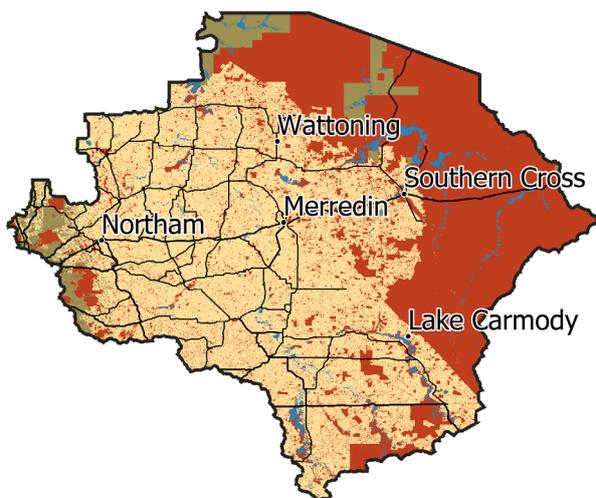


Regional Weather and Climate Guide

In the last 30 years in the Wheatbelt

-  Annual rainfall has been stable
-  Dry years have occurred seven times and wet years 10 times
-  Rainfall has decreased in the autumn months but increased in spring
-  Winter rainfall has been reliable; summer has been unreliable
-  The autumn break typically occurred in the first or second week of May in the east and central part of the region and not until mid to late May for the northern and southern areas
-  Frosts have been more common and have been occurring later
-  There have been more hot days, with more consecutive days above 38 °C



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

WA Wheatbelt at a glance

The Wheatbelt region covers around 13.3 million hectares, of which 58% is under agricultural production. Broadacre cropping — cereals, oilseeds, pulses and hay — make up almost three quarters of the region's agricultural output, followed by livestock (cattle, and sheep for meat and wool). Other industries include nurseries, horticulture, and eggs. The region contributed almost \$2.5 billion to the Australian economy in 2017–18.

A guide to weather and climate in the Wheatbelt

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
Wheatbelt, Western Australia



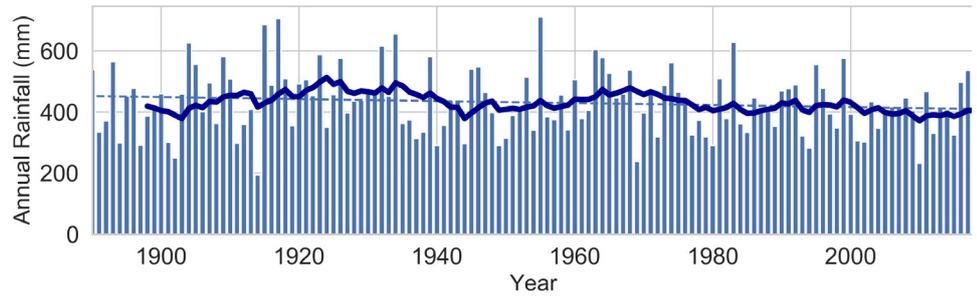


Annual Rainfall

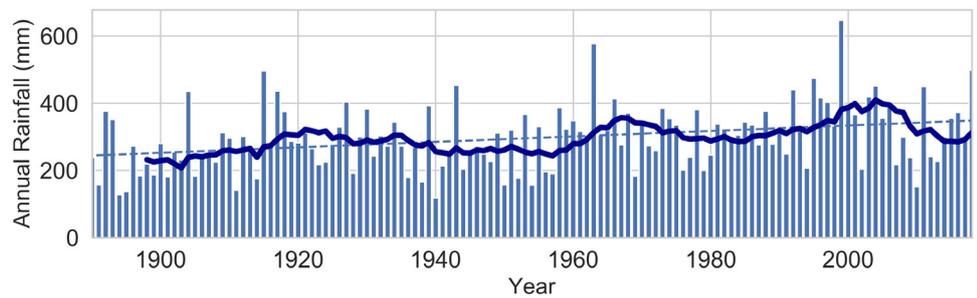
Annual rainfall in the Wheatbelt has been stable

Annual rainfall in the Wheatbelt has been stable, recording an average of about 340 mm in both the past 30 years (1989–2018) and the previous 30 years (1959–1988). The charts show annual rainfall (blue bars), with a 10-year running average (solid blue line) for Northam and Southern Cross. Although the average annual rainfall has been stable, it still fluctuates from year to year with natural variability. In the past 30 years (1989–2018), dry years (lowest 30%) have occurred seven times and wet years (highest 30%) have occurred 10 times, while the remaining years were in the average range. Note the Millennium drought accounted for four of these dry years in the recent period. During the previous 30-year period (1959–1988), dry years occurred eight times and wet years occurred nine times.

Northam Annual Rainfall 1889 - 2018



Southern Cross Annual Rainfall 1889 - 2018



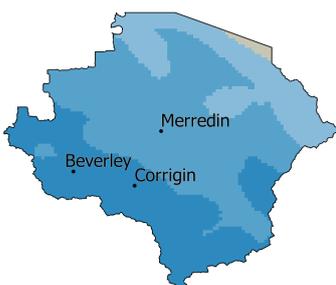
For more information on future projections, visit the Climate Change in Australia website > www.climatechangeaustralia.gov.au

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

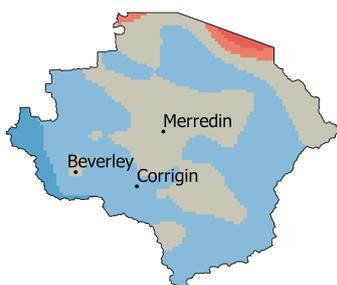
Wheatbelt winter rainfall is reliable; summer is unreliable

Rainfall reliability maps for the past 30 years (1989–2018) show winter rainfall has been reliable across the region (blue areas), with about 40 mm difference from one year to the next. Spring has also been moderately reliable. This is in contrast to autumn rainfall, which has been less reliable (beige and red areas), especially in the region's north. Although there have been some wet summers in the past 30 years, summer rainfall has been unreliable across the region (red areas) particularly in the south west around Beverley and Corrigin.

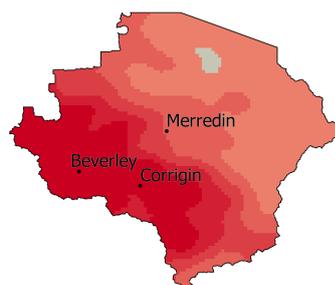
Winter



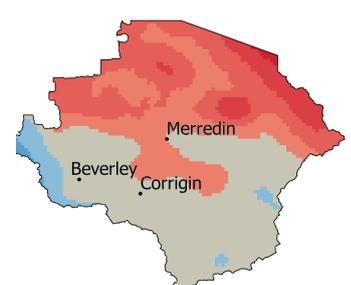
Spring



Summer



Autumn



Average Change In Seasonal Rainfall From Year to Year



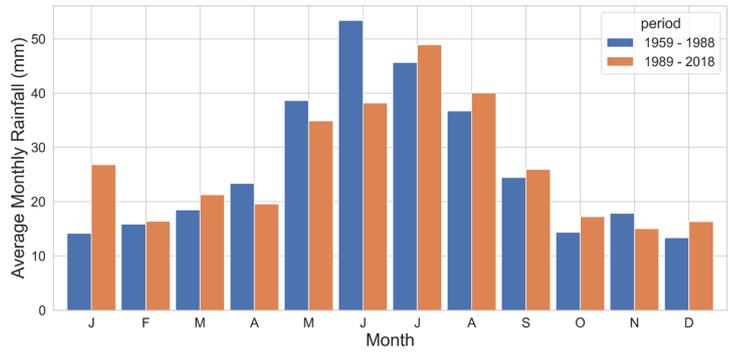


Rainfall Timing

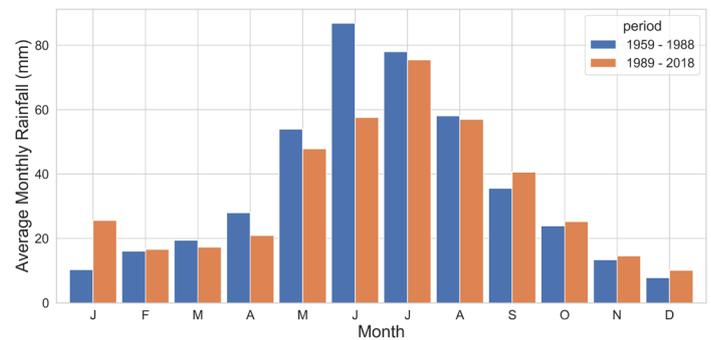
Rainfall has decreased in autumn but increased in spring

Rainfall decreased at Merredin and Northam in autumn but increased slightly in spring between 1989–2018 (orange bars) compared with 1959–1988 (blue bars). In both locations, January also recorded a substantial increase in rainfall between the two 30-year periods. Over the past 30 years, winter growing season rainfall (April to October inclusive) for Northam was 324 mm; 40 mm lower than the 364 mm average for the previous 30-year period (1959–1988). For Merredin, growing season rainfall has decreased by 11 mm, from 236 mm to 225 mm. Over the same 30-year periods, summer rainfall (November to March inclusive) increased by 17 mm for Northam, from 67 mm to 84 mm, while Merredin’s summer rainfall was 16 mm higher, from 80 mm up to 96 mm.

Merredin 30-year Average Rainfall by Month

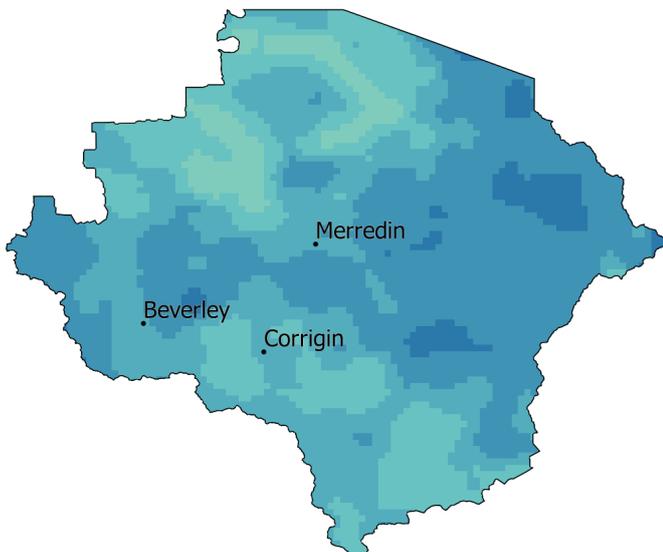


Northam 30-year Average Rainfall by Month



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/

Timing of the autumn break in the Wheatbelt



In the Wheatbelt, the autumn break can be defined as at least 15 mm of rainfall over three days, prior to the commencement of the winter cropping season. The map shows that over the past 30 years (1989–2018), the break typically occurred in the first or second week of May in the east and central region (blue areas), and not until mid to late May for the northern and southern areas (teal and green areas). In the region’s north east in the last 30 years, the average autumn break has occurred two to four weeks later than the previous 30-year period (1959–1988), with little change cross the rest of the region.

Weeks after 1 April	4	5	6	7	8
Autumn Break Usually Occurred After...	5 May	12 May	19 May	26 May	2 June





Frost

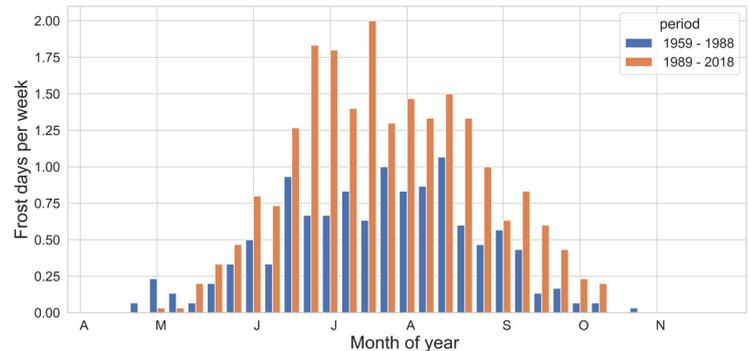
Later and more frequent frosts

The number of potential frosts has increased at Northam and Lake Carmody between 1989–2018 (orange bars) compared with 1959–1988 (blue bars).

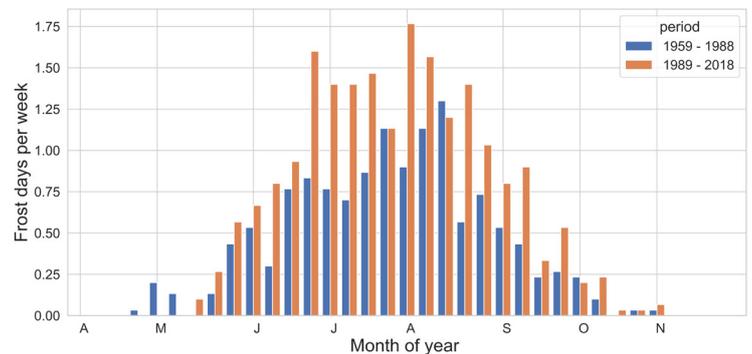
Northam's frost risk has typically ended by the third week of September, whereas Lake Carmody experienced frosts through October. The latest potential frost night recorded at Northam airport was the 12th of October 2018.

More frosty nights have tended to occur through dry winter and spring periods, when soil moisture is low and cloud cover infrequent. On average, Northam had three frost nights in the spring following a dry winter, and two frost nights in the spring following a wet winter.

Northam Frost Occurrence And Likelihood By Week



Lake Carmody Frost Occurrence And Likelihood By Week

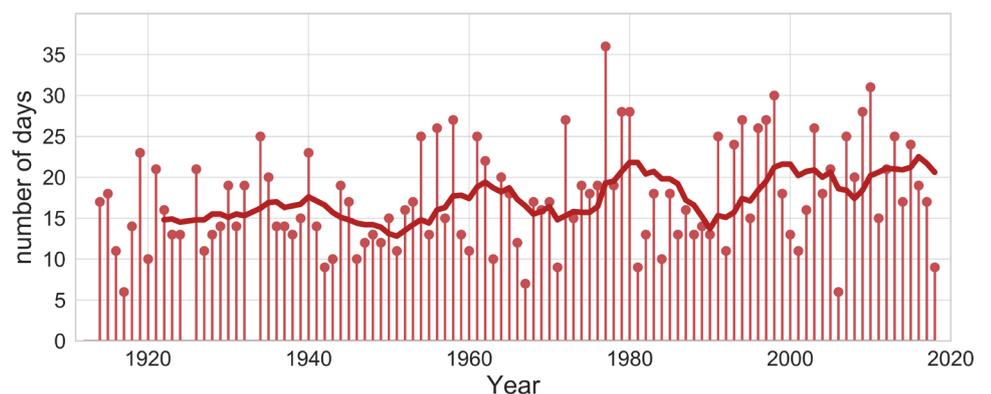


Temperature

The Wheatbelt has experienced more hot days in the past 30 years

The chart shows the annual number of days above 38 °C (red bars), with a 10-year running average (solid red line) for Merredin. Merredin experienced an average of 20 days per year above 38 °C between 1989–2018, compared to an average of 17 days per year above 38 °C between 1959–1988. Since 1989, temperatures of 45 °C have been recorded for Merredin six times, once each in 1991, 2007, 2014 and 2015 and twice in 2010. In the previous 30-year period, the temperature exceeded 45 °C in Merredin once, in 1980. Instances of consecutive days

Merredin Days Above 38 °C



above 35 °C have also been more frequent in the past 30 years. In 2009, Merredin experienced a period of 13 or more days in a row

above 35 °C. A run of 13 or more days above 35 °C is unusual at Merredin and had not happened since 1956.

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



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