Regional Weather and Climate Guide

In the last 30 years in the Burnett Mary

- Annual rainfall has been relatively stable
- Dry years have occurred 13 times and wet years five times
- Rainfall has decreased in the summer months on the coast
- Rainfall has decreased in the winter, spring and summer months in the inland parts of the region
- Wet season rainfall is reliable; dry season rainfall is unreliable
- On average, heavy rain events have occurred twice a year
- There have been more hot days, with more consecutive days above 35 °C
- Severe heat stress days for livestock are increasing

The Burnett Mary at a glance

The Burnett Mary region covers around 2.9 million hectares, of which 65% is under agricultural production. The region supports a diverse range of agricultural enterprises, including sugar cane, citrus, avocados and other tropical fruit, vegetables, beef and dairy. The region contributed around $1.55 billion to the Australian economy in 2017–18.

Natural Environments | Low Level Production | Dryland Production | Irrigated Production | Intensive Uses | Water Bodies

A guide to weather and climate in the Burnett Mary

Primary producers make decisions using their knowledge and expectations of regional weather patterns. The purpose of this guide is to provide an insight into the region's climate and an understanding of changes that have occurred through recent periods. This information can potentially assist primary producers and rural communities make better informed decisions for their business and livelihoods. This guide is part of a series of guides produced for every Natural Resource Management area around Australia.

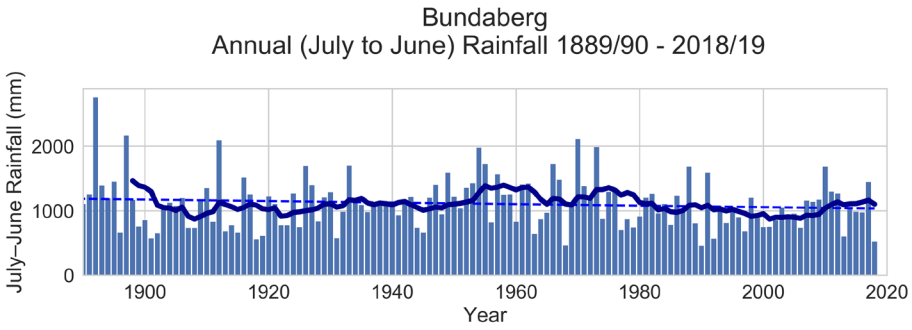
A climate guide for agriculture

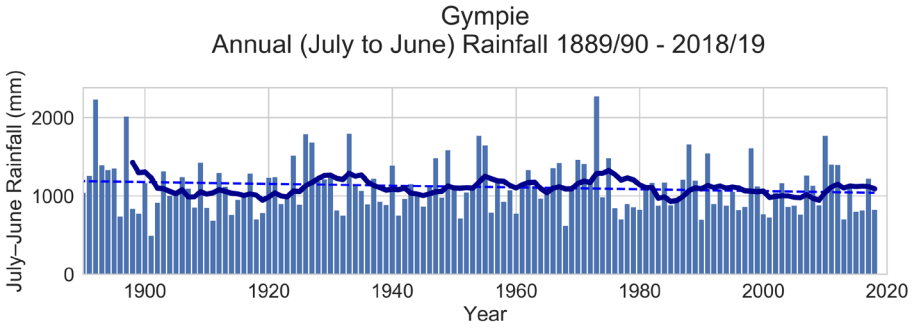
Burnett Mary, Queensland

Annual Rainfall

Annual rainfall in the Burnett Mary has been relatively stable

Annual rainfall (July–June) in the Burnett Mary region has been relatively stable, decreasing by around 60 mm (7%) from about 890 mm to about 830 mm over the past 30 years (1989–2018) when compared to the previous 30 years (1959–1988). The charts show annual rainfall (blue bars), with a 10-year running average (solid blue line) for Bundaberg and Gympie. Although there has been a decrease in annual rainfall in the past 30 years, it is within the range of natural variability.
In the past 30 years (1989–2018), dry years (lowest 30%) have occurred 13 times and wet years (highest 30%) have occurred five times, while the remaining years were in the average range. Note the Millennium drought accounted for eight of these dry years in the recent period. During the previous 30-year period (1959–1988), dry years occurred six times and wet years occurred nine times.





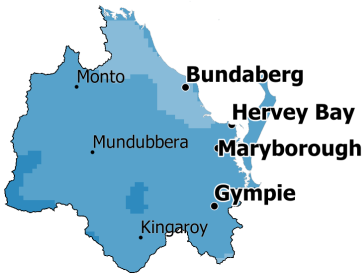
For more information on future projections, visit the Climate Change in Australia website
> **www.climatechangeinaustralia.gov.au**

Want to know more about the guides? Try Frequently Asked Questions at
> **www.bom.gov.au/climate/climate-guides/#faqs**

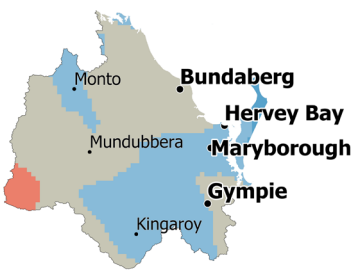
Burnett Mary wet season rainfall is reliable; dry season is unreliable

Rainfall reliability maps for the past 30 years (1989–2018) show wet season (Oct–Apr) rainfall has been moderately reliable across the region (blue areas), with about 180 mm difference from one year to the next. This represents around 30% of the wet season average of 670 mm. Dry season rainfall (May–Sep) is moderately reliable in the south (blue areas) and unreliable for other parts of the region (beige and red areas). Average dry season rainfall across the region is 210 mm each year, and can change by around 90 mm from year to year. Rainfall throughout the wet season is also not always consistent. Early wet season (Oct–Dec) rainfall is also usually unreliable, varying by nearly 40–50% from year to year.

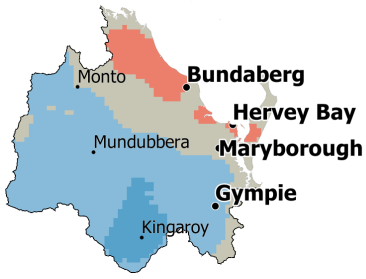
Wet Season (Oct-Apr)

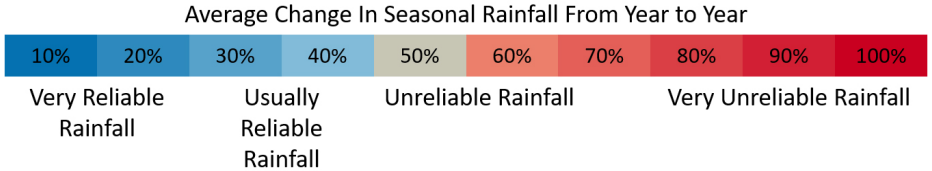


Dry Season (May-Sept)



Early Wet Season (Oct-Dec)

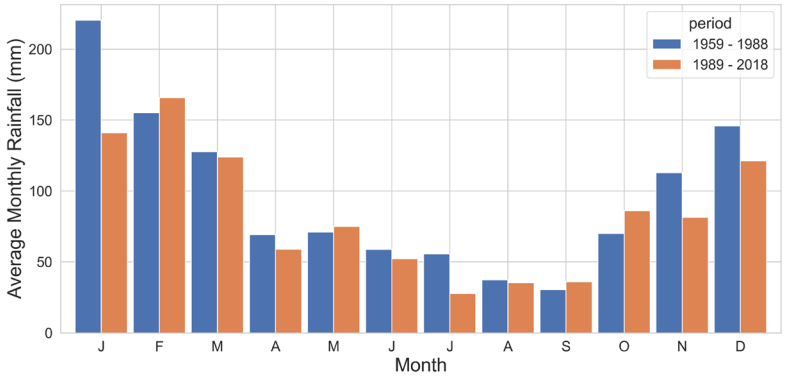




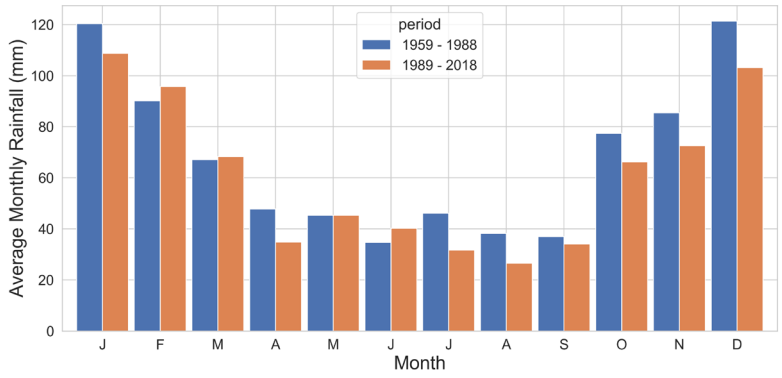
There has been a decrease in rainfall in the summer months

Rainfall in the summer months decreased at Bundaberg and Kingaroy between 1989–2018 (orange bars) compared with 1959–1988 (blue bars). At Kingaroy, rainfall also decreased in the winter and spring months.
Over the past 30 years, summer rainfall (December to April inclusive) for Bundaberg was 611 mm; 107 mm lower than the 718 mm average for the previous 30-year period (1959–1988).
For Kingaroy, summer rainfall decreased 37 mm over the same period, from 447 mm to 410 mm.
Over the same 30-year periods, winter rainfall (May to November inclusive) decreased by 42 mm at Bundaberg, from 436 mm to 394 mm. At Kingaroy, winter rainfall decreased by 47 mm, from 364 mm to 317 mm.

Bundaberg PO 30-year Average Rainfall by Month



Kingaroy 30-year Average Rainfall by Month

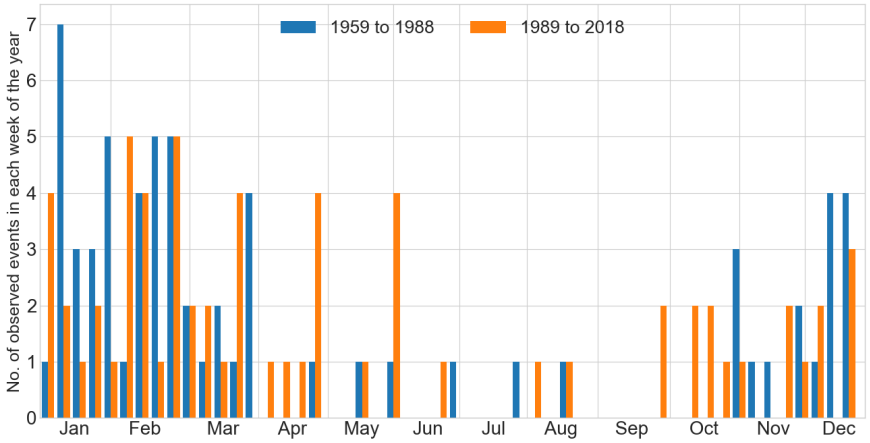


For more information on the latest observations and science behind these changes, refer to the State of the Climate Report
> www.bom.gov.au/state-of-the-climate/

Heavy rain events have occurred an average of twice a year

At Bundaberg, 68% of rain events of 100 mm or more occur over summer (December through February). The chart shows the total number of 100 mm rainfall events in each week over a 30-year period at Bundaberg. While heavy rainfall events are more likely over the summer months they can happen at any time of the year.
On average, two 100 mm (single or multi-day) events occur every wet season, but this can range from zero to six. There have been 12 wet seasons since 1900 that have not had a 100 mm rain event, meaning 90% of years have had at least one 100 mm event occurring.
In the period 1959–1988, there were an average of 1.4 heavy rain events each year in the summer months, or about seven large summer rainfall events within a five year period. In the last 30 years this has decreased to one event per year. The number of 50 mm or more events occurring in spring has increased from about one event every five years in the period 1959–1988 to about one event every three years in the period 1989–2018.

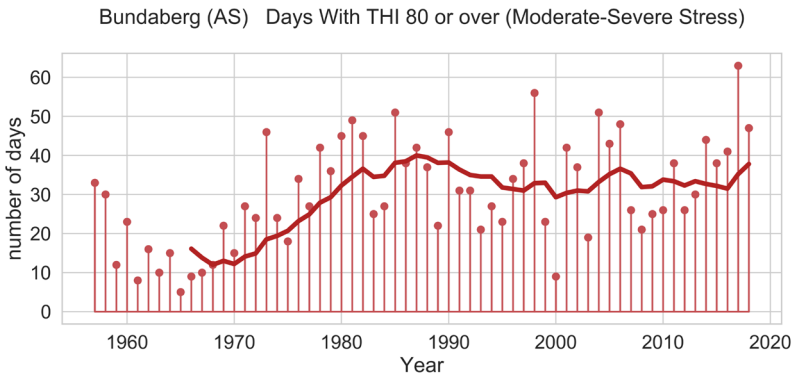
Bundaberg Aerodrome: Occurrence of 100 mm rain events through the year

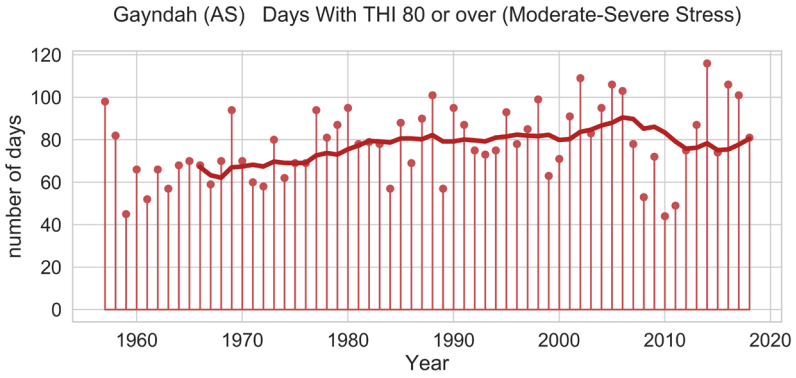


Temperature

Moderate to severe heat stress days for livestock are increasing

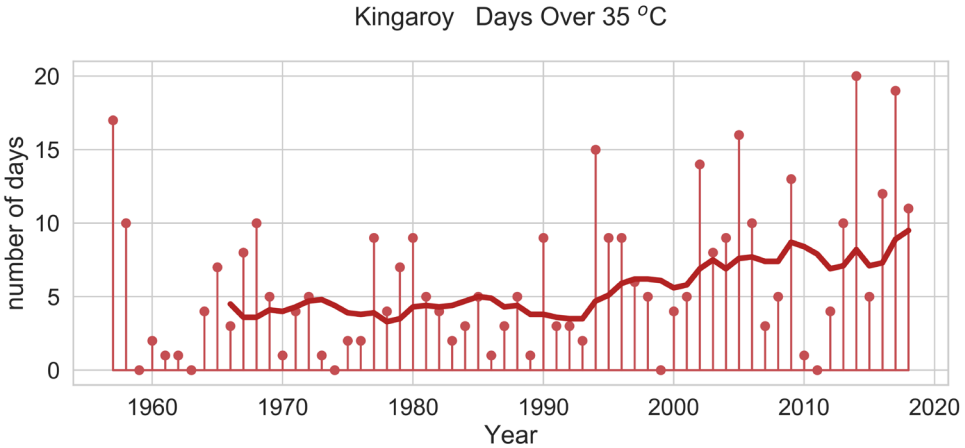
The Temperature Humidity Index (THI) is a measure of heat stress for animals and humans. A THI of 80 and above is classified as moderate to severe stress.
The charts shows the annual number of days with a THI of 80 and above (red bars), with a 10-year running average (solid red line) for Bundaberg and Gayndah. Bundaberg experienced an average of 37 days per year with a THI of 80 or above between 1989–2018, compared to an average of 27 days per year between 1959–1988. Gayndah experienced an average of 86 days per year with a THI of 80 and above between 1989–2018, compared to an average of 72 days per year between 1959–1988.





Burnett Mary has experienced more hot days in the past 30 years

The chart shows the annual number of days above 35 °C (red bars), with a 10-year running average (solid red line) for Kingaroy. Kingaroy experienced an average of eight days per year above 35 °C between 1989–2018, compared to an average of four days per year above 35 °C between 1959–1988.
Instances of consecutive days above 35 °C have also been more frequent in the past 30 years. In 1994, 1996 and 2009, Kingaroy experienced periods of six or more days in a row above 35 °C. A run of six or more days above 35 °C is unusual at Kingaroy and had not happened since 1957.
Since 1989, temperatures of 39 °C have been recorded for Kingaroy 16 times, including four times in 2014. In the previous 30-year period, the temperature exceeded 39 °C in Kingaroy only five times.



Regional Weather and Climate Guides are produced as a partnership between Bureau of Meteorology, CSIRO and FarmLink