# Seasonal conditions

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## Seasonal conditions

Global production conditions generally favourable. Unfavourable autumn rainfall outlook for northern Australia.

## Climatic conditions in major crop-producing countries

As at 28 January, global production conditions were generally favourable (Figure 1).

### Grains

In the southern hemisphere, winter wheat harvest conditions were generally favourable, except in eastern Australia. In the northern hemisphere, dormancy of winter wheat is continuing under favourable conditions.

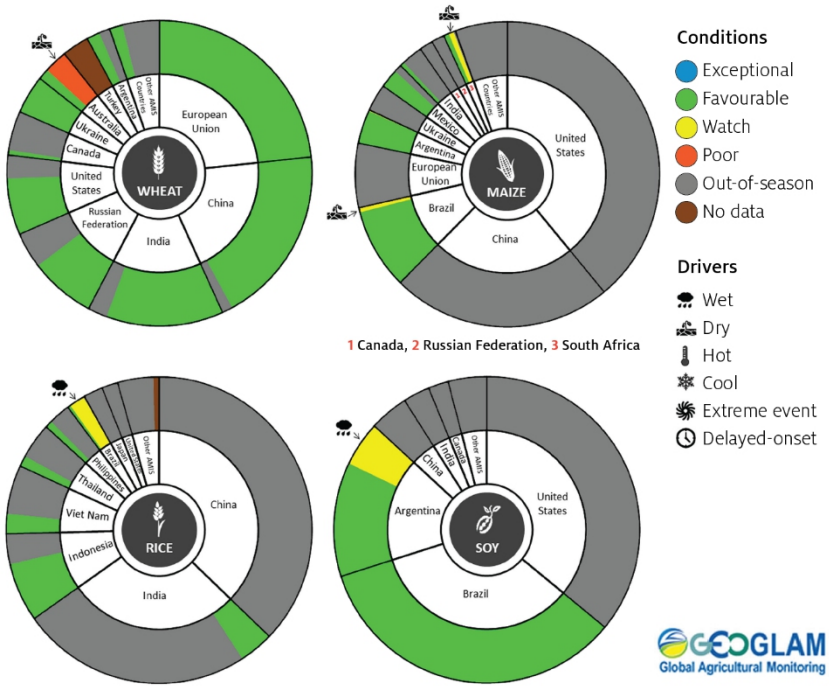
Growing conditions for maize are generally favourable in Brazil and Argentina, but conditions are mixed in South Africa.

Growing conditions are favourable for dry-season rice in South-East Asia and wet-season rice in Indonesia. Excessive rainfall and cloud cover in Brazil are likely to affect the rice crop.

### Oilseeds

Growing conditions for soybeans are generally favourable in the southern hemisphere, but some parts of Argentina have been affected by flooding.

**Figure 1 Crop conditions, AMIS countries, 28 January 2019**



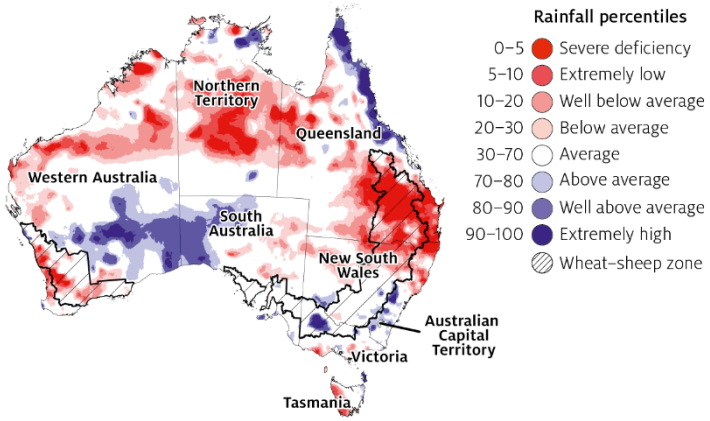

**AMIS** Agricultural Market Information System.
Source: AMIS

## Climate outlook for Australia

### Below average rainfall decreases summer crop production

The first 9 months of 2018 were exceptionally dry over the south-east of mainland Australia. This follows a series of dry years in parts of Queensland, and drier than average conditions in much of southern Australia in 2017. Since October 2018 close to average rainfall across large areas of southern Australia (Map 1) has somewhat eased rainfall deficiencies.

**Map 1 Rainfall percentiles, Australia, 1 November 2018 to 31 January 2019**




Note: Rainfall for November 2018 to January 2018 relative to the long-term record and ranked in percentiles. This analysis ranks rainfall for the selected period compared with the historical average (1900 to present) recorded for that period.
Source: Bureau of Meteorology

However, for south-eastern Australia much of this rain has come after the main agricultural production period. This has reduced rainfall deficiencies, but has not significantly reduced the impact of earlier dry conditions. Late season rainfall in southern Australia is also of little benefit to water storage inflows, which remain at lower than average levels for this time of year.

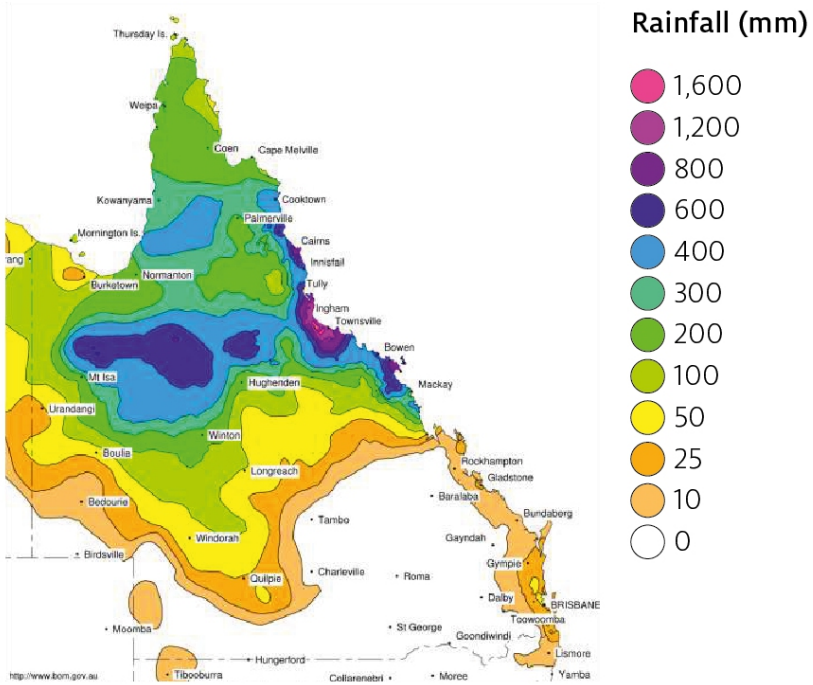
There has been a delayed onset of the Australian monsoon this summer. This has resulted in below average rainfall for much of northern Australia. In contrast, above average rainfall has been recorded for Queensland's tropical and central coast and the north-eastern Top End.

Summer crop planting in Queensland and northern New South Wales increased following favourable late spring rainfall. However, widespread hot and dry conditions in December 2018 and January 2019 are expected to have had a negative impact on summer crop production. These unfavourable conditions curtailed dryland planting in the latter part of the planting window, lowered soil moisture levels and reduced yield prospects for dryland crops. These crops will require sufficient and timely rainfall over the remainder of the season.

### Late onset monsoon brings extreme flooding to Queensland

From late January into early February 2019, an active monsoon trough and a slow-moving low pressure system produced extremely heavy rainfall in tropical Queensland (Map 2). Large areas in north-west Queensland experienced rainfall of more than 400 millimetres during the event. During the first week of February, areas on the coast near Townsville and Mount Isa had more than 4 times their average February rainfall.

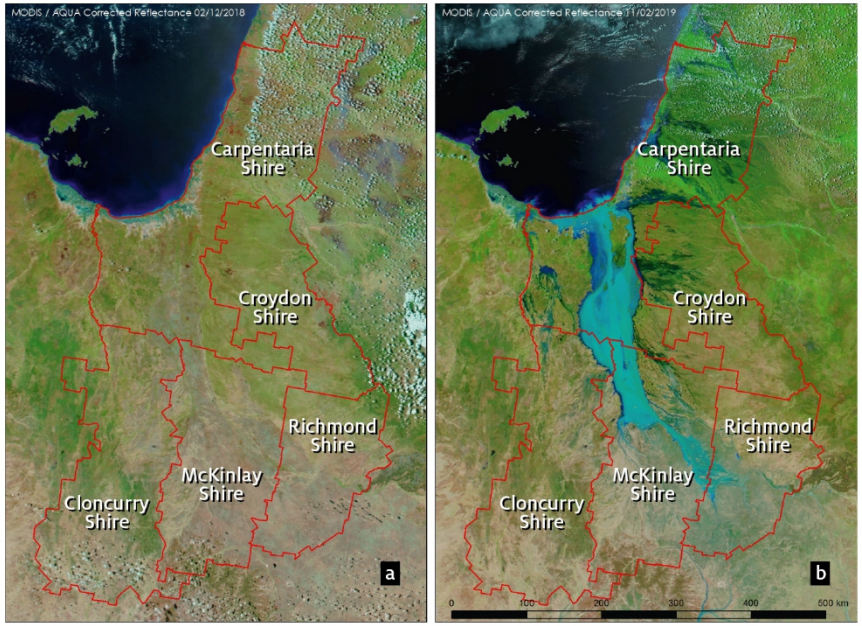
**Map 2 Rainfall, Queensland, 26 January to 7 February 2019**




Source: Bureau of Meteorology

Extensive flooding (Map 3) following heavy rainfall in the Gulf Country and north-western Queensland caused severe damage to farm and transport infrastructure in the region and significant cattle losses.

**Map 3 Satellite images, north-western Queensland, 2 December 2018 and 11 February 2019**




Note: MODIS/Aqua false colour composite satellite images of northern Queensland taken on a) 2 December 2018, before the flood, and b) 11 February 2019, following extensive flooding across the Carpentaria, Cloncurry, Croydon, McKinlay and Richmond shires.
Source: National Aeronautics and Space Administration

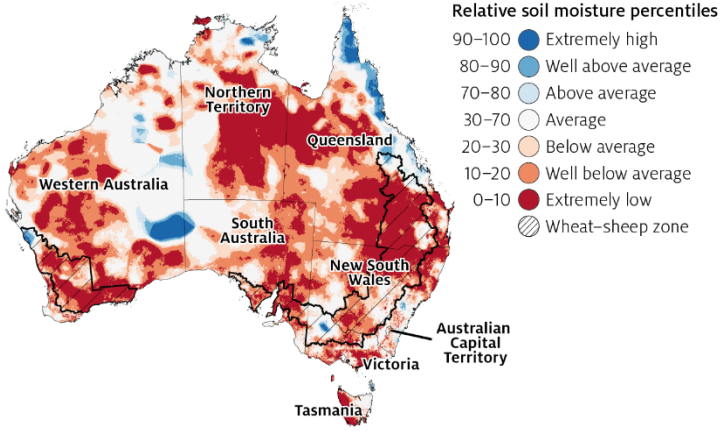
## Decreased rainfall leads to decline in soil moisture

Below average rainfall and well above average temperatures during December 2018 and January 2019 resulted in a decline in soil moisture. In summer cropping regions, root zone soil moisture was average to below average in December 2018. By January 2019 soil moisture in these regions was generally well below average and in some areas was the lowest on record. The decline in soil moisture levels has contributed to poorer summer crop prospects and reduced pasture growth.

In January 2019 relative root zone soil moisture was extremely low to below average across most of Australia for this time of year (Map 4). It was well below average to extremely low across south-eastern Queensland, north-eastern New South Wales, southern Western Australia and central Northern Territory.

Root zone soil moisture in northern Queensland was extremely low to well below average in January 2019, after the late onset monsoon. However, these estimates were developed before the heavy rainfall event in February that has resulted in a significant increase in soil moisture.

**Map 4 Modelled root zone soil moisture, Australia, 1 to 31 January 2019**

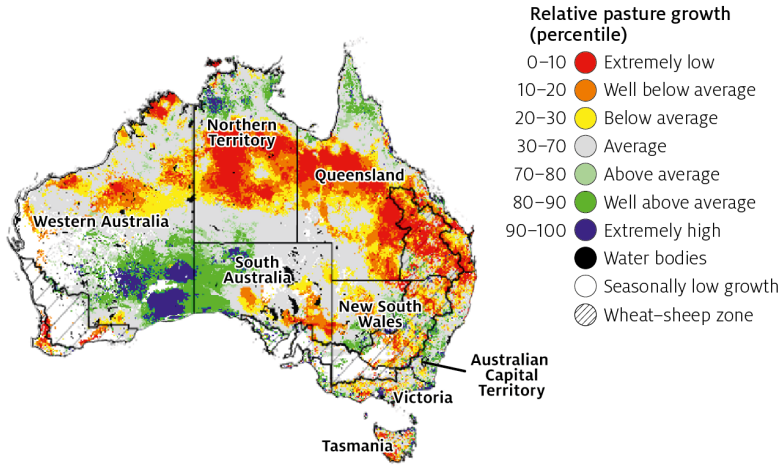



Note: Soil moisture estimates are relative to the long-term record and ranked in percentiles. Estimates are used to compare root zone soil moisture during January 2019 and ranked by percentiles for each January in the 1911–2015 historical reference period. Root zone soil moisture is defined as the soil surface to 1 metres in depth.
Source: Bureau of Meteorology

## Pasture growth below average in tropical Australia

For the 3 months to January 2019, modelled pasture growth was well below average to extremely low across large areas of north-western and south-eastern Queensland, central Northern Territory and parts of northern Western Australia and eastern South Australia (Map 5).

**Map 5 Relative pasture growth, Australia, 1 November 2018 to 31 January 2019**




Note: AussieGRASS pasture growth estimates are relative to the long-term record and shown in percentiles. Percentiles rank data on a scale of zero to 100. This analysis ranks pasture growth for the selected period against average pasture growth for the long-term record (1957 to 2016). Pasture growth is modelled at 5km$^2$ grid cells.
Source: Queensland Department of Science, Information Technology and Innovation

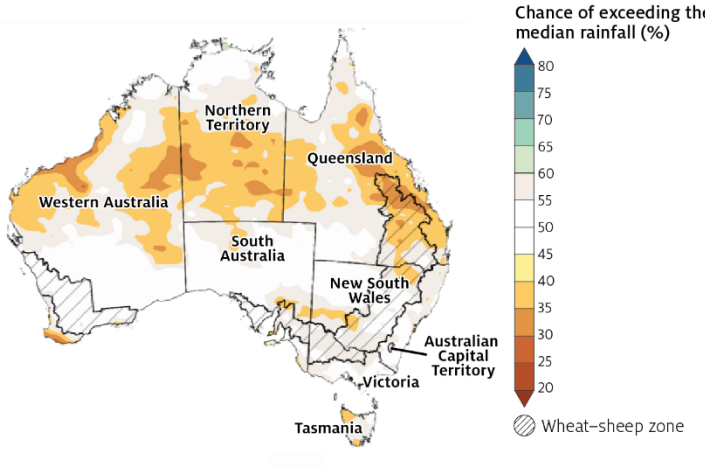
A return to average rainfall levels during late spring to midsummer benefited pasture production in parts of central and eastern New South Wales, northern Queensland, western South Australia, south-eastern Western Australia and the north of the Northern Territory.

However, rainfall arrived too late to benefit pasture production across large areas of south-eastern Australia, where temperate pasture species tend to have lower growth rates at this time of year.

## Neutral outlook for the south, but mixed for northern Australia

The Bureau of Meteorology's climate outlook for March to May 2019 (released 14 February 2019) indicates that a drier than average end to the northern wet season is more likely across large areas of northern Australia. Conditions for much of the remainder of the country are not expected to be wetter or drier than average during autumn 2019 (Map 6).

**Map 6 Rainfall outlook, Australia, March to May 2019**




Note: Shows the likelihood, as a percentage, of exceeding the 1990–2012 median rainfall for the upcoming 3 months. Median rainfall is defined as the 50$^{th}$ percentile calculated from the 1990–2012 reference period.
Source: Bureau of Meteorology

This climate outlook information has been used to develop ABARES commodity and agricultural outlooks over the short-term. The Bureau of Meteorology has subsequently updated its autumn 2019 climate outlook on 28 February. The new climate outlook indicates that a drier than average three months is now more likely for much of the eastern

half of Australia and the Northern Territory. If realised this would present a downside risk to our commodity and agricultural outlooks over the short-term.

The Bureau of Meteorology's El Niño Southern Oscillation (ENSO) outlook remains 'at El Niño WATCH'. This assumes that the likelihood of an El Niño developing during the southern hemisphere autumn or winter is around 50%. In contrast the US National Oceanic and Atmospheric Administration (NOAA) announced the arrival of an El Niño on 14 February 2019. The difference between these assessments is due to the sea-surface temperature anomaly thresholds each organisation uses to indicate ENSO events: the Bureau of Meteorology uses 0.8˚C and NOAA 0.5˚C.

Bureau of Meteorology analysis indicates that warmer than average subsurface temperatures in the tropical Pacific and weaker than average trade winds may result in a weak El Niño event developing during autumn. An El Niño typically brings below average rainfall to southern and eastern Australia during autumn and winter. An El Niño is also likely to bring warmer than average days to large parts of the continent.

Insufficient rainfall during the remainder of the northern wet season will result in continued below average pasture growth rates across northern Australia. However, recent flooding will likely increase future pasture growth and productivity in affected regions.

Close to average rainfall across large areas of southern Australia has somewhat eased rainfall deficiencies in some drought-affected areas. If an El Niño were to arrive during autumn 2019, it would typically bring below average rainfall to southern and eastern Australia.