Queensland Government

Department of the Environment, Tourism, Science and Innovation

October 2025 issue

QUEENSLAND CLIMATE ASSESSMENT REPORT

Current climate and seasonal outlook information to support sustainable grazing land, water, catchment and environmental management in Queensland.

SEASONAL CONDITIONS SUMMARY

FINDINGS AS AT 13 October 2025

- **Twelve-month rainfall to the end of September 2025, averaged over the main grazing lands of Queensland, was 31 per cent above the long-term average (1890 to 2020).**
- **Rainfall over the last three- and six-month periods was near average across much of Queensland.**
- **The El Nino-Southern Oscillation (ENSO) remains in a neutral phase.**
- **As at 1 October 2025 the Science Division of DETSI considers that the probability of exceeding median summer (November 2025 to March 2026) rainfall for much of Queensland remains within the near-normal range (30 to 70 per cent).**

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CURRENT CONDITIONS

Historical Rainfall Variability and Drought Situation

Figure 1 shows 12-month rainfall averaged over the region of Queensland shown on the grey map (top right). This region carries over 80 per cent of the State's cattle and sheep herd and covers only 60 per cent of Queensland's land area. In each graph, rainfall is expressed as a percentage difference from the long-term (1890 to 2020) average. The upper graph shows the running 12-month rainfall anomaly since 1890, indicating the long-term history of wet and dry periods over this region. The lower graph focuses on changes since 2010 and shows, at selected times, those parts of Queensland drought-declared under State Government processes. Twelve-month rainfall to the end of September 2025, averaged over the main grazing lands of Queensland, was 31 per cent above the long-term average (1890 to 2020). Queensland currently has [no local government areas which are officially drought-declared](#).

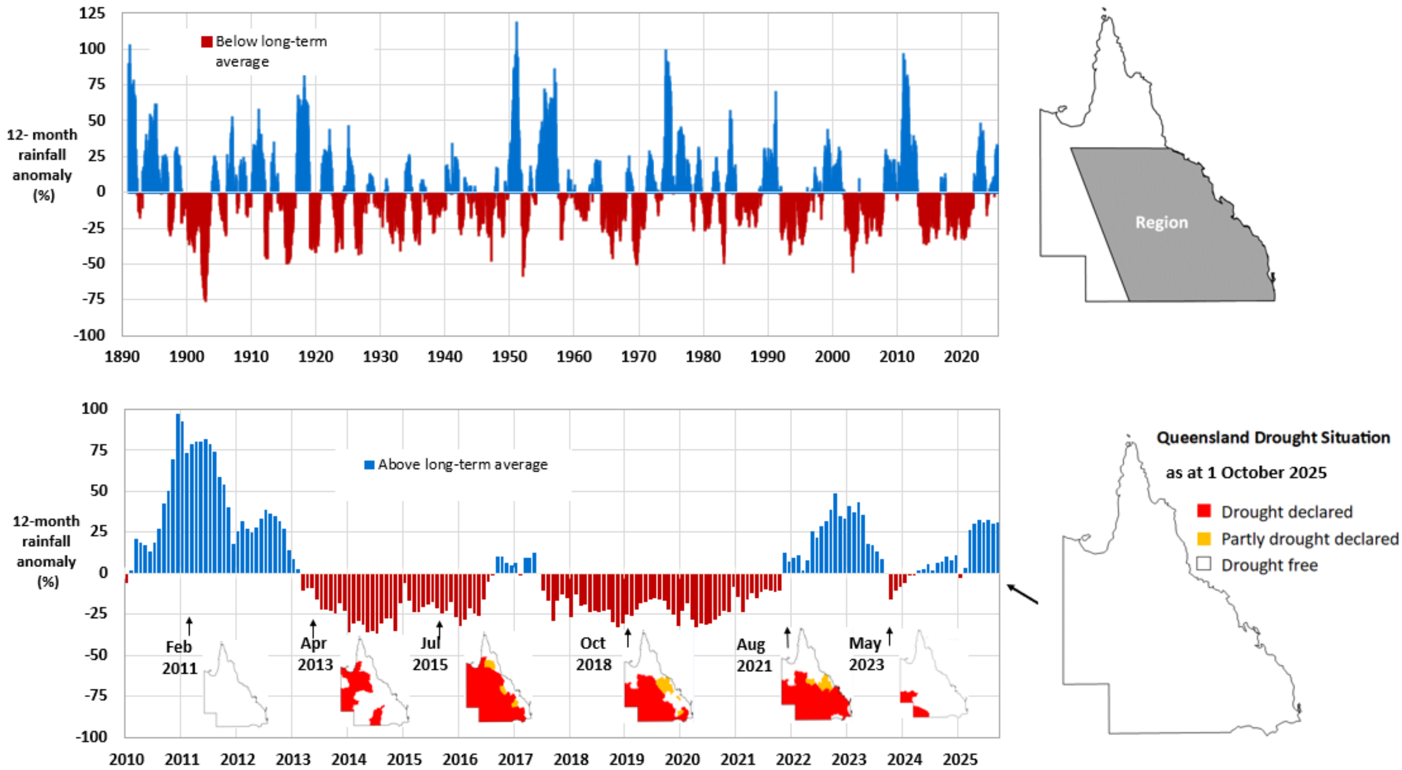


Fig.1: Historical 12-month rainfall anomalies
(Rainfall data source: https://www.longpaddock.qld.gov.au/silo/)

Rainfall and Pasture Growth Update

Figures 2 and 3 are products of the AussieGRASS Environmental Calculator (Carter et al. 2000). Figure 2 shows rainfall over the last three-, six- and 12-month periods (up to August 31, 2025) ranked against historical values. Rainfall percentiles over the last three- and six-month periods were near average over most of Queensland. Over the last 12-month period rainfall percentiles were above average to extremely high, except for parts of south-eastern Queensland and eastern Cape York Peninsula.

last 3 months	**last 6 months**	**last 12 months**
July to September 2025	April to September 2025	October 2024 to September 2025

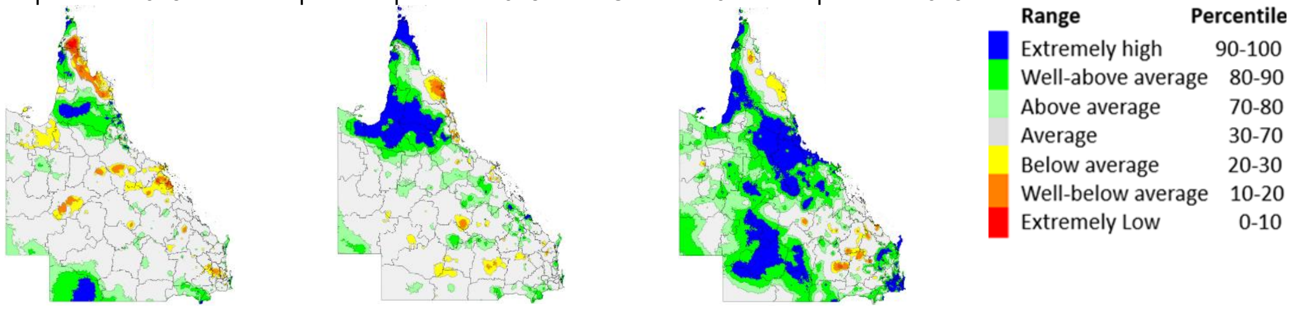


Fig. 2: Rainfall percentiles (base period 1890 to current)
(Source: https://www.longpaddock.qld.gov.au/aussiegrass/)

Figure 3-shows calculated pasture growth percentiles over the last three-, six-, and 12-month periods. The pattern of calculated pasture growth percentiles over the last three-, six-, and 12-month periods has broad similarities for much of the state to that of rainfall percentiles (above), ranging from extremely low to extremely high depending on region and length of period considered.

last 3 months	**last 6 months**	**last 12 months**
July to September 2025	April to September 2025	October 2024 to September 2025

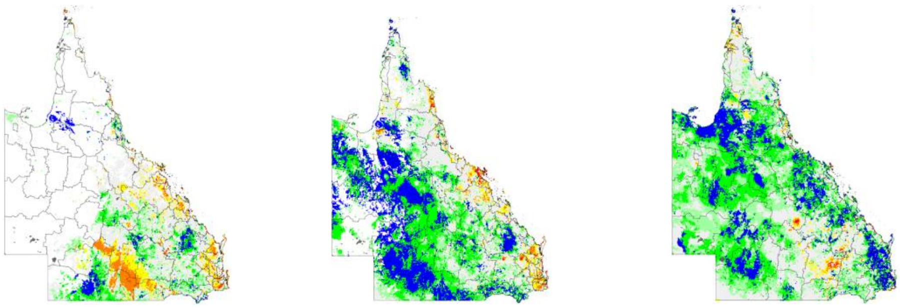


Fig. 3: Pasture growth percentiles (base period 1957 to current)
White shading indicates areas that normally have "seasonally low" pasture growth.
(Source: https://www.longpaddock.qld.gov.au/aussiegrass/)

Season-to-Date Rainfall versus April to October historical records

Rainfall for 1 April to 30 September 2025 period, averaged across Queensland's major grazing lands region (grey region on the map in Fig.4), totalled 153 mm, and is above the long-term median for April to October period. The season is trending very close to the 70th percentile for all years and is wetter than the same period last year for 1 April to 30 September 2024.

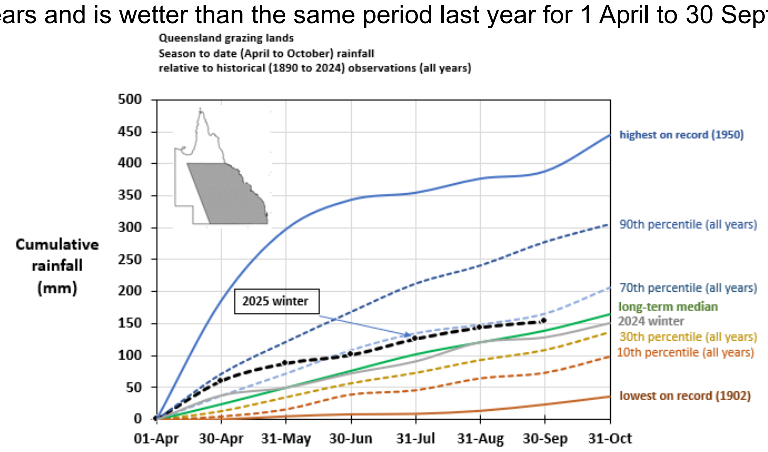


Fig. 4: April to October 2025 season accumulated rainfall as at 1 October 2025, compared to historical values.
Percentiles based on season-to-date rainfall at the end of each month since 1 April (based on data from 1890 to 2024).
Data source: https://www.longpaddock.qld.gov.au/silo/

El Niño-Southern Oscillation (ENSO)

The most closely monitored driver of Queensland rainfall is the El Niño-Southern Oscillation (ENSO) phenomenon. Climate scientists monitor several ENSO indices, including the atmospheric [Southern Oscillation Index] (SOI) and sea-surface temperature (SST) anomalies in the central equatorial Pacific Ocean.

The most recent three-month average value of the SOI, (+2.9 for July to September 2025, Fig. 5) is within the 'ENSO-neutral' range (-5 to +5; fig 5). Over the same period, the SST anomaly in the Niño 3.4 region of the central equatorial Pacific (-0.3°C, Fig. 5) has remained in the near-average range with near-average SST anomalies across most of the central equatorial Pacific (Fig. 6). Sub-surface waters in the tropical Pacific remain cooler than average though atmospheric indicators remain mostly neutral. As such, BoM and most international models predict the tropical Pacific is likely to meet La Niña levels briefly during spring before returning to neutral in summer.

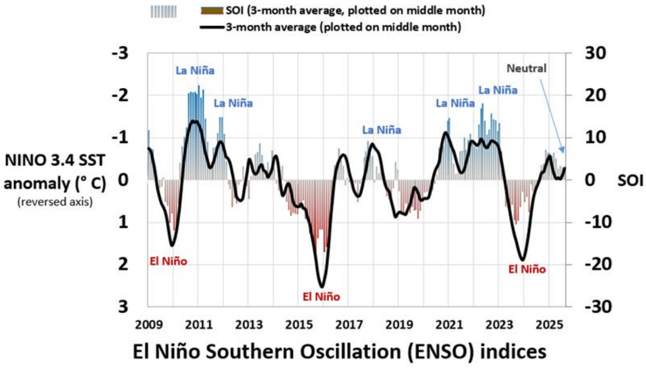


Fig. 5: El Niño Southern Oscillation (ENSO) Indices
SST source: www.cpc.ncep.noaa.gov/data/indices
(NINO3.4 SST, monthly OISST.v2.1 (1991 to 2020 base period)
SOI source: www.longpaddock.qld.gov.au/soi/soi-data-files
(monthly SOI 1887-1989 base period)

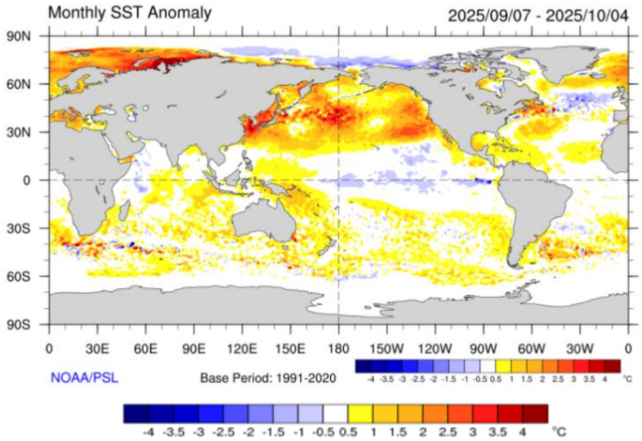


Fig. 6: **Pacific Ocean sea-surface temperature anomalies (°C)**
for 7 September to 4 October 2025 based on NOAA OISST.v3.1 SST data (1991 to 2020 based period) Map source: https://psl.noaa.gov/map/clim/sst.shtml

Madden-Julian Oscillation (MJO)

The [Madden-Julian Oscillation (MJO)] is a broad area of tropical convection (cloud and rainfall) which tracks east from the western Indian Ocean toward the eastern Pacific Ocean. This MJO cycle tends to recur on average every 30 to 60 days (intraseasonal), distinct from El Niño and La Niña events which typically persist for three to nine months. In Queensland, the MJO has its greatest influence on rainfall during the tropical cyclone season (November to April), particularly in northern parts of the State, as its passage can enhance the strength of the northern Australian monsoon and increase the chance of tropical cyclones. For example, two tropical cyclones made landfall in Queensland during the 2023-24 season ('Jasper' on 13 December and 'Kirrily' on 25 January), both occurred when the MJO was active in Australian-Western Pacific longitudes, unlike tropical cyclone Alfred which made landfall on 8 March 2025. The MJO is currently weak and expected to move into the Indian Ocean from mid-October, a position which normally supresses rainfall activity across northern Australia.

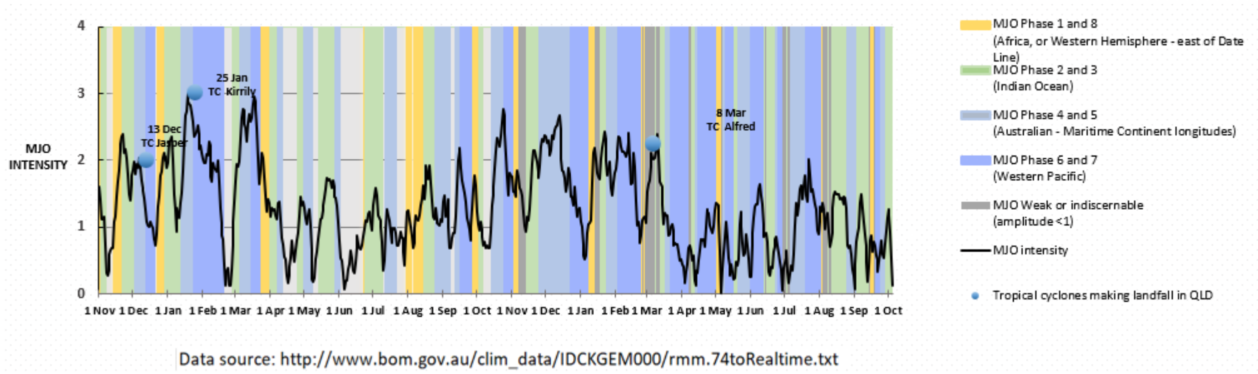


Fig. 7: Madden-Julian Oscillation intensity and phase-location

The graph shows the general location (coloured bars) and intensity (grey line) of the MJO from 1 November 2023 to 5 October 2025.
Data source: http://www.bom.gov.au/clim_data/IDCKGEM000/rmm.74toRealtime.txt

Long-lead Summer Rainfall Outlook

(produced on 6 October, based on SPOTA-1)

The Department of the Environment, Tourism, Science and Innovation (DETSI) monitors SST anomalies in key regions of the Pacific Ocean over autumn, winter, and spring and provides objective outlooks for summer (November to March) rainfall on this basis.

The current DETSI outlook for summer rainfall in Queensland is an objective analysis of historical conditions using an index based on SST anomalies measured in March in key regions of the extra-tropical Pacific Ocean, which factors-in the evolving ENSO-related SST pattern in the central and southwest Pacific. The SSTs have been related to rainfall over much of Queensland in the following summer. On this basis, as at 1 October, the Science Division of DETSI considers that the probability of exceeding median summer (November to March) rainfall remains within the near-normal range (30 to 70 per cent) for much of Queensland, while slightly below normal (20 to 30 per cent) in parts of the southeast Queensland. (Figs. 8 and 9).

The last update for the 2025/26 rainfall season will be next month, November 2025.

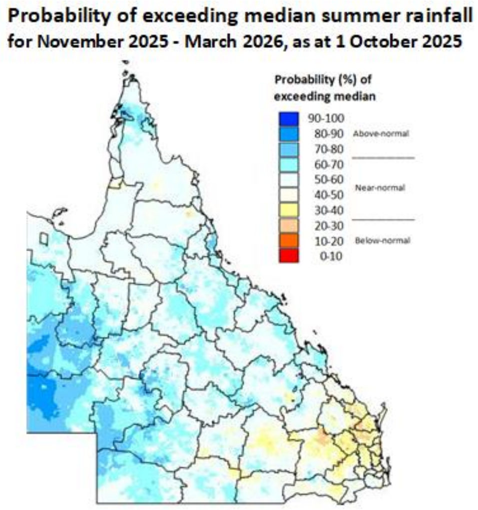


Fig. 8: Probability of exceeding median summer rainfall (for November 2025 to March 2026) as at 1 October 2025
Produced by the DETSI SPOTA-1 system.

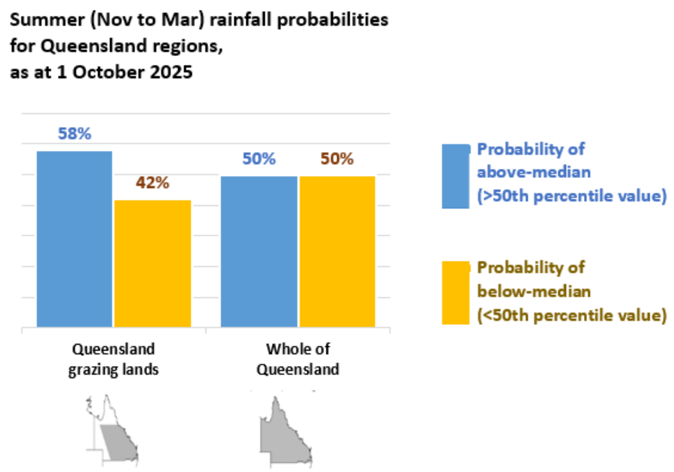


Fig. 9: Probabilities of above and below median summer rainfall (for November to March) as at 1 October 2025.
For the Queensland's major grazing region and the State as a whole, based on historical analogue year output from the DETSI SPOTA-1 system.

Three-month Rainfall Outlooks

based on international dynamical models

The maps in Figure 10 show rainfall probabilities for upcoming three-month periods, based on dynamical climate modelling, sourced from a range of international climate agencies. Rainfall probabilities differ for each model, on both a spatial and temporal basis, due to the different methodologies used.

For September to November period, most international models are indicating wetter than average probability in most parts of Queensland.

Dynamical model outlook sources:

Australian Bureau of Meteorology http://www.bom.gov.au/jsp/sco/archive/

UK Met Office: http://www.metoffice.gov.uk/research/climate/seasonal-to-decadal/gpc-outlooks/glob-seas-prob

European C3S (Copernicus Climate Change Service) multi-model: https://climate.copernicus.eu/charts/c3s_seasonal/ (C3S multi-system (7)

NOAA North American Multi-model Ensemble -USA: https://www.cpc.ncep.noaa.gov/products/NMME/seasanom.shtml (Global prate)

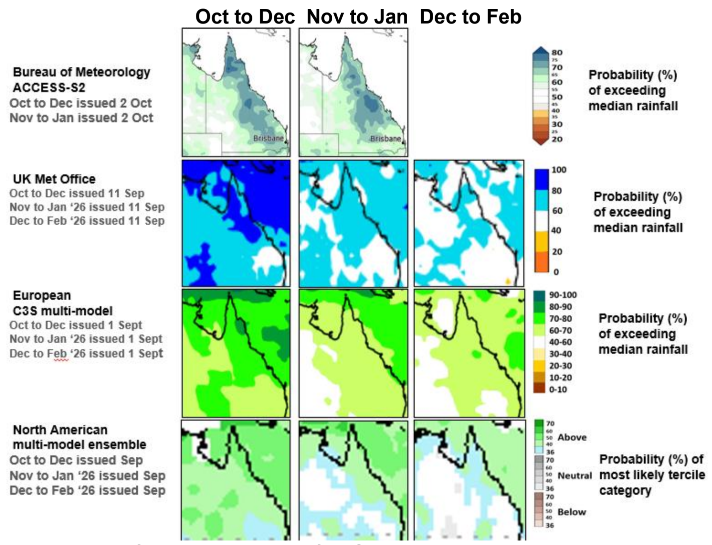


Fig. 10: Rainfall probabilities for October 2025 to February 2026, based on international dynamical models.

Three-month Rainfall Outlook

based on the SOI Phase system

The map in Figure 11 shows rainfall probabilities for the coming three-month period, based solely on a Consistently Near Zero 'phase' of the SOI at the end of September 2025, as determined by the SOI Phase system. The current phase of the SOI (click for more detail) is based on the most recent values of the SOI (+2.2 for August and +0.2 for September 2025).

The map, which is based on 37 previous years (from 1889 to 2015) which had a 'Consistently Near Zero' phase of the SOI at the end of September 2025, indicates a generally 30 to 60 per cent probability of exceeding median October to December 2025 rainfall across much of Queensland.

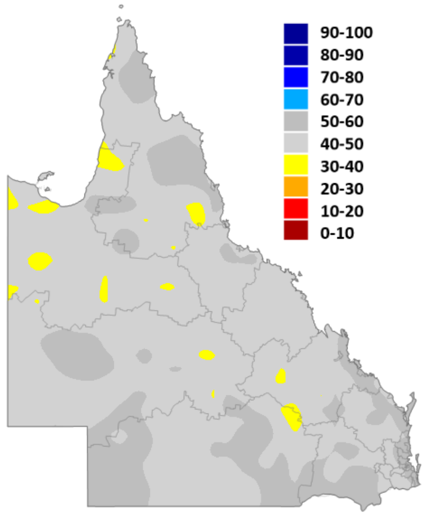
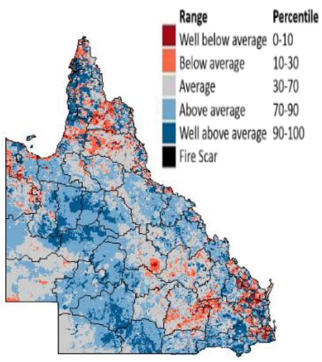
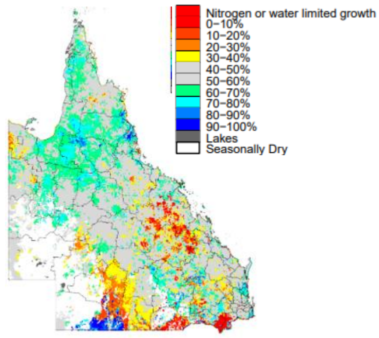


Fig. 11: Probability of exceeding median rainfall for October to December 2025 based on a 'Consistently Near Zero' phase of the SOI at the end of September 2025.

Pasture Outlook

Figures 12 and 13 are products of the AussieGRASS Environmental Calculator. Calculated pasture ground cover at the end of July 2025 (Fig. 12) ranged from average to well-above average in most parts, except for central and southeast Queensland and parts of Cape York Peninsula with below average ground cover. Figure 13 shows that the probability of exceeding median pasture growth over October to December 2025 is normal for most parts of Queensland with a lower probability for parts of central east and southern Queensland. This calculation takes into account both current conditions (e.g., soil water content) and rainfall probabilities for the next three-month period) based on SOI Phase analogue years.





Relative to historical records since 1957

Fig. 12:

Calculated pasture cover at 30 September 2025.

Fig. 13:

Probability of exceeding median pasture growth for Oct to Dec 2025 based on a 'Consistently Near Zero' phase of the SOI at the end of September 2025.

REFERENCES AND RESOURCES

References:

Carter, J.O. *et al*. (2000). Aussie GRASS: Australian Grassland and Rangeland Assessment by Spatial Simulation. In 'Applications of seasonal climate forecasting in agricultural and natural ecosystems - the Australian experience.' (Eds. G. Hammer, N. Nicholls and C. Mitchell). Kluwer Academic Press, Netherlands, pp. 329-349.

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Day, K.A. and McKeon, G.M. (2018). An Index of Summer Rainfall for Queensland's Grazing Lands. *Journal of Applied Meteorology and Climatology*, **57**, 1623-41. https://doi.org/10.1175/JAMC-D-17-0148.1

McKeon, G. *et al.* (2004). 'Pasture Degradation and Recovery in Australia's Rangelands: Learning from History.' Queensland Department of Natural Resources, Mines, and Energy, Brisbane, Australia.

Stone, R. and Auliciems, A. (1992), SOI phase relationships with rainfall in eastern Australia. Int. J. Climatol., 12: 625-636. https://doi.org/10.1002/joc.3370120608

Stone, R., Hammer, G. & Marcussen, T. Prediction of global rainfall probabilities using phases of the Southern Oscillation Index. *Nature* **384**, 252–255 (1996). https://doi.org/10.1038/384252a0

Additional resources:

For further information on AussieGRASS, seasonal climate outlooks (including the SOI Phase scheme and the SPOTA-1 scheme) and Queensland drought declarations, visit the Long Paddock website, https://www.longpaddock.qld.gov.au.

MJO description: https://www.climate.gov/news-features/blogs/enso/what-mjo-and-why-do-we-care

General Disclaimer:

It should be noted that seasonal outlooks are probabilistic and not deterministic in nature. For example, if an outlook indicates that there is an 80 per cent probability of exceeding median rainfall, should be interpreted as also meaning that there is a 20 per cent probability of rainfall being below the long-term median. In cases where outcomes with a high probability may be more likely, this does not mean that less probable events will not occur in any given year. Users should also consider sourcing information related to the historical track record of any outlook scheme, and such information is becoming increasingly available.

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