In the last 30 years in the Mallee

- Annual rainfall has decreased by around 7%
- The decrease in rainfall is seen mostly in the autumn and spring months
- Winter rainfall has been reliable compared to other seasons, with summer being the most unreliable
- Dry years have occurred twice as often as wet years
- Autumn break usually occurs around mid-May in the east through to mid-June in the west
- Spring frosts have been more common and have been occurring later
- There have been more hot days, with more consecutive days above 38 °C

The Mallee at a glance

The Mallee region covers 3.9 million hectares, with 62% of land under agricultural production. It is a major dryland cropping region, with 1.3 million hectares planted to cereals, pulses and oilseeds. The region is the leading producer of Australia’s almonds, olives, table and dried grapes, as well as most of Victoria’s melons, avocado and citrus. Agricultural production in the Mallee was valued at $1.8 billion in 2017-18.

A guide to weather and climate in the Mallee

Primary producers make decisions using their knowledge and expectations of regional weather patterns. The purpose of this guide is to provide 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 rainfall in the Mallee has decreased by around 20 mm (7%) from about 320 mm to about 300 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 Birchip and Mildura. 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 six 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 five times and wet years occurred 12 times.

Rainfall reliability maps for the past 30 years (1989-2018) show winter rainfall has been moderately reliable across the region (light blue areas), ranging from about 50 mm up to 110 mm in the wetter years. This is in contrast to spring and autumn rainfall, which has been less reliable (light red areas), especially in the north-east. Summer rainfall has been unreliable across the region (red areas), and although there have been some wet summers in the past 30 years, summer 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


Mallee winter rainfall is reliable; summer rainfall is unreliable

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Rainfall has decreased in the autumn and spring months

Rainfall decreased in the autumn and spring months at Birchip and Mildura between 1989–2018 (orange bars) compared with 1959–1988 (blue bars). Over the past 30 years, winter growing season rainfall (April to October inclusive) for Birchip was 214 mm; 48 mm lower than the 262 mm average for the previous 30-year period (1959–1988). For Mildura, growing season rainfall decreased 28 mm over the same period.


Timing of the autumn break in the Mallee region

In the Mallee, the autumn break can be defined as at least 15 mm of rainfall over three days. The map shows that over the past 30 years (1989–2018), the break typically occurred within the last two weeks of May in the eastern parts of the region (blue to green areas), and not until June in much of the west (light green to yellow areas).
**Frost**

**Later and more frequent frosts**

The number of potential frosts has increased at Mildura and Birchip between 1989-2018 (orange bars) compared with 1959-1988 (blue bars). Frost frequency increased in late spring, with an average of eight more spring nights with the potential for frost between 1989-2018 compared to 1959-1988. Mildura’s frost risk has typically ended by the start of October, whereas Birchip has experienced frosts well into October and into November, about once every second year. The latest potential frost night recorded for the region was the 30th of November 1991. More frosty nights have tended to occur through dry winter and spring periods, when soil moisture is low, and cloud cover infrequent. On average, the Mallee region has had four more spring frost nights following a dry winter.

**Temperature**

**The Mallee has experienced more hot days in the past 30 years**

The chart shows the annual number of days above 38 °C (blue bars), with a 10-year running average (solid blue line) for Mildura. Mildura experienced an average of 16 days per year above 38 °C between 1989–2018, compared to an average of 10 days per year above 38 °C between 1959–1988. Since 1989, unprecedented temperatures of 46 °C have been recorded for Mildura six times. Instances of consecutive days above 38 °C have also been more frequent in the past 30 years. In 1959, 2007, 2009 and 2018, Mildura experienced four periods of 10 or more days in a row above 38 °C; noting three of these four instances have occurred since 2007. In both 2009 and 2018, the periods above the 38 °C threshold lasted 13 days.