In the last 30 years in the Condamine

- Annual rainfall has decreased by around 9%
- There was a consistent decrease in monthly rainfall averages across the year
- July to September rainfall decreased by 27%, with implications for spring soil moisture
- Summer rainfall has been reliable compared to other seasons, with autumn and winter being the most unreliable
- Wet years occurred seven times and dry years occurred nine times
- Spring frosts have been more common and have been occurring later
- There have been more hot days, with more instances of consecutive days above 38 °C

The Condamine at a glance

The Condamine region covers 2.5 million hectares, 85% of which is under agricultural production. It contains the majority of Queensland’s strategic cropping land. The dominant land uses are grazing of sheep and cattle, and dryland and irrigated cropping of cereals, pulses and cotton. Horticulture and intensive animal production, in particular pork and eggs, have a smaller footprint but are substantial contributors to the regional economy. Other smaller primary industries include viticulture and forestry. Agricultural production in the Condamine was valued at $1.46 billion in 2017–18.

A guide to weather and climate in the Condamine

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.
Annual average rainfall in the Condamine has decreased by around 50 mm from about 690 mm to about 640 mm (-7%) 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 Chinchilla and Warwick. 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 nine times, and wet years (highest 30%) have occurred seven times, while the remaining years were in the average range. Note the Millennium drought accounted for five of the 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.

Rainfall reliability maps for the past 30 years (1989–2018) show that summer rainfall in the Condamine has been the most reliable across the region (blue and light blue areas), usually changing by around 90 mm from year to year. Spring rainfall is also fairly reliable. This is in contrast to autumn rainfall, which has been less reliable (beige and light red areas), especially west of Dalby and in the south. Winter rainfall has been unreliable across the region (red areas), and although there have been some wet winters in the past 30 years, winter rainfall has not been reliable from year to year.

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

There is a consistent decrease in monthly rainfall averages across the year

Monthly average rainfall charts for Chinchilla and Warwick show decreases in monthly rainfall averages throughout the year. The orange bars represent the period 1989–2018, while the blue bars represent the previous 30-year period, 1959–1988.

Over the past 30 years, summer rainfall from December to April was 327 mm at Chinchilla, 18 mm lower than the 345 mm average for 1959–1988. At Warwick, summer rainfall decreased 59 mm over the same period, from 381 mm to 322 mm.

Over the same periods, winter rainfall between May and November decreased by 41 mm for Chinchilla, from 299 mm to 258 mm, while Warwick’s winter rainfall was 60 mm lower, from 350 mm in 1959–1988 to 290 mm in 1989–2018. While the drop in wintertime rainfall is apparent across the region, the area in the south east, around Warwick, has seen a larger decrease than in other parts.

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/

Three-monthly rainfall totals leading into spring have decreased

In the Condamine, stored soil moisture is a major consideration in summer cropping decisions. Soil moisture levels are largely driven by how much rainfall has been received in the three months leading into spring. The chart shows combined rainfall totals for July, August and September for 1959–1988 (light blue line) and 1989–2018 (dark blue line) with a 30 year average (solid horizontal line). While there was considerable annual variability, the overall three-month rainfall averages leading into spring have decreased by 30 mm in the past 30 years, from 110 mm in 1959–1988, to 80 mm in 1989–2018.
Frost

Later and more frequent frosts in some areas

The number of potential frosts increased at Dalby and Oakey between 1989–2018 (orange bars) compared with 1959–1988 (blue bars). In Oakey, potential frost nights through winter doubled from 17 nights to 35 nights, on average. Spring frosts increased from an average of two nights per year (1959–1988) to four nights per year (1989–2018). Frost risk was not consistent across the region. In Chinchilla and Warwick, for example, the incidence of spring frosts has not changed much in the past 30 years compared to the previous 30 years.

Frost risk typically ends by the start of October. There have been years when frosts continued through October, and there is a 50% chance that there will be at least one night in October that drops below 2 °C. In the past 30 years, the Condamine region has experienced only one potential frost night in November (17 Nov 2006). Frosty nights are more likely to occur through dry winters, when soil moisture is low, and cloud cover infrequent. On average, the Condamine region has three fewer frost nights in August following a wet winter than when following a dry winter.

Temperature

The Condamine 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 Dalby. Dalby experienced an average of 22 days per year above 35 °C between 1989–2018, compared to an average of 14 days per year above 35 °C between 1959–1988. Chinchilla experienced an average of 30 days per year above 35 °C between 1989–2018, compared to an average of 20 days per year above 35 °C between 1959–1988. Over the last 30 years, instances of consecutive days above 38 °C have been more frequent than in the previous 30 years. Since 2001, Chinchilla has experienced three periods of five or more days in a row above 38 °C.