Seasonal conditions

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Climatic conditions in major crop-producing countries
As at 28 August 2018, global production conditions were mostly positive for soybeans and rice but mixed for wheat and maize (Map 1).

Grains
In the northern hemisphere, the winter wheat harvest resulted in reduced yields in the European Union and Ukraine. The spring wheat harvest is ongoing. Production prospects are favourable across most major growing regions. In the southern hemisphere, dry conditions are likely to have a significant effect on yields across eastern Australia.

Production conditions for maize are mixed. In parts of Brazil, dry conditions have reduced yields of summer-planted crop. In the northern hemisphere, dry conditions are affecting yields in northern Europe, Canada and the Russian Federation. In contrast, exceptional growing conditions in the Midwest of the United States and in southeastern Europe are likely to result in increased yields.

Growing conditions are mostly favourable for major rice-producing countries.

Oilseeds
Record soybean yields are forecast in many parts of the United States as a result of favourable growing conditions. Conditions are also favourable across China, India and Ukraine, but hot and dry conditions in Canada are likely to result in reduced yields.

Climate outlook for Australia
Recent climatic conditions
Rainfall in August 2018 was generally below average to average across much of Australia (Map 2). Severely deficient to below average rainfall was recorded across large areas of Queensland, southern and western New South Wales, eastern Victoria, northern Western Australia and the south of the Northern Territory. In contrast, above average to extremely high rainfall was recorded in western South Australia, south-western Western Australia and parts of northern Australia.

August 2018 rainfall in cropping regions was generally average in northern New South Wales, Victoria, eastern South Australia and Queensland. Average to extremely high rainfall was recorded in Western Australia and on the Eyre and Yorke peninsulas in South Australia.
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Map 1 Crop conditions, AMIS countries, 28 May 2018

AMIS Agricultural Market Information System.
Note: Crop conditions data in main growing areas for wheat, maize, rice and soybeans are based on remotely sensed data, ground observations, field reports and input from national and regional crop analysts.
Source: Agricultural Market Information System
Winter 2018 was particularly dry across much of central and eastern Australia (Map 3). Nationally, this winter was the 14th driest on record. Winter rainfall in New South Wales was the 8th lowest on record. Rainfall for the season was below average for north-eastern Western Australia, much of the Northern Territory, the northern and eastern areas of South Australia, most of Queensland and New South Wales, and northern and eastern Victoria.

In contrast, average to above average winter rainfall was recorded in much of south-western Victoria, central and north-western Queensland, southern and western South Australia, the south and west of Western Australia, Tasmania and the east of the Northern Territory.

In cropping regions, winter 2018 rainfall was average to above average in Western Australia, variable in Queensland, below average to average in Victoria and South Australia, and extremely low across much of New South Wales.
Drought deepens in eastern Australia

The dry winter followed longer-term rainfall deficiencies in large parts of eastern Australia. Winter rain-bearing systems were weaker and less frequent than usual, and high pressure systems were dominant over south-eastern Australia for several months. This led to clear skies, warm days and very little rainfall across much of eastern Australia.

The first 8 months of 2018 were marked by extended periods of particularly dry weather for much of south-eastern Australia. Serious to severe rainfall deficiencies were evident across New South Wales, inland southern Queensland, and some areas in eastern South Australia and north-western and eastern Victoria.

In New South Wales, the 2018 autumn and winter periods were particularly dry. Area-average autumn and winter rainfall totals were the 8th driest on record. For the autumn/winter period (April to August 2018), the area-average rainfall total was the 2nd lowest on record. For New South Wales and the Australian Capital Territory as a whole, the April to August 2018 rainfall total was 125 millimetres lower than the 1961 to 1990 average. This is the driest autumn/winter rainfall total since 1902.

Autumn and winter (April to August) rainfall anomalies, New South Wales and the Australian Capital Territory, 1900 to 2018

Note: Rainfall anomalies denote the departure of the rainfall total for a selected period from the climatological reference period average value for that same period. This analysis compares the autumn and winter (April to August) area-average rainfall total with the 1961 to 1990 average value for same time period. Rainfall totals higher than the 1961 to 1990 average are presented as positive anomalies and rainfall totals lower than the 1961 to 1990 average are presented as negative anomalies.

Source: Bureau of Meteorology

Recent soil moisture levels

Well above average temperatures and low rainfall during autumn and winter have resulted in a rapid decline in soil moisture levels. This has led to increased moisture stress in southern pastures and on winter crops such as canola and wheat. The lack of water in the soil profile is also likely to have resulted in increased demand for water for irrigated crops and pastures.

In August 2018 relative upper layer soil moisture was well below average to extremely low across large areas of eastern and northern
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Australia. However, it was average to well above average across central and south-western Australia (Map 4).

**Map 4 Modelled upper layer soil moisture, Australia, 1 to 31 August 2018**

Note: Soil moisture estimates are relative to the long-term record and ranked in percentiles. Estimates are used to compare upper layer soil moisture from August 2018 and ranked by percentiles for each August in the 1911–2015 historical reference period. Upper layer soil moisture is defined as the soil surface to 0.1 metres in depth.

Source: Bureau of Meteorology

Relative lower layer soil moisture for August 2018 was extremely low to well below average across large areas of eastern, central and northern Australia (Map 5). In contrast, it was average to extremely high across much of the south and west of the country.

**Map 5 Modelled lower layer soil moisture, Australia, 1 to 31 August 2018**

Note: Soil moisture estimates are relative to the long-term record and ranked in percentiles. Estimates are used to compare lower layer soil moisture from August 2018 and ranked according to percentiles for each August in the 1911–2015 historical reference period. Lower layer soil moisture is defined as 0.1 to 1.0 metres in depth.

Source: Bureau of Meteorology

**Recent pasture growth**

For the 3 months to August 2018, modelled pasture growth was well above average to extremely high across parts of the west of Western Australia, southern Victoria, southern South Australia and parts of eastern Tasmania. In contrast, modelled pasture growth was well below average to extremely low across much of New South Wales, northern Victoria, central and southern Queensland, much of the remainder of South Australia, central and northern Western Australia.
and the south of the Northern Territory. Modelled pasture growth was generally average across the remainder of the country (Map 6).

**Map 6 Relative pasture growth, Australia, 1 June to 31 August 2018**

![Relative pasture growth, Australia, 1 June to 31 August 2018](image)

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 5 km² grid cells.

Source: Queensland Department of Science, Information Technology and Innovation

The well below average to extremely low pasture growth modelled across large areas of eastern Australia is largely due to low soil moisture levels as a result of a deepening of drought conditions during winter.

If drier than normal conditions continue, crop prospects and pasture production will be affected across south-eastern Australia. The magnitude of this impact will be strongly influenced by how long the rainfall deficit persists.

**Climate outlook**

The Bureau of Meteorology’s climate outlook for September to November 2018 indicates that a drier than average spring is more likely for inland New South Wales (west of the Great Dividing Range), Victoria, parts of western and northern Queensland, South Australia, south-west Western Australia, southern Northern Territory and Tasmania. Neither wetter nor drier than average conditions are expected for much of the remainder of the country (Map 7).

The September to November 2018 outlook reflects the neutral state of broadscale climate drivers, such as El Niño, La Niña and the Indian Ocean Dipole (IOD). These are having little influence on Australia’s climate, but current observations and model outlooks indicate El Niño and a positive IOD could develop in spring. The latest modelling from the Bureau of Meteorology suggests that sea surface temperatures will continue to be cooler than average to Australia’s north-west. This is likely to be suppressing rainfall over southern and central Australia.
In late August 2018 the Bureau of Meteorology reported that the El Niño–Southern Oscillation (ENSO) remains in a neutral state—neither El Niño nor La Niña. Most international climate models indicate that ENSO is likely to continue in a neutral phase until November. Atmospheric and oceanic indicators of ENSO are largely at neutral levels. However, sea surface temperatures in the eastern equatorial Pacific Ocean are now warmer than average and the Southern Oscillation Index has become more negative.

Most international climate models surveyed by the Bureau of Meteorology indicate that further warming of the tropical Pacific Ocean is likely and that values consistent with an El Niño event are likely to be reached during November 2018. El Niño onset at this time of year would be later than usual but not unprecedented.

The impact of an El Niño event on agricultural production is not uniform and is difficult to predict. While reduced rainfall is often associated with El Niño, the timing of the rainfall can have a significant effect on crop and pasture production. The effect of El Niño on Australia’s agricultural production depends on the intensity of the event and the timing of rainfall.

Soil moisture levels across large areas of eastern Australia have continued to decline since the start of the year. Therefore, crop production will be highly dependent on seasonal conditions during the coming spring. Timely rainfall in early spring will be critical to ongoing crop development in many cropping regions in the eastern states (including South Australia). In Western Australia, favourable spring conditions could boost production beyond the current forecast.

Insufficient spring rainfall could affect pasture growth rates and fodder production levels in key production states in southern Australia. If realised, this would result in further reductions in herd and flock numbers and continuing high fodder prices across eastern Australia.