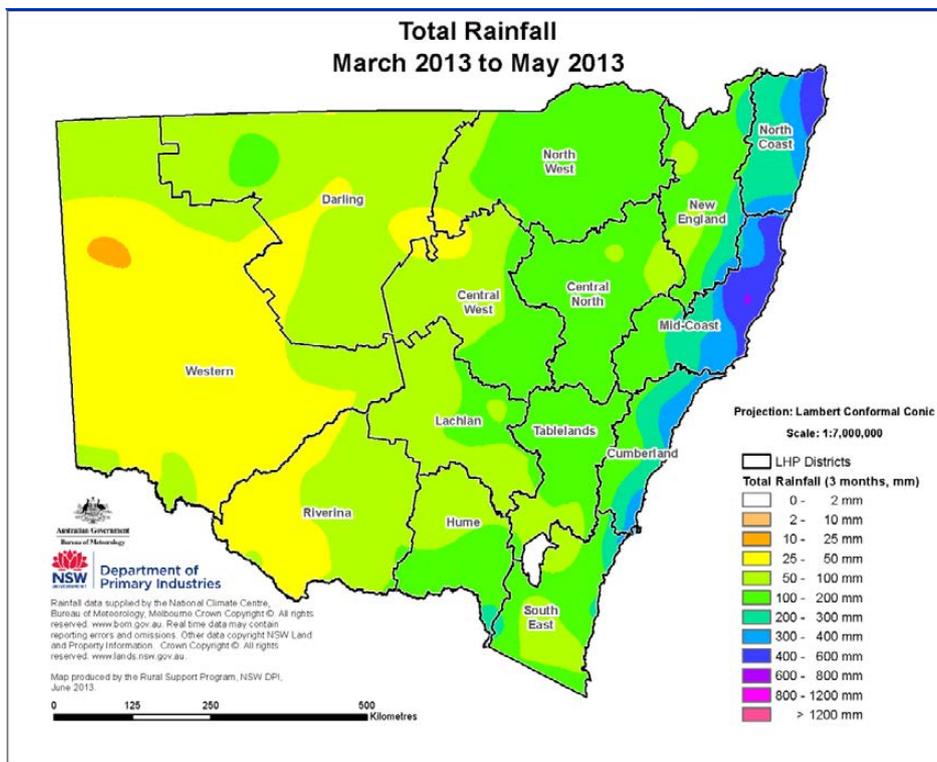
Relative rainfall – yearly



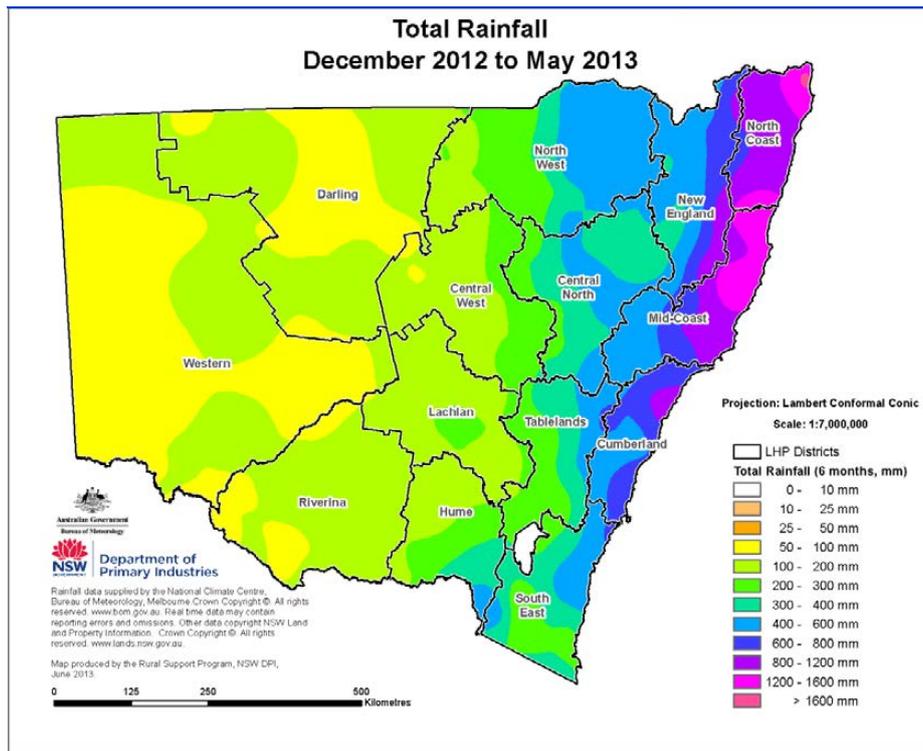
Total rainfall – monthly



Total rainfall – quarterly

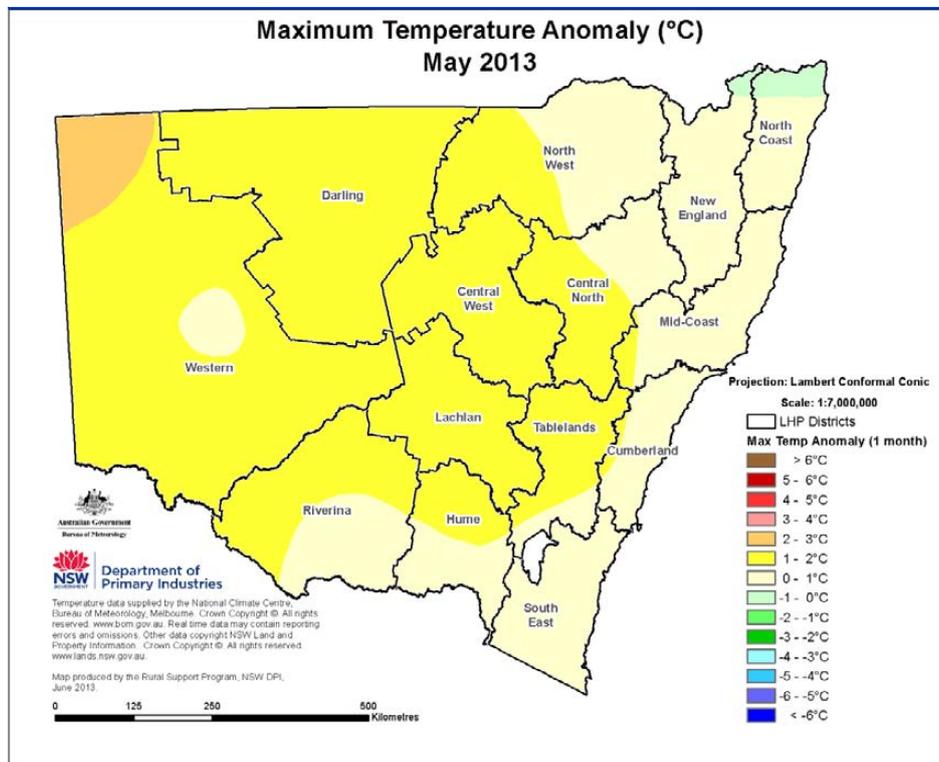


Total rainfall – half yearly

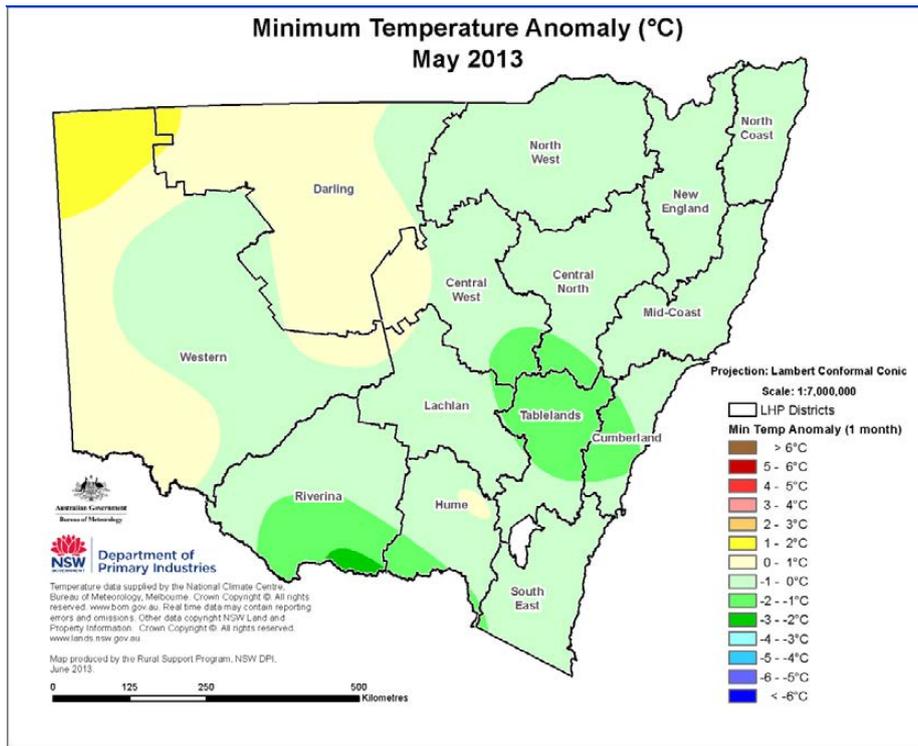


Temperature

Maximum monthly temperature anomaly

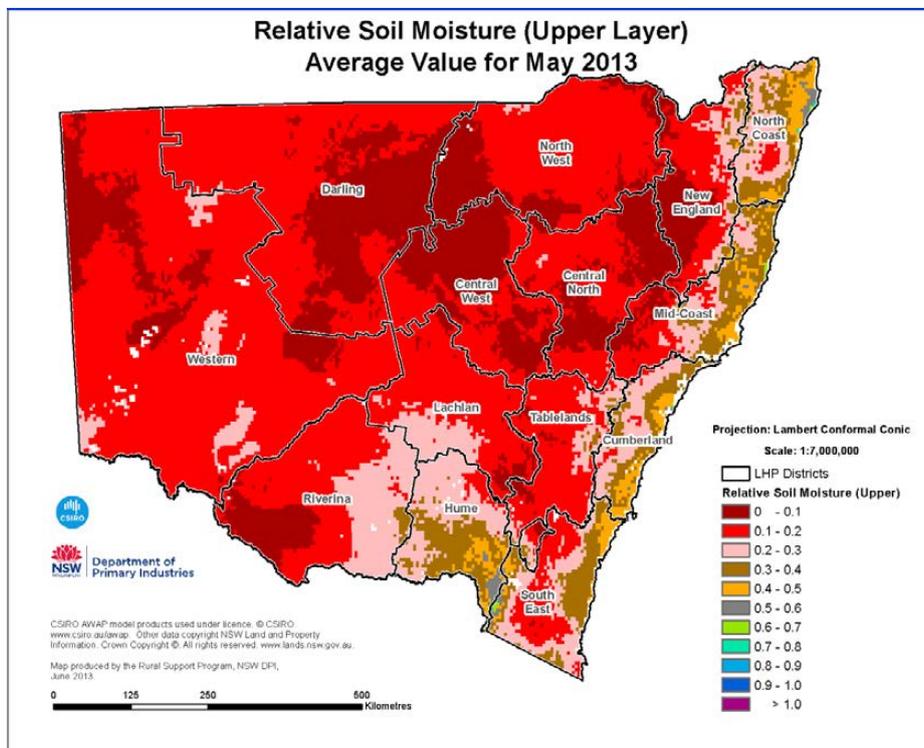


Minimum monthly temperature anomaly

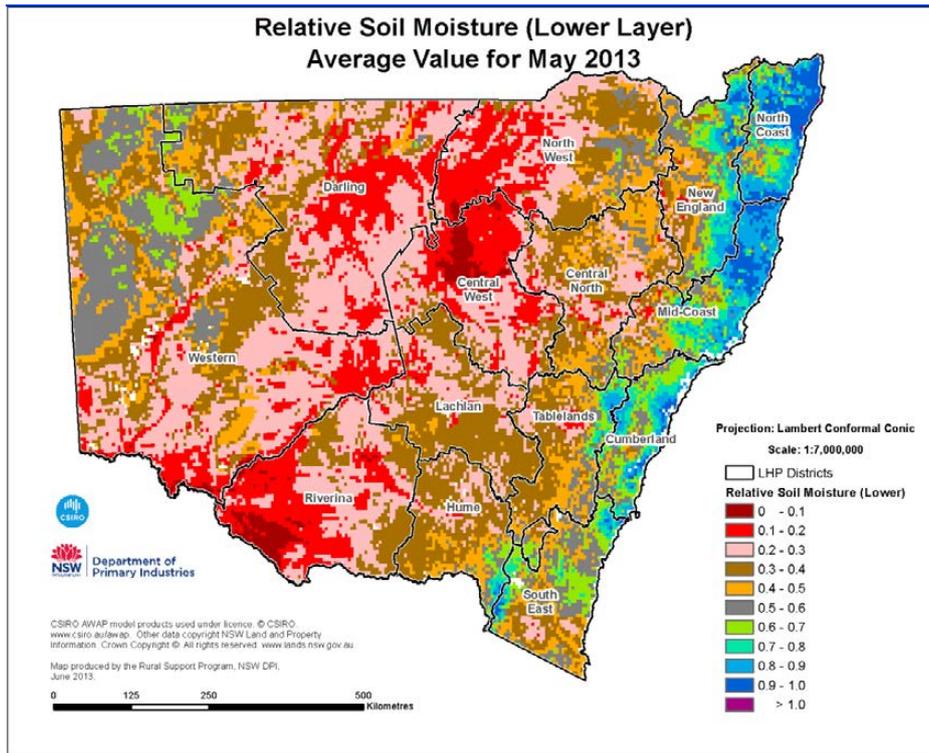


Soil moisture

Relative topsoil moisture

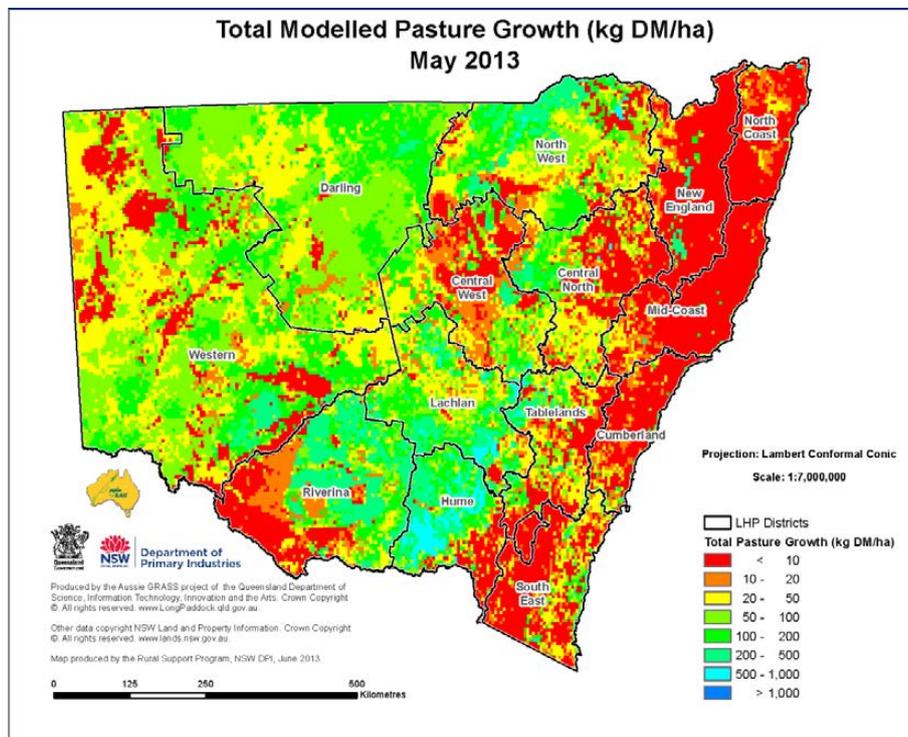


Relative subsoil moisture

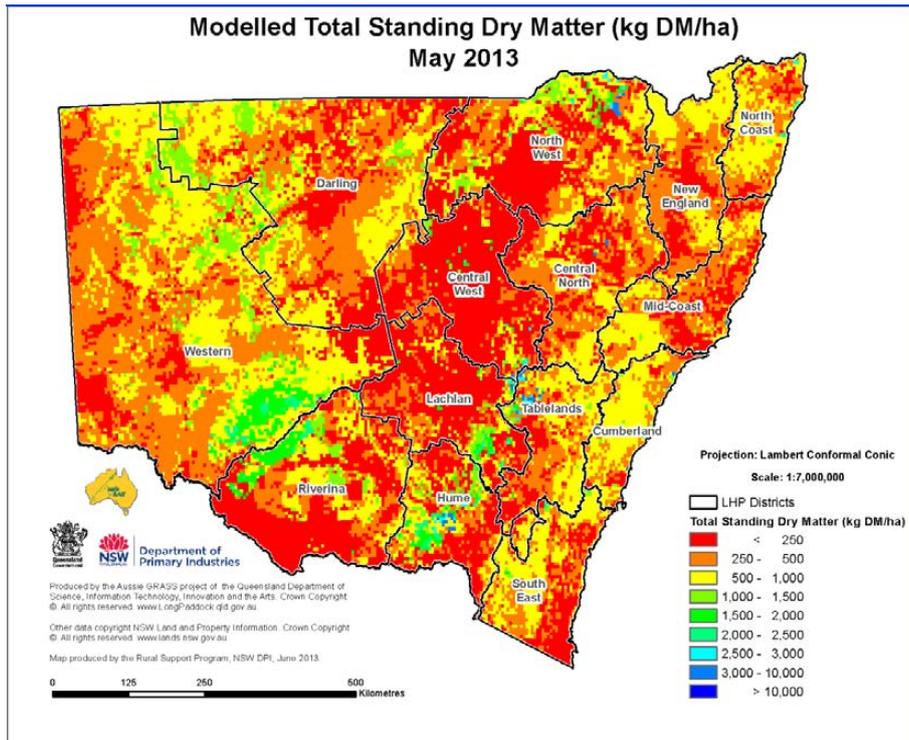


Pasture growth and biomass

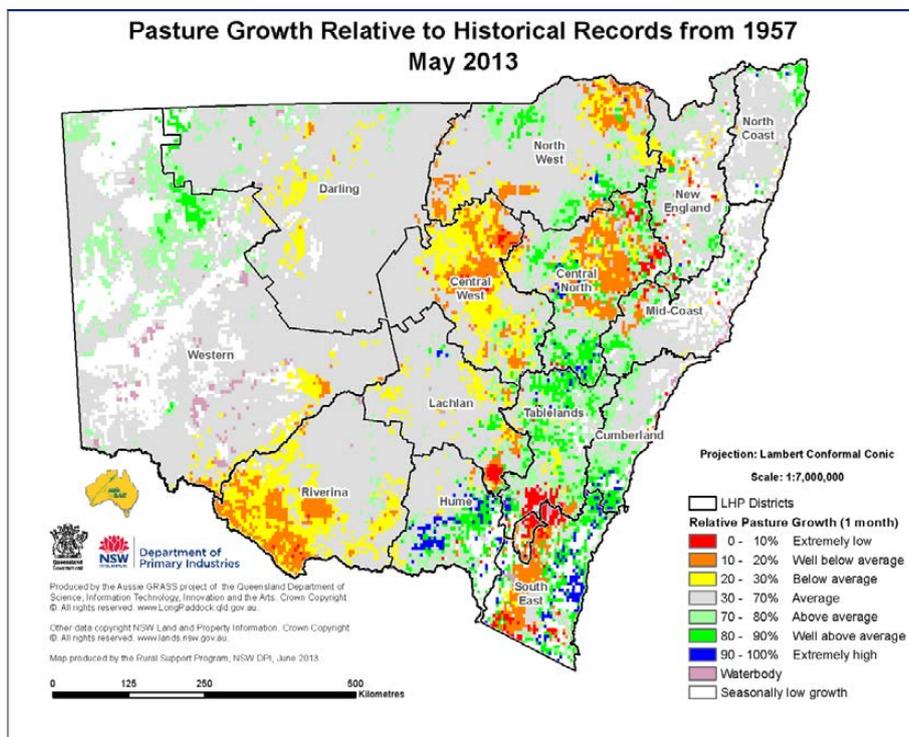
Modelled pasture growth



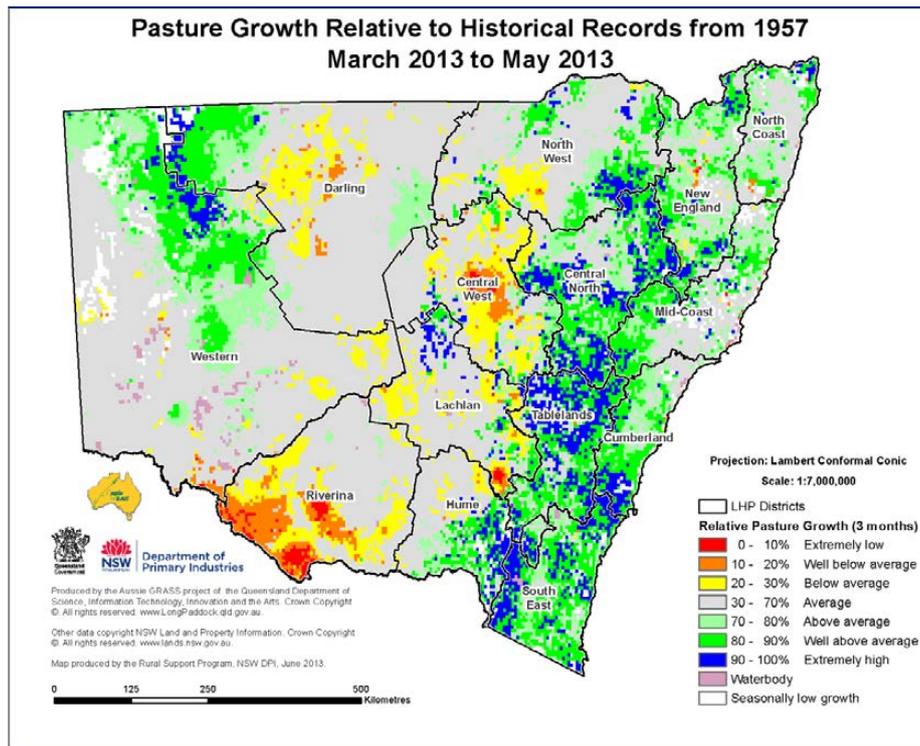
Modelled biomass



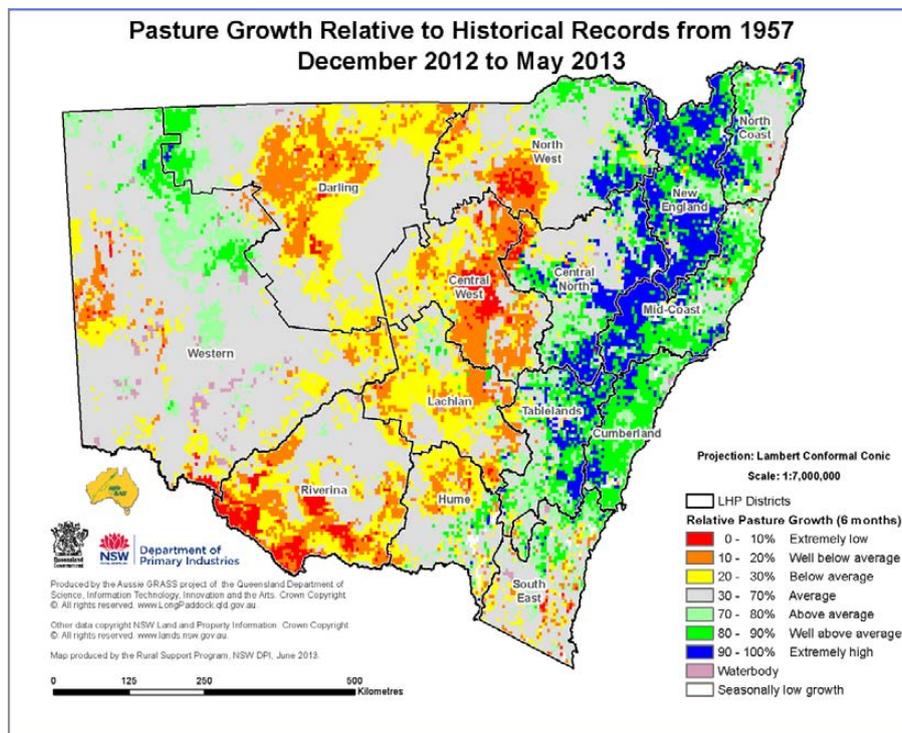
Relative pasture growth – monthly



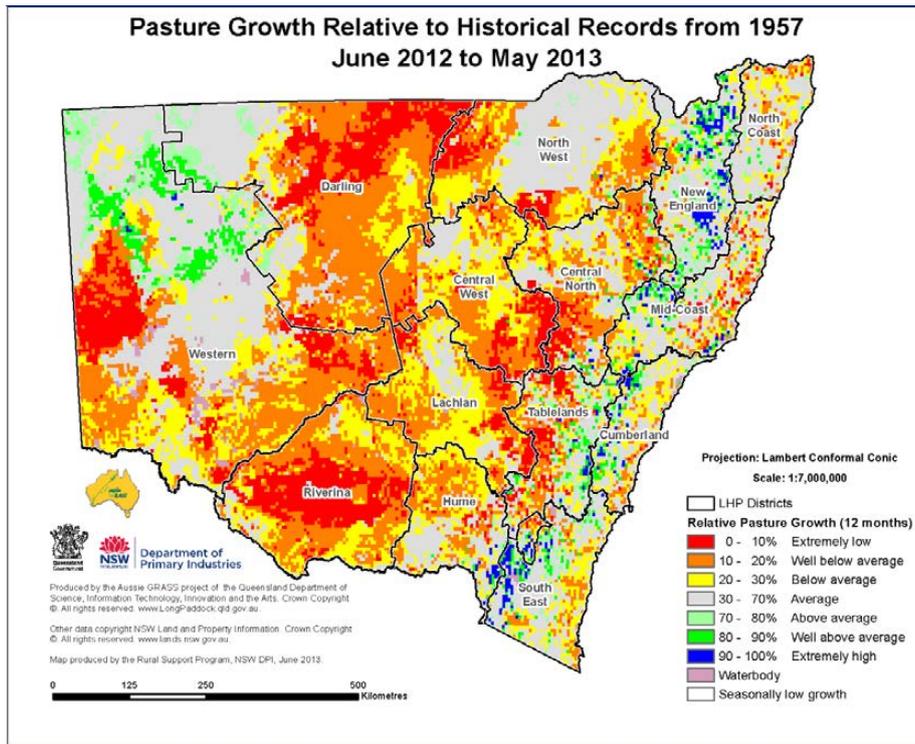
Relative pasture growth – quarterly



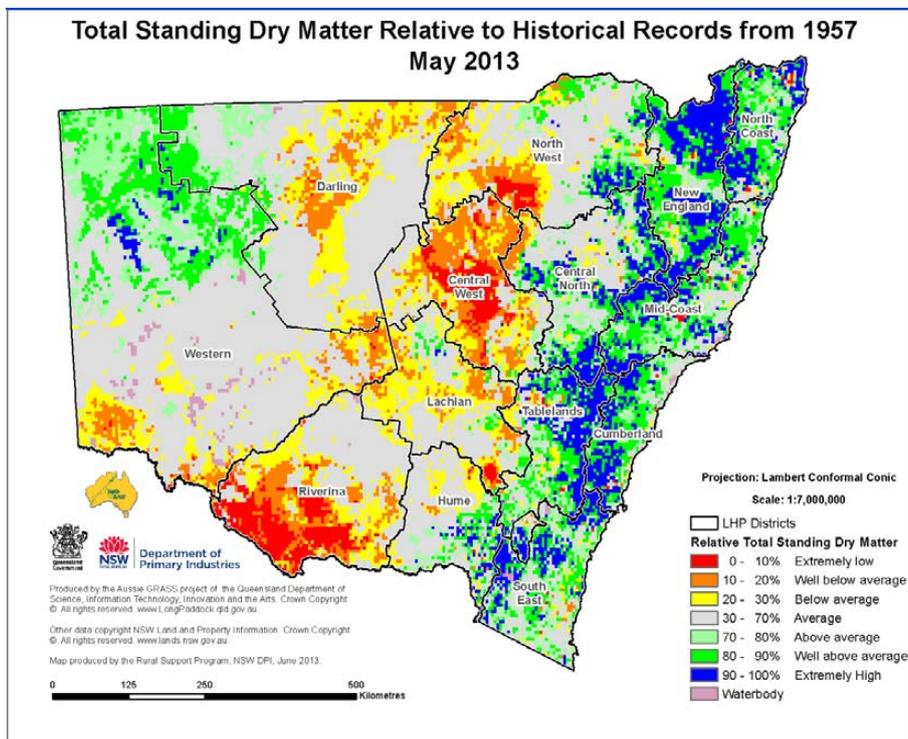
Relative pasture growth – half yearly



Relative pasture growth – yearly



Relative biomass – monthly



More information

For more information, contact the NSW Department of Primary Industries on 02 6391 3100.

Acknowledgments

Information used in this report was sourced from the Bureau of Meteorology, CSIRO, the Queensland Department of Science, Information Technology, Innovation and the Arts, NSW Livestock Health and Pest Authorities and the NSW Department of Primary Industries.

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