



Weekly Australian Climate, Water and Agricultural Update

No. 42/2021

28 October 2021

Summary of key issues

- During the week ending 27 October 2021, a cold front and associated cloud band brought rainfall to southern Australia, while low-pressure troughs brought rainfall to scattered areas of northern and eastern Australia (see Section 1.1).
- The relatively dry conditions across southern Queensland and northern New South Wales cropping regions have likely allowed harvesting activities to continue uninterrupted, following some heavy rainfall the previous weeks. The rainfall in south-western cropping regions will be a welcome top up to soil moisture levels and will support yield potentials through grain filling.
- The El Niño-Southern Oscillation (ENSO) conditions currently remain neutral. However, all international models surveyed predict the formation of a La Niña event in November 2021. La Niña events are associated with above-average rainfall for northern and eastern Australia during spring and summer. The value of the Indian Ocean Dipole (IOD) index returned below the negative threshold (-0.4°C) following a brief period of neutral values. The decline in the IOD value reflects warmer than average sea surface temperatures in the eastern Indian Ocean. A negative IOD is associated with increased spring rainfall in parts of southern Australia ([see Section 1.2](#)).
- The outlook for November 2021 to January 2022 suggests there is a 75% chance of rainfall totals between 50 and 200 millimetres across much of New South Wales, Queensland, Victoria, the Northern Territory and Tasmania, as well as parts of South Australia and Western Australia. Rainfall totals in excess of 300 millimetres are likely across parts of alpine and coastal regions of New South Wales and Victoria, as well as northern Queensland, the north of the Northern Territory and Western Australia, and western Tasmania ([see Section 1.3](#)).
- Over the 8-days to 4 November 2021 a series of troughs, low-pressure systems and cold fronts are expected to bring showers and storms to large area of northern, central and eastern Australia. Meanwhile, high pressure systems are expected to bring dry weather conditions to much of Western Australia over the next 8 days (see Section 1.4).
- Water storage in the Murray–Darling Basin (MDB) increased by 85 gigalitres (GL) between 20 October 2021 and 27 October 2021. The current volume of water held in storage is 22,108 GL, which represents 87% of total capacity. This is 43% or 6,669 GL more than at the same time last year.
- Allocation prices in the Victorian Murray below the Barmah Choke decreased from \$119 per ML on 15 October 2021 to \$114 per ML on 22 October 2021. Prices are lower in the Goulburn–Broken, Murrumbidgee, and regions above the Barmah choke due to the binding of the Goulburn intervalley trade limit, Murrumbidgee export limit, and Barmah choke trade constraint.

1. Climate

1.1. Rainfall this week

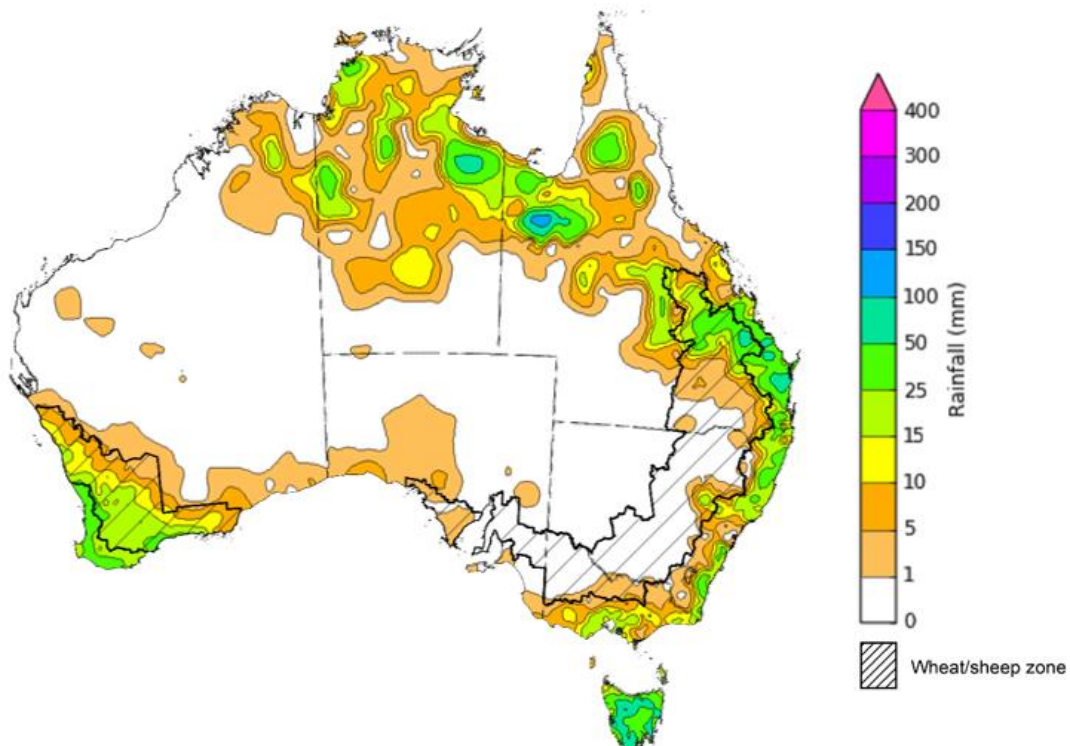
During the week ending 27 October 2021, a cold front and associated cloud band brought rainfall to southern Australia, while low-pressure troughs brought rainfall to scattered areas of northern and eastern Australia.

Rainfall totals of between 10 and 50 millimetres were recorded along the east coast of New South Wales, parts of eastern, central and northern Queensland, southern Victoria, the south-west and far north of Western Australia and the north of the Northern Territory. Rainfall totals in excess of 50 millimetres were recorded in across scattered areas of Queensland and much of Tasmania.

In cropping regions, rainfall totals of between 10 and 50 millimetres were recorded in northern Queensland and across much of Western Australia. Little to no rainfall was recorded across remaining cropping regions.

The relatively dry conditions across southern Queensland and northern New South Wales cropping regions have likely allowed harvesting activities to continue uninterrupted, following some heavy rainfall the previous weeks. Likewise, summer planting in Queensland and northern New South Wales is well underway, encouraged by above average soil moisture levels in parts. The rainfall in south-western cropping regions will be a welcome top up to soil moisture levels and will support yield potentials through grain filling. While little to no rainfall was recorded across much New South Wales, Victoria and South Australia these dry conditions will have provide ideal condition for fodder conservation and pre-harvest field work such as windrowing of Canola.

Rainfall for the week ending 27 October 2021



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Note: The rainfall analyses and associated maps utilise data contained in the Bureau of Meteorology climate database, the Australian Data Archive for Meteorology (ADAM). The analyses are initially produced automatically from real-time data with limited quality control. They are intended to provide a general overview of rainfall across Australia as quickly as possible after the observations are received. For further information go to <http://www.bom.gov.au/climate/rainfall/>

1.2. Climate Drivers

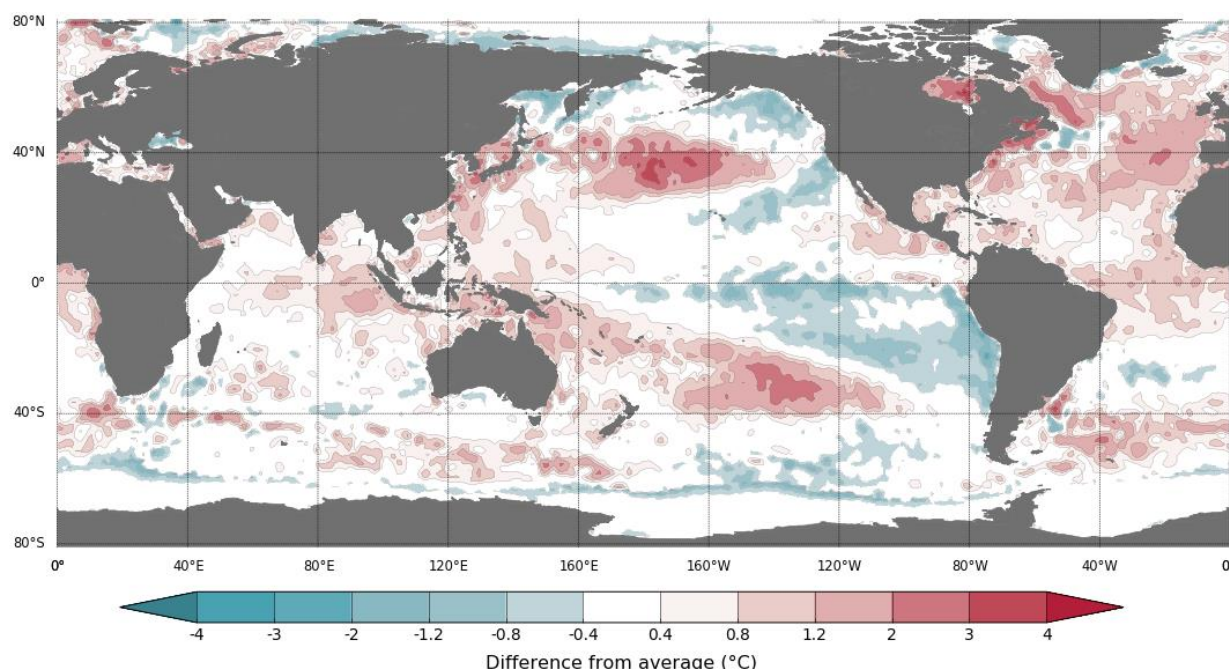
Throughout late spring and early summer the climate drivers with the largest potential impact on Australia's climate patterns are the El Niño–Southern Oscillation (ENSO), the Indian Ocean Dipole (IOD) and the Southern Annular Mode (SAM). These climate drivers will likely influence the final yield prospects for Australia's winter cropping season, pasture growth rates during this peak growth period and planting conditions for summer crops.

ENSO conditions currently remain neutral. However, several indicators and all international climate models surveyed suggest the likely formation of a La Niña event in the coming months. The Bureau of Meteorology predicts a 70% likelihood of an event forming. La Niña events are associated with above-average rainfall for northern and eastern Australia during spring and summer.

The value of the IOD index remains below the negative threshold (-0.4°C), with warmer than average sea surface temperatures across the eastern Indian Ocean. A negative IOD, and warmer sea surface temperatures in the eastern Indian Ocean, is associated with above average rainfall for much of southern Australia in spring. However, the negative IOD event is expected to dissipate with the onset of the northern monsoon in late spring to early summer, with the southward shift of the monsoon trough. The SAM is currently positive which is typically associated with increased rainfall in eastern Australia but decreased rainfall for western Tasmania.

Below average sea surface temperature anomalies have continued to strengthen in the central and eastern tropical Pacific Ocean over the past week. Despite these temperature anomalies remaining within the neutral ENSO range, a continued cooling is anticipated across the equatorial Pacific, contributing to the development of a La Niña event in the coming months. Meanwhile, above average anomalies in the western Pacific Ocean and Maritime Continent have continued. Warm anomalies have strengthened in water close to Australia but eased slightly in the Maritime Continent.

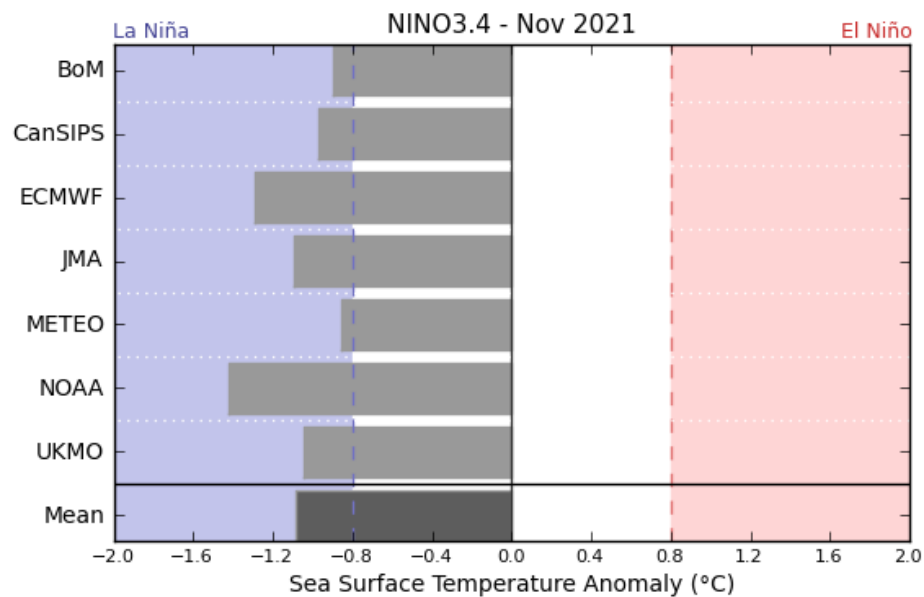
Difference from average sea surface temperature observations 18 October to 24 October 2021



Data: BOM SST
Climatology baseline: 1961 to 1990
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Weekly average: 24 October 2021
Created: 25/10/2021
<http://www.bom.gov.au/climate>

International climate model outlooks for the NINO 3.4 region in November 2021

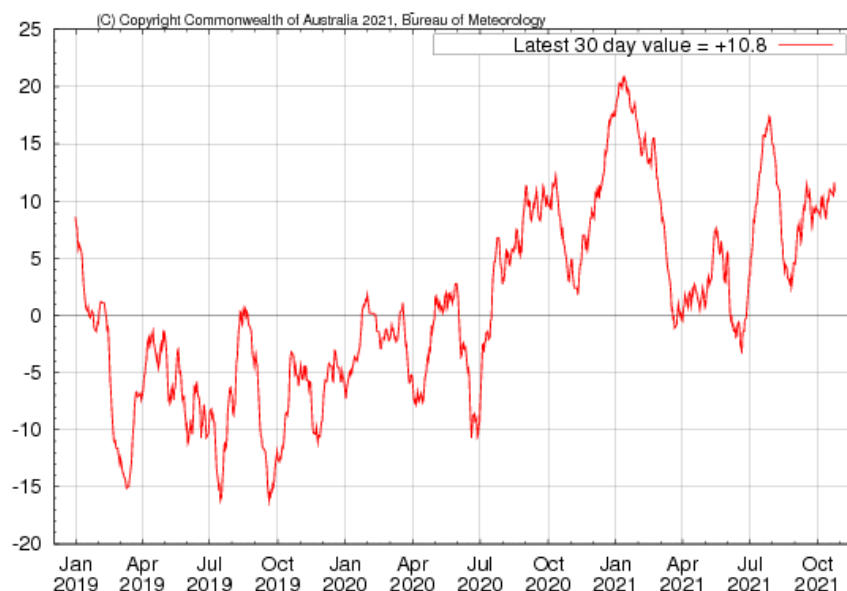


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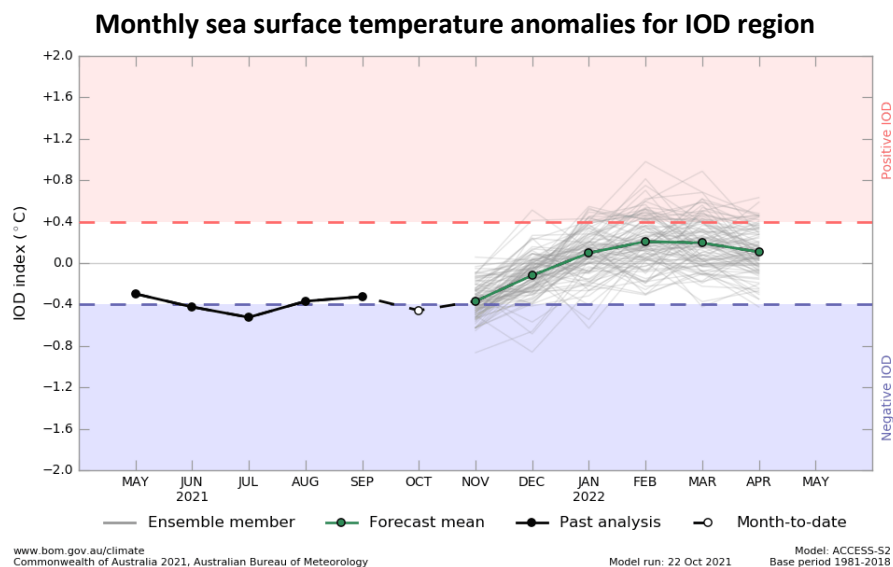
Issued: 12/10/2021

All international models surveyed predict the formation of a La Niña event in November 2021, which is underpinned by atmospheric and oceanic indicators. Monthly sea surface temperatures remain within the neutral range but have continued to decline towards the La Niña threshold (-0.8°C). Below average sea surface temperature anomalies in the central and eastern Pacific Ocean have strengthened and become more widespread over the past two weeks. There has also been a strengthening of trade winds in the western Pacific Ocean and below average cloudiness near the Date Line. For the period ending 24 October the 30-day Southern Oscillation Index (SOI) value was 11.6 and the 90-day value was 7.5, both of which are above the La Niña threshold of +7.

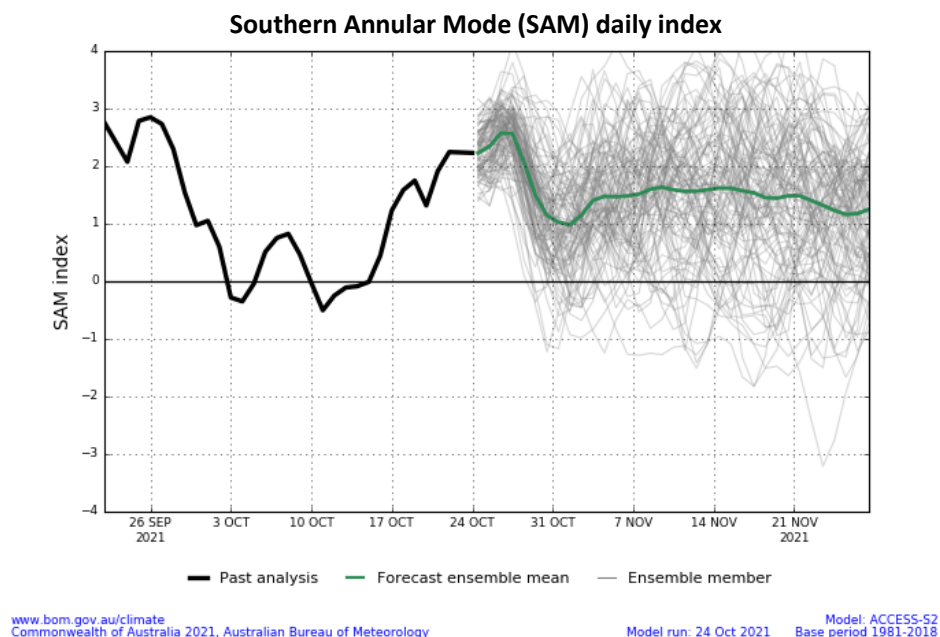
30-day Southern Oscillation Index (SOI) values ending 24 October 2021



As at 24 October, the Indian Ocean Dipole (IOD) weekly value was -0.57°C , which is below the negative threshold of -0.4°C . Despite the persistence of the negative IOD event, the majority of international climate models surveyed by the Bureau of Meteorology expect the IOD to return to neutral values over the coming weeks. The return to neutral conditions is consistent with the typical lifecycle of IOD events, which dissipate in late spring to early summer. Above average sea surface temperatures in the eastern Indian Ocean are likely to persist and will continue to influence Australian rainfall patterns.



The Southern Annular Mode (SAM) is currently positive and expected to remain positive for the remainder of the year. The SAM refers to the north-south shift of the band of rain-bearing westerly winds and weather systems in the Southern Ocean compared to the usual position. A positive SAM in spring is associated with increased rainfall in eastern Australia but decreased rainfall for western Tasmania.



1.3. National Climate Outlook

These climate outlooks are generated by ACCESS–S (Australian Community Climate Earth-System Simulator–Seasonal). ACCESS–S is the Bureau of Meteorology's dynamical (physics-based) weather and climate model used for monthly, seasonal and longer-lead climate outlooks.

For further information, go to <http://www.bom.gov.au/climate/ahead/about/>

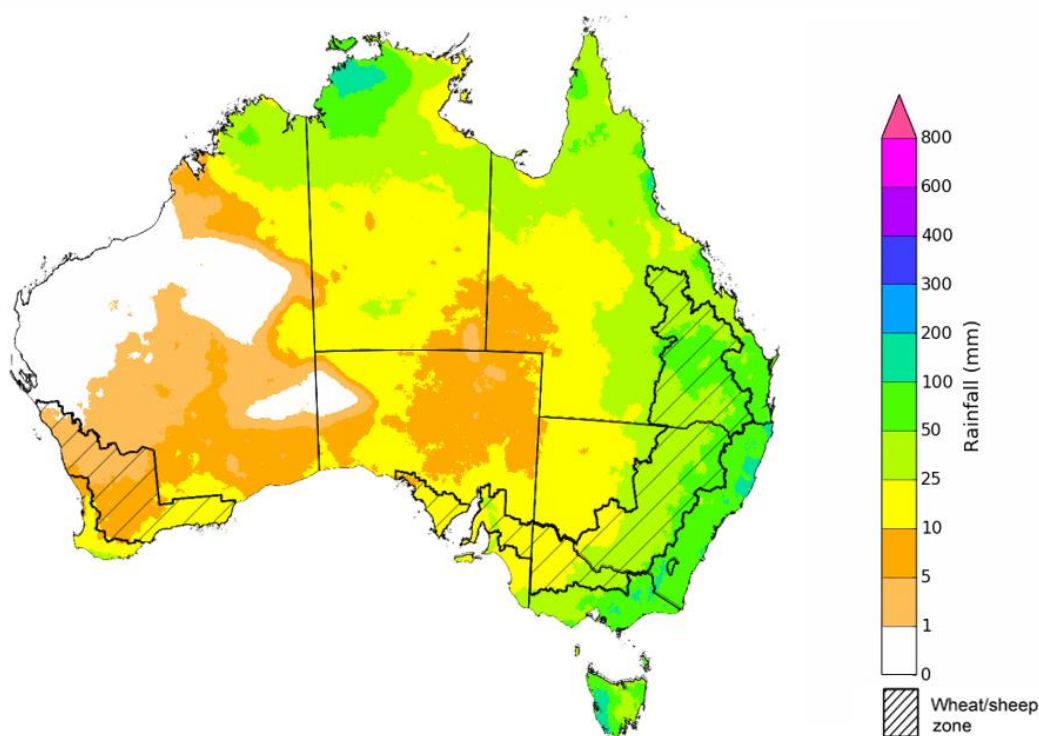
The Bureau of Meteorology's latest rainfall outlook indicated average to above average rainfall conditions are expected for much of Australia and below average rainfall is expected for the far south-west of Western Australia and western Tasmania during November. The wetter than average conditions expected for eastern cropping regions will support the establishment of summer crops but may interrupt harvesting of winter crops. The ACCESS-S climate model suggests there is close to a 65% chance of exceeding median November rainfall totals across much of eastern Australia.

The outlook for November 2021 indicates that there is a 75% chance of rainfall totals between 10 and 100 millimetres across eastern, central, northern and far southern Australia. Rainfall totals in excess of 100 millimetres are expected in isolated parts of eastern New South Wales, the north of the Northern Territory and the west coast of Tasmania.

Across cropping regions there is a 75% chance of rainfall totals of between 5 and 10 millimetres in the far west of South Australia and the north and centre of Western Australia. There is a 75% chance of rainfall totals between 10 and 100 millimetres for New South Wales, Queensland, Victoria, much of South Australia and remaining parts of Western Australia.

The dryer than average conditions expected in South Australian and Western Australian cropping regions will allow harvesting of winter crops to progress largely without delay. Meanwhile, the wetter than average conditions in eastern states may restrict access to fields and delay the harvesting of winter crops. The wet conditions will provide a boost to soil moisture levels and pasture growth rates, and support summer crops through establishment.

Rainfall totals that have a 75% chance of occurring November 2021



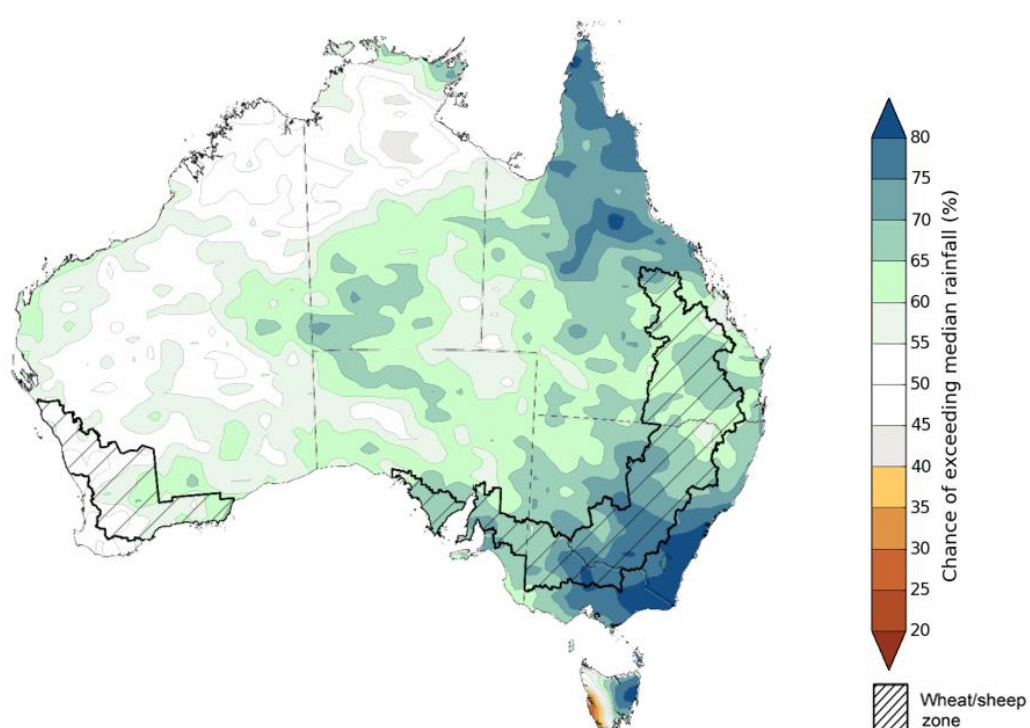
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Issued: 21/10/2021

The rainfall outlook for November to January suggests there is a greater than 75% chance of exceeding median rainfall across central and southern New South Wales, northern Queensland, much of Victoria and eastern Tasmania. There is less than a 40% chance of exceeding average rainfall in south-western Tasmania, but no strong tendency toward above or below average rainfall across the much of Western Australia and the north of the Northern Territory (Bureau of Meteorology 'National Climate Outlook', 21 October 2021).

Bureau of Meteorology rainfall outlooks for November to January have greater than 55% past accuracy across most of Australia. Outlook accuracy is greater than 65% for much of Queensland, as well as parts of South Australia and Western Australia. On the other hand, there is low past accuracy across much of the Northern Territory and parts of South Australia.

Chance of exceeding the median rainfall November 2021 to January 2022



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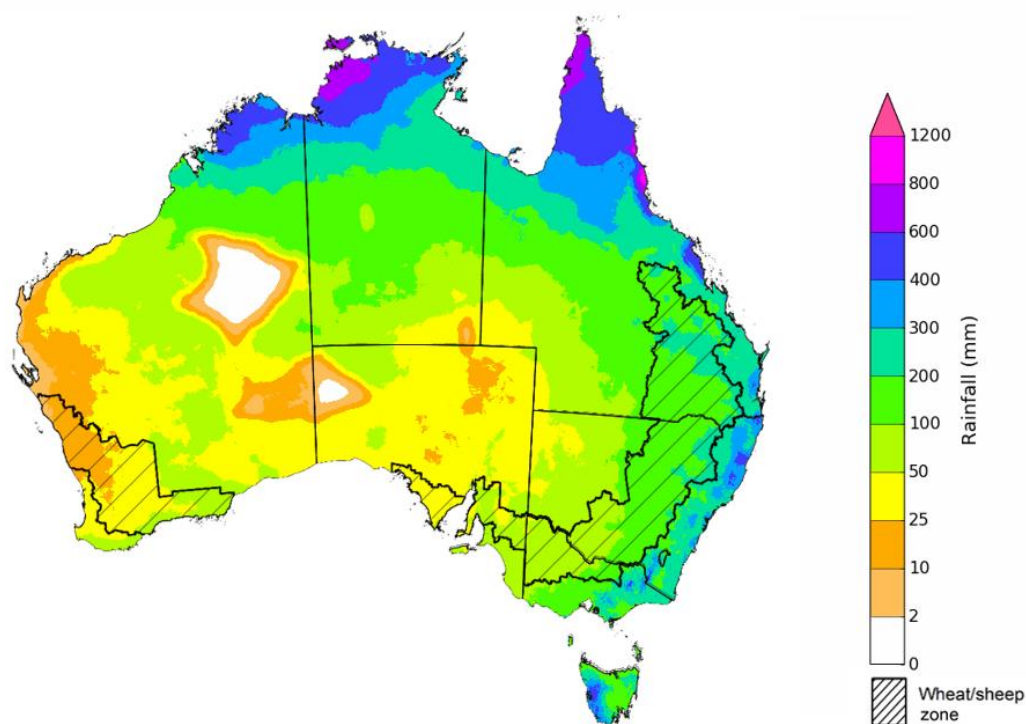
Issued: 21/10/2021

The outlook for November to January suggests there is a 75% chance of rainfall totals between 50 and 200 millimetres across most of New South Wales, Queensland, Victoria, the Northern Territory and Tasmania, as well as parts of South Australia and Western Australia. Rainfall totals in excess of 300 millimetres are likely across parts of alpine and coastal regions of New South Wales and Victoria, as well as northern Queensland, the north of the Northern Territory and Western Australia, and western Tasmania.

Across cropping regions, there is a 75% chance of receiving between 50 and 200 millimetres in New South Wales, Queensland, Victoria, as well as parts of South Australia and Western Australia. Rainfall totals in excess of 200 millimetres are forecast for parts of central Queensland and north-eastern New South Wales cropping regions. Totals of less than 50 millimetres are expected across the west of South Australia, as well as central and northern cropping areas of Western Australia.

These rainfall totals are slightly below average for this three-month period across some South Australian and Western Australian cropping regions, and average to above average for cropping regions of New South Wales, Queensland and Victoria. The expected conditions for eastern states may limit field access and slowdown the winter crop harvest in November and December, as well as increasing the potential of grain quality issues. Summer crops, on the other hand, will benefit from above average rainfalls in northern cropping regions, supporting them through vegetative growth stages.

Rainfall totals that have a 75% chance of occurring November 2021 to January 2022

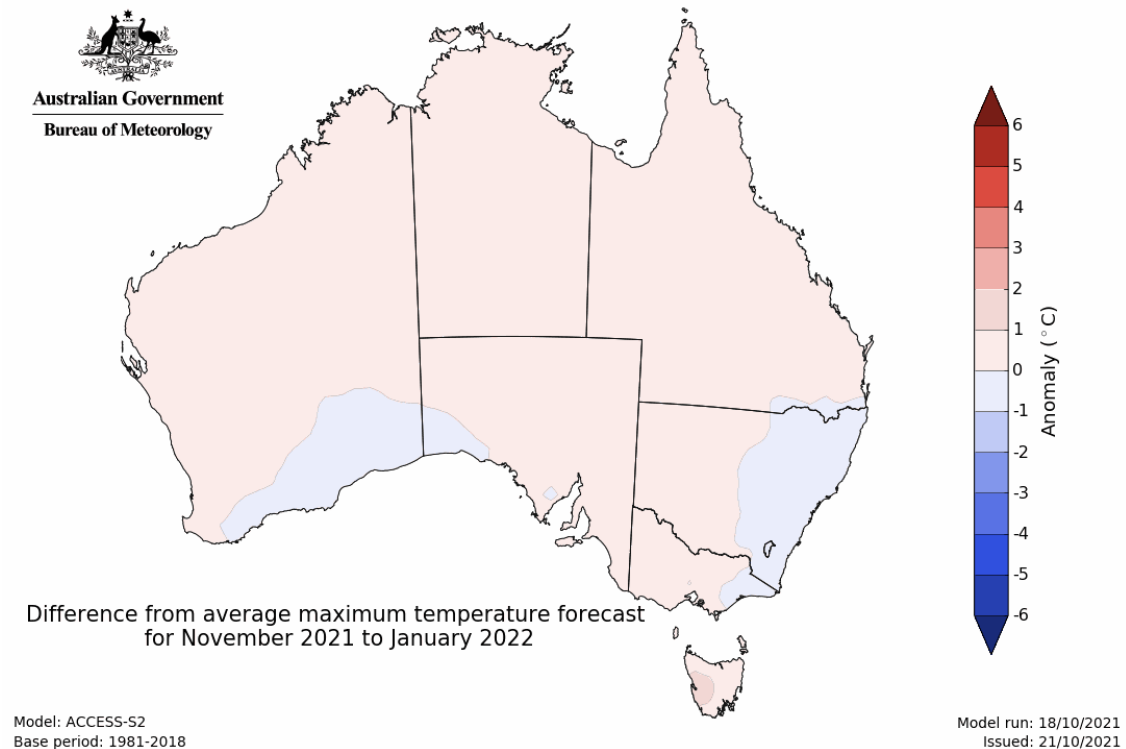


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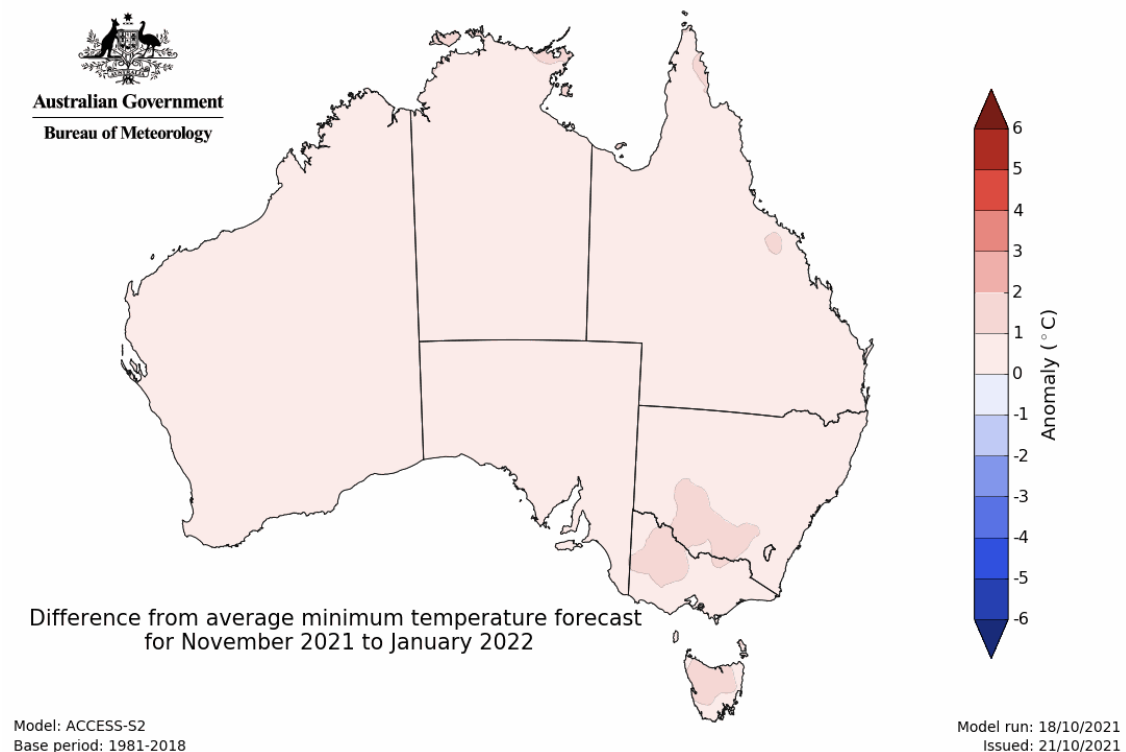
Issued: 21/10/2021

The temperature outlook for November to January indicates that maximum temperatures across most of Australia are likely to be close to the 1990-2012 average (- 1°C to 1°C). Minimum temperatures are expected to be slightly above average for parts of southern New South Wales, western Victoria and northern Tasmania (Bureau of Meteorology 'National Climate Outlook', 21 October 2021).

Predicted maximum temperature anomaly for November 2021 to January 2022



Predicted minimum temperature anomaly for November 2021 to January 2022



1.4. Rainfall forecast for the next eight days

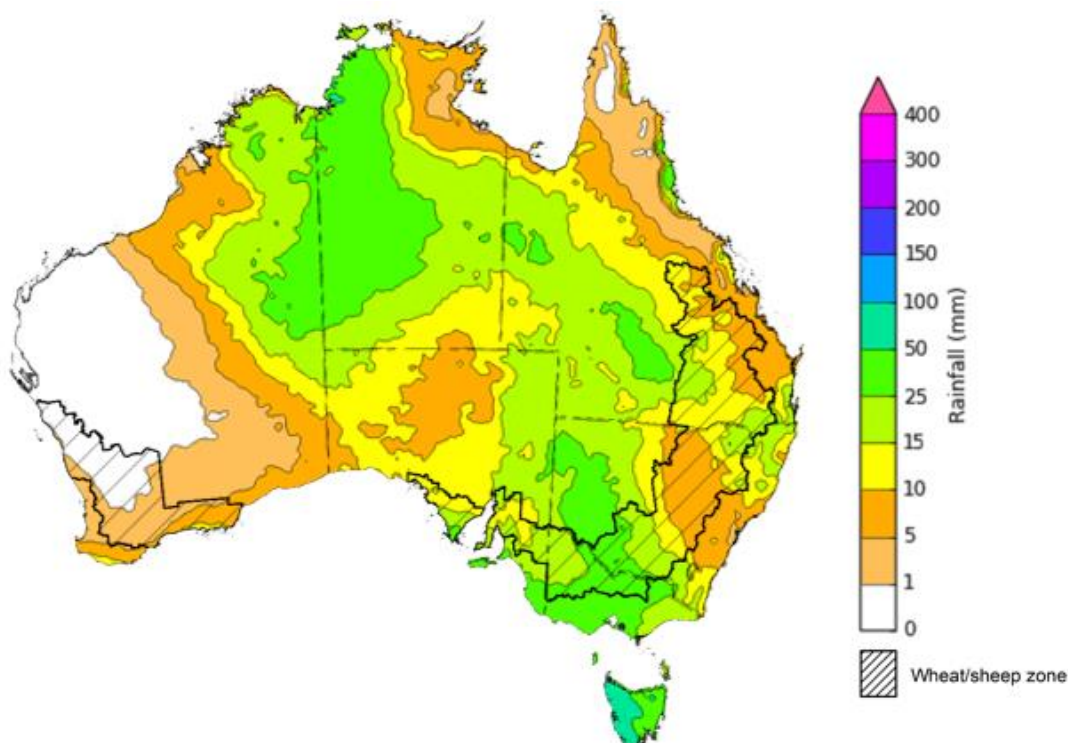
Over the 8-days to 4 November 2021 a series of troughs, low-pressure systems and cold fronts are expected to bring showers and storms to large area of northern, central and eastern Australia. Meanwhile, high pressure systems are expected to bring dry weather conditions to much of Western Australia over the next 8 days.

Rainfall totals of between 10 and 50 millimetres are forecast for north-eastern, western and southern New South Wales, south-eastern, central and western Queensland, Victoria, the north-east of Western Australia, much of South Australia and the Northern Territory, and Tasmania. Rainfall in excess of 50 millimetres is expected in western Tasmania.

In Australian cropping regions, rainfall totals of between 10 and 50 millimetres are expected across much of Queensland, southern and north-eastern New South Wales, Victoria and South Australia. Little to no rainfall is forecast for cropping regions in central New South Wales and Western Australia during the next 8-days.

The rainfall expected in northern and eastern Queensland will likely boost soil moisture levels, which are currently average to below average in parts, and assist the germination and establishment of early sown summer crops. The rainfall forecast for southern Queensland and northern New South Wales are likely to delay some harvest activities of winter crops. Soil moisture levels remain average to above average across central and southern New South Wales, Victorian, most South Australian and Western Australian cropping regions for this time of year. As a result, yield potentials remain strong as crops continue through grain filling.

Total forecast rainfall (mm) for the period 28 October to 4 November 2021



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Issued: 28/10/2021

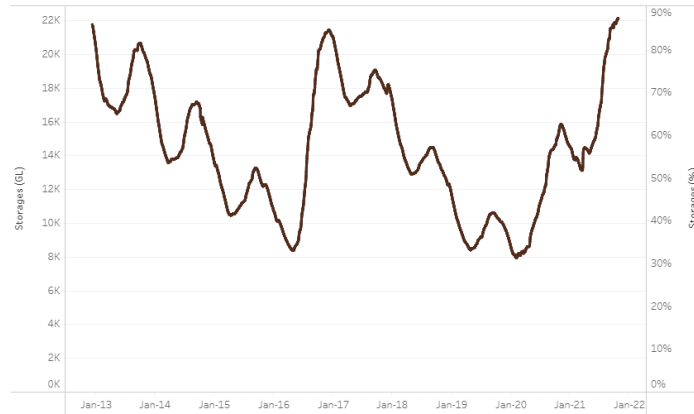
Note: This rainfall forecast is produced from computer models. As the model outputs are not altered by weather forecasters, it is important to check local forecasts and warnings issued by the Bureau of Meteorology.

2. Water

2.1. Water markets – current week

Water storage in the Murray–Darling Basin (MDB) increased by 85 gigalitres (GL) between 20 October 2021 and 27 October 2021. The current volume of water held in storage is 22,108 GL, which represents 87% of total capacity. This is 43% or 6,669 GL more than at the same time last year.

Water storages in the Murray-Darling Basin, 2013–2021

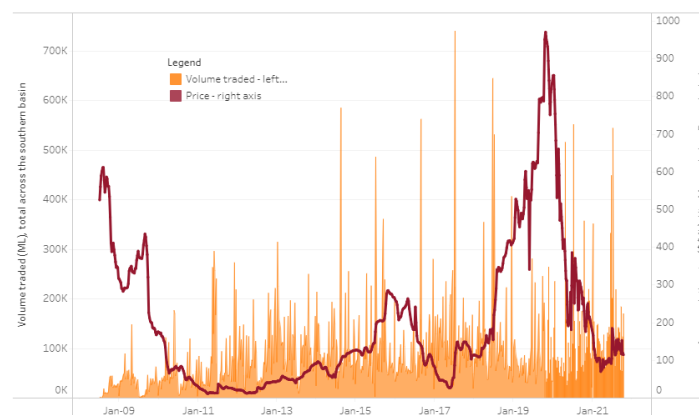


Water storage data is sourced from the Bureau of Meteorology.

Allocation prices in the Victorian Murray below the Barmah Choke decreased from \$119 per ML on 15 October 2021 to \$114 per ML on 22 October 2021. Prices are lower in the Goulburn-Broken, Murrumbidgee, and regions above the Barmah choke due to the binding of the Goulburn intervalley trade limit, Murrumbidgee export limit, and Barmah choke trade constraint.

Region	\$/ML
NSW Murray Above	88
NSW Murrumbidgee	85
VIC Goulburn-Broken	83
VIC Murray Below	114

Surface water trade activity, Southern Murray–Darling Basin



The trades shown reflect estimated market activity and do not encompass all register trades. The price is shown for the VIC Murray below the Barmah choke. Historical prices (before 1 July 2019) are ABARES estimates after removing outliers from BOM water register data. Prices after 1 July 2019 and prior to the 30 October 2019 reflect recorded transaction prices as sourced from Ruralco. Prices after the 30 October 2019 are sourced from Waterflow. Data for volume traded is sourced from the BOM water register. Data shown is current at 28 October 2021.

To access the full, interactive, weekly water dashboard, which contains the latest and historical water storage, water market and water allocation information, please visit

http://www.agriculture.gov.au/abares/products/weekly_update/weekly-update-281021

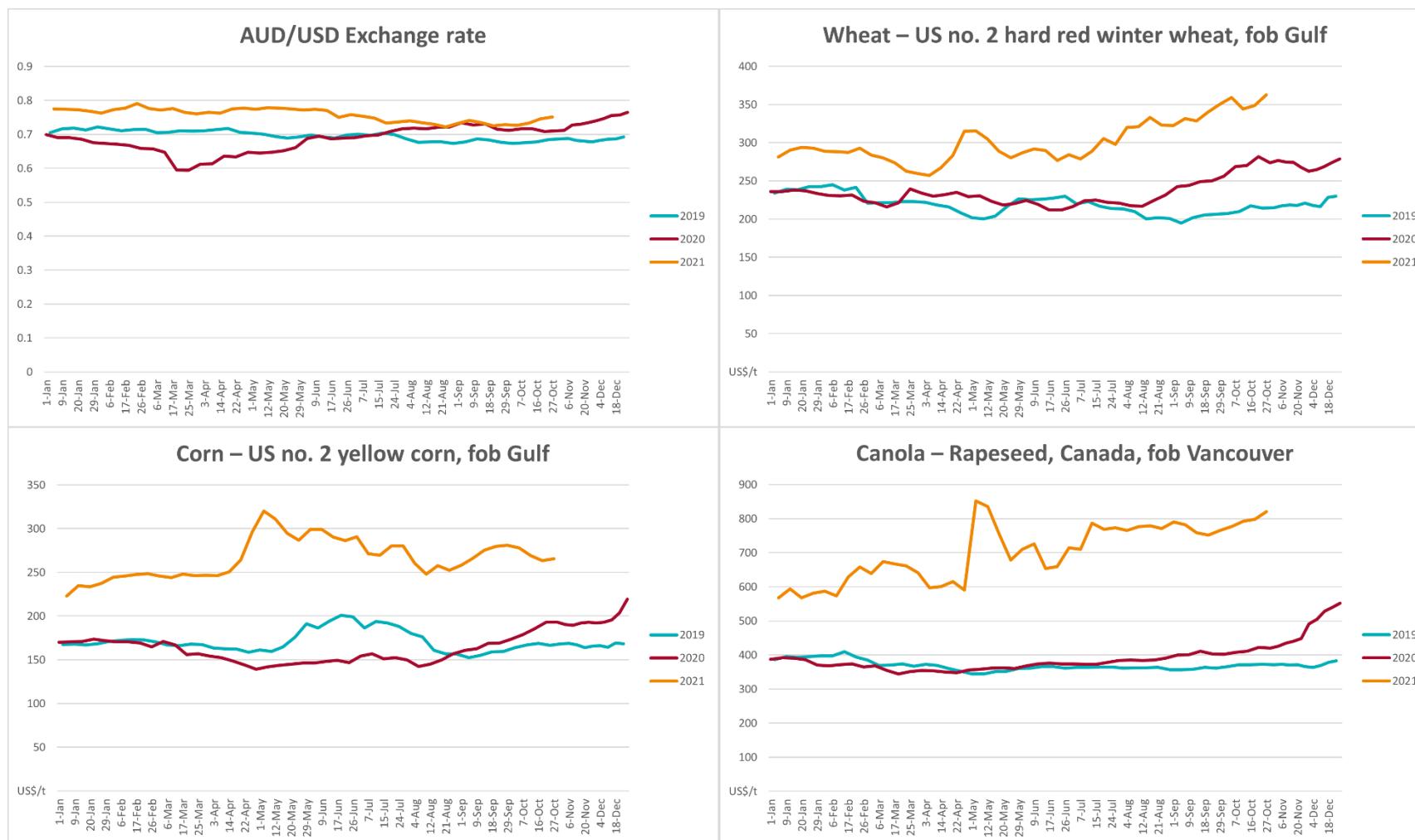
3. Commodities

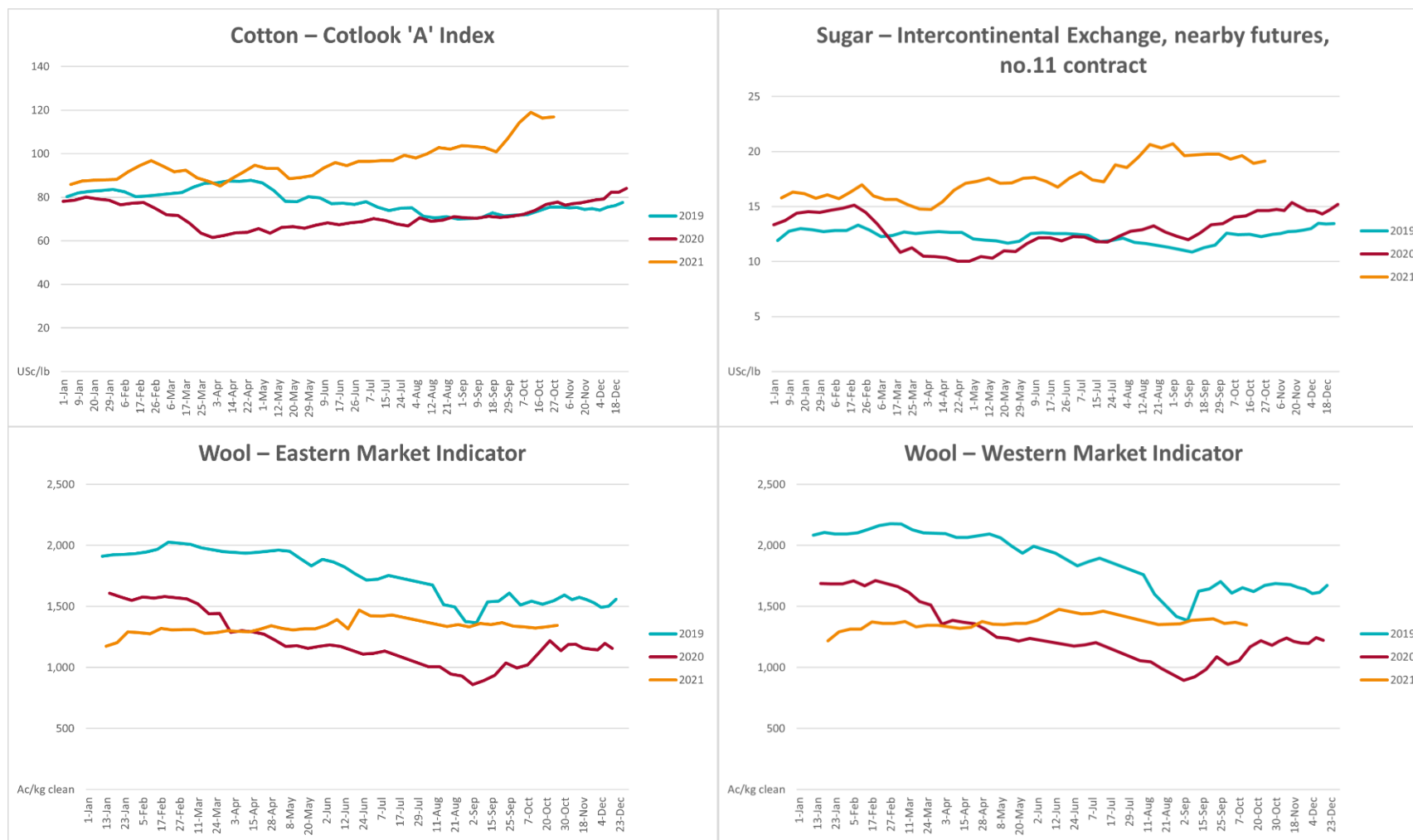
Indicator	Week ended	Unit	Latest price	Previous week	Weekly change	Price 12 months ago	Annual change
Selected world indicator prices							
AUD/USD Exchange rate	27-Oct	A\$/US\$	0.75	0.75	1%	0.71	6%
Wheat – US no. 2 hard red winter wheat, fob Gulf	27-Oct	US\$/t	363	349	4%	277	31%
Corn – US no. 2 yellow corn, fob Gulf	27-Oct	US\$/t	265	263	1%	190	40%
Canola – Rapeseed, Canada, fob Vancouver	27-Oct	US\$/t	821	798	3%	425	93%
Cotton – Cotlook 'A' Index	27-Oct	USc/lb	117	116	0%	76	53%
Sugar – Intercontinental Exchange, nearby futures, no.11 contract	27-Oct	USc/lb	19.1	18.9	1%	15	30%
Wool – Eastern Market Indicator	27-Oct	Ac/kg clean	1,346	1,333	1%	890	51%
Wool – Western Market Indicator	13-Oct	Ac/kg clean	1,349	1,370	-2%	1,185	14%
Selected Australian grain export prices							
Milling Wheat – APW, Port Adelaide, SA	27-Oct	A\$/t	436	438	-1%	359	21%
Feed Wheat – ASW, Port Adelaide, SA	27-Oct	A\$/t	434	433	0%	339	28%
Feed Barley – Port Adelaide, SA	27-Oct	A\$/t	360	360	0%	300	20%
Canola – Kwinana, WA	27-Oct	A\$/t	1,032	1,014	2%	677	52%
Grain Sorghum – Brisbane, QLD	27-Oct	A\$/t	365	365	0%	355	3%
Selected domestic livestock indicator prices							
Beef – Eastern Young Cattle Indicator	27-Oct	Ac/kg cwt	1,072	1,050	2%	789	36%
Mutton – Mutton indicator (18–24 kg fat score 2–3), Vic	27-Oct	Ac/kg cwt	630	583	8%	620	2%
Lamb – Eastern States Trade Lamb Indicator	27-Oct	Ac/kg cwt	893	890	0%	739	21%
Pig – Eastern Seaboard (60.1–75 kg), average of buyers & sellers	15-Sep	Ac/kg cwt	318	318	0%	299	6%
Goats – Eastern States (12.1–16 kg)	27-Oct	Ac/kg cwt	891	887	0%	843	6%
Live cattle – Light steers ex Darwin to Indonesia	17-Feb	Ac/kg lwt	355	355	0%	360	-1%
Live sheep – Live wethers (Mucnea WA saleyard) to Middle East	22-Sep	\$/head	147	171	-14%	126	17%

Indicator	Week ended	Unit	Latest price	Previous week	Weekly change	Price 12 months ago	Annual change
Global Dairy Trade (GDT) weighted average prices ^a							
Dairy – Whole milk powder	20-Oct	US\$/t	3,803	3,749	1%	3,076	24%
Dairy – Skim milk powder	20-Oct	US\$/t	3,401	3,315	3%	2,500	36%
Dairy – Cheddar cheese	20-Oct	US\$/t	4,426	4,297	3%	3,846	15%
Dairy – Anhydrous milk fat	20-Oct	US\$/t	6,151	5,984	3%	5,030	22%

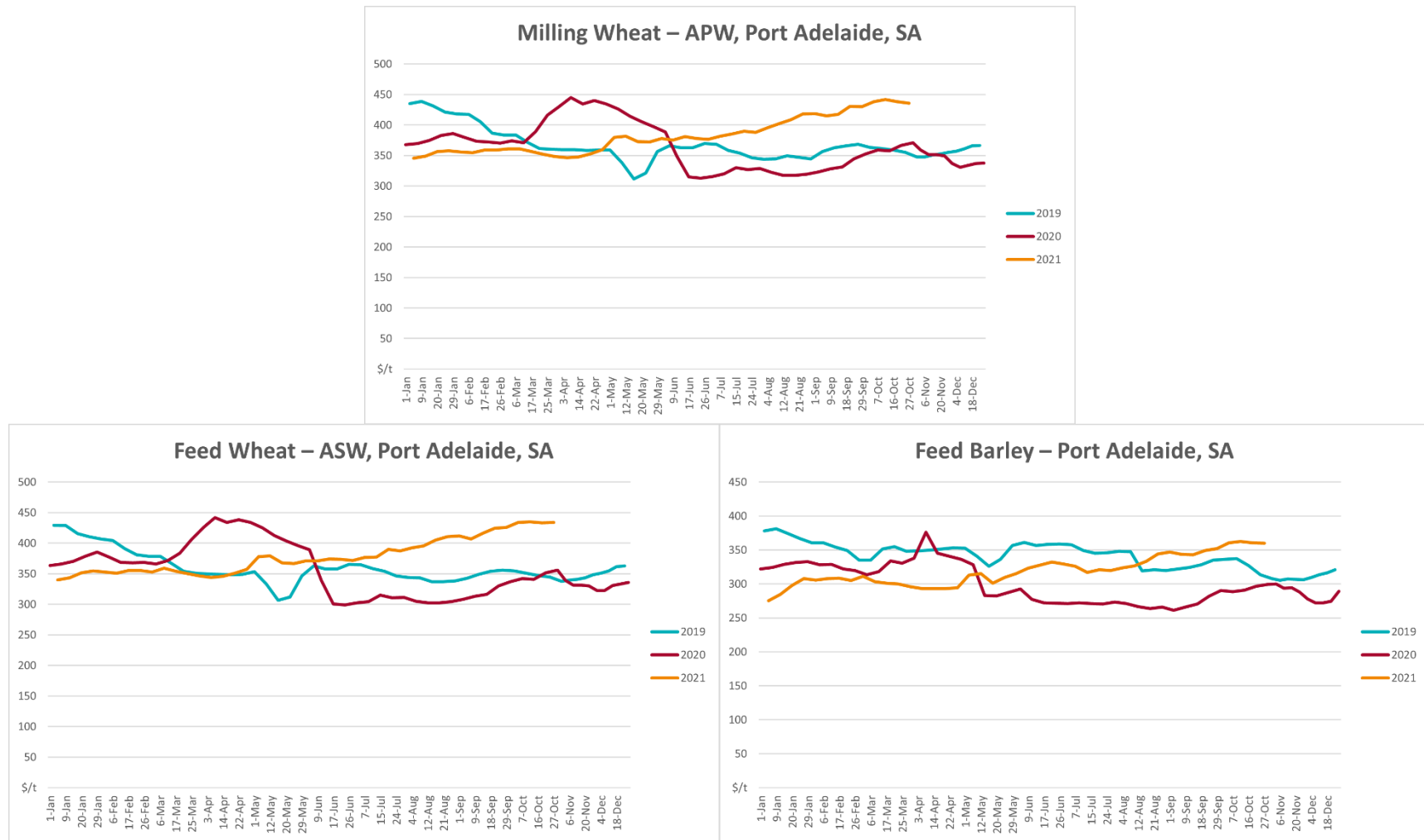
a Global Dairy Trade prices are updated twice monthly on the first and third Tuesday of each month.

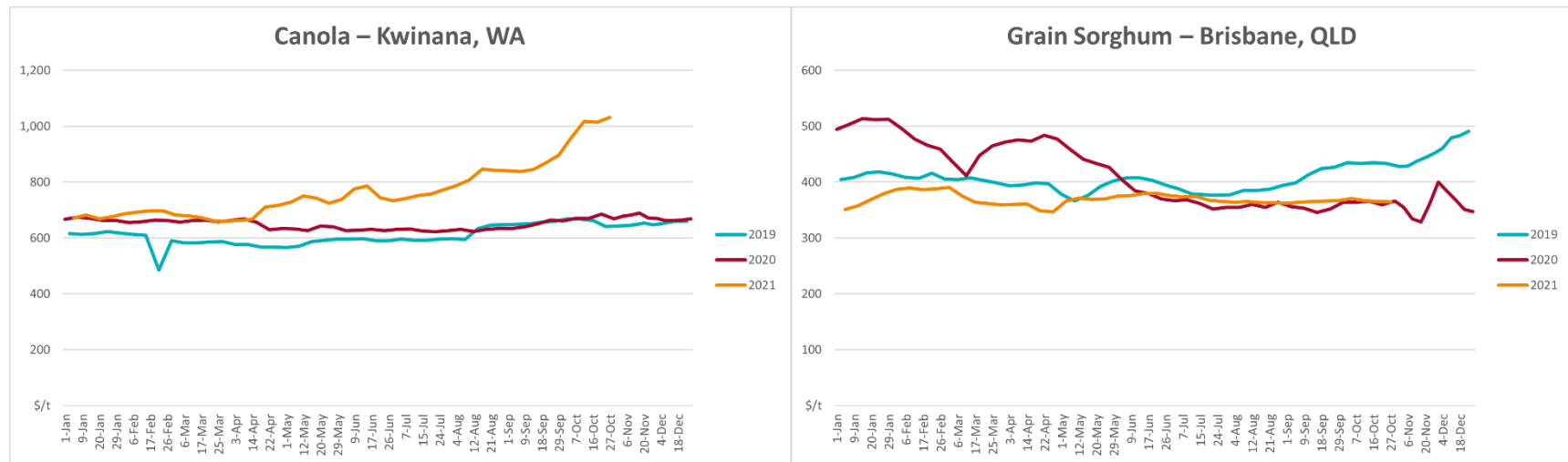
3.1. Selected world indicator prices



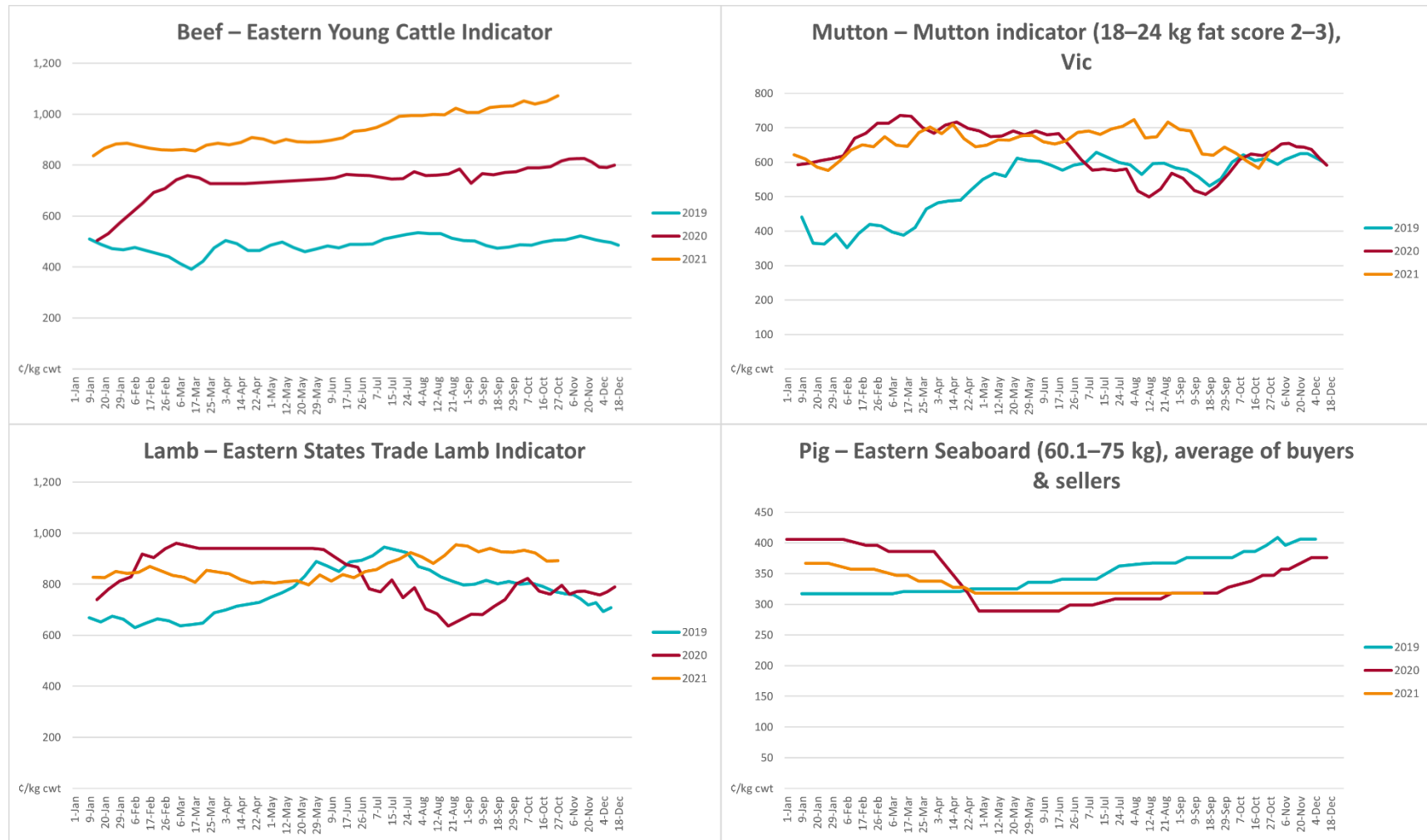


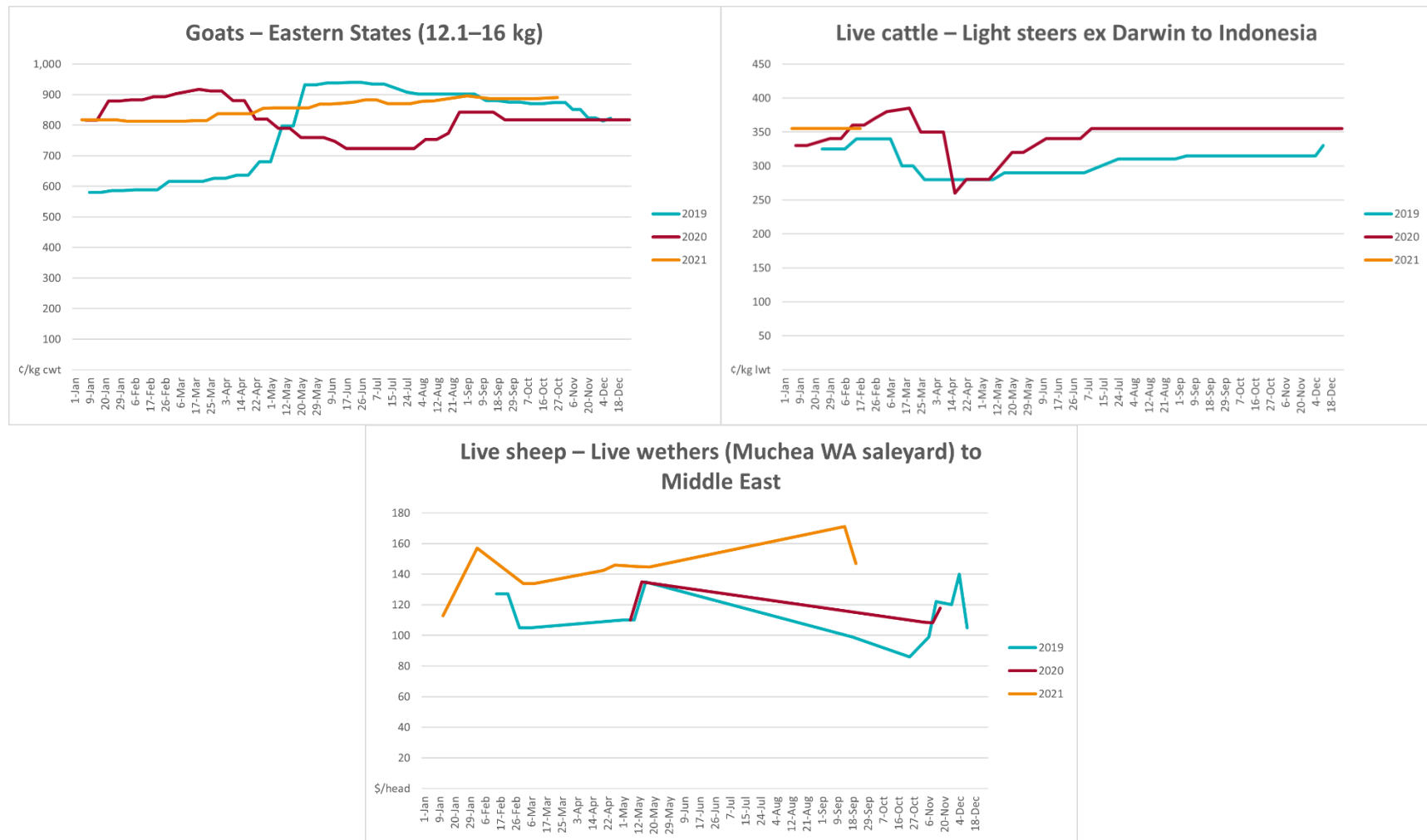
3.2. Selected domestic crop indicator prices



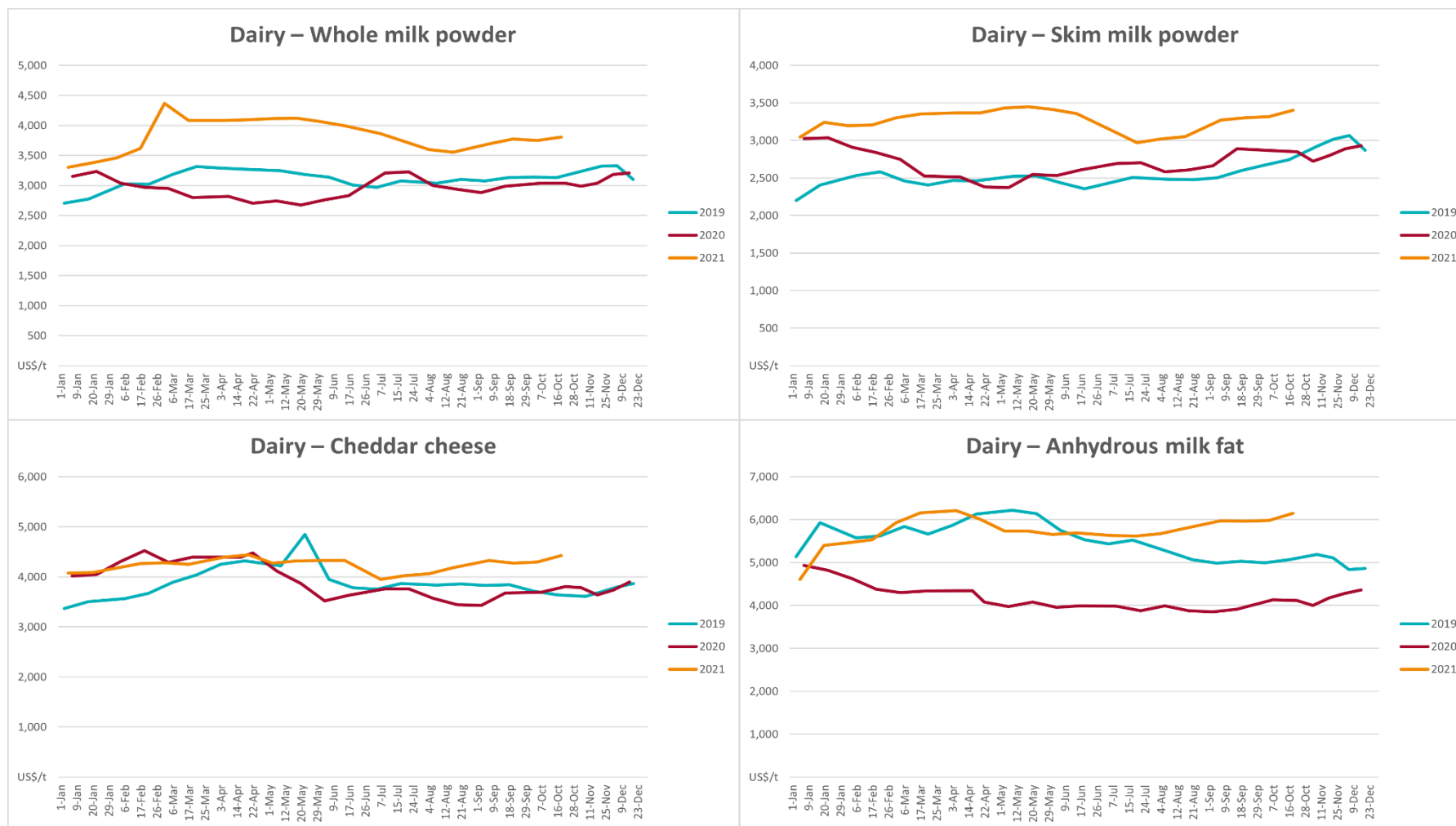


3.3. Selected domestic livestock indicator prices

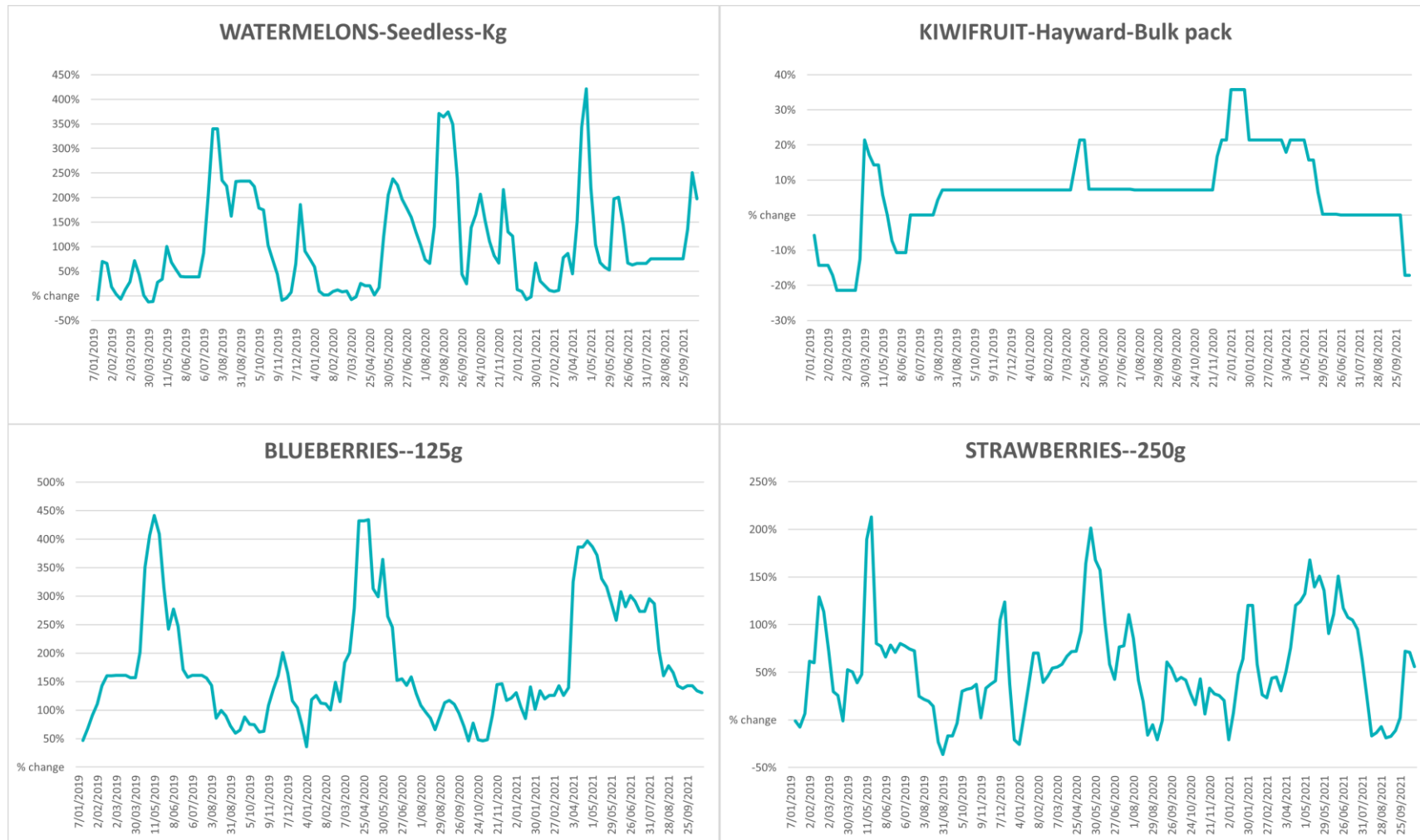


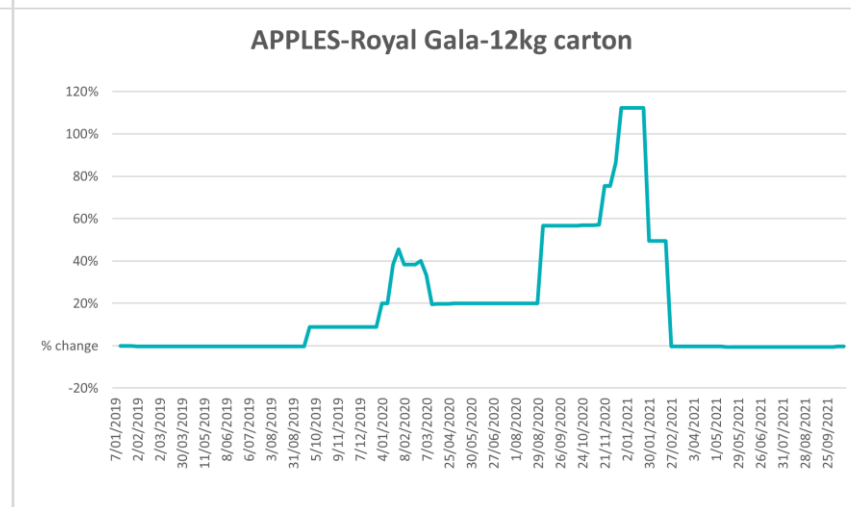
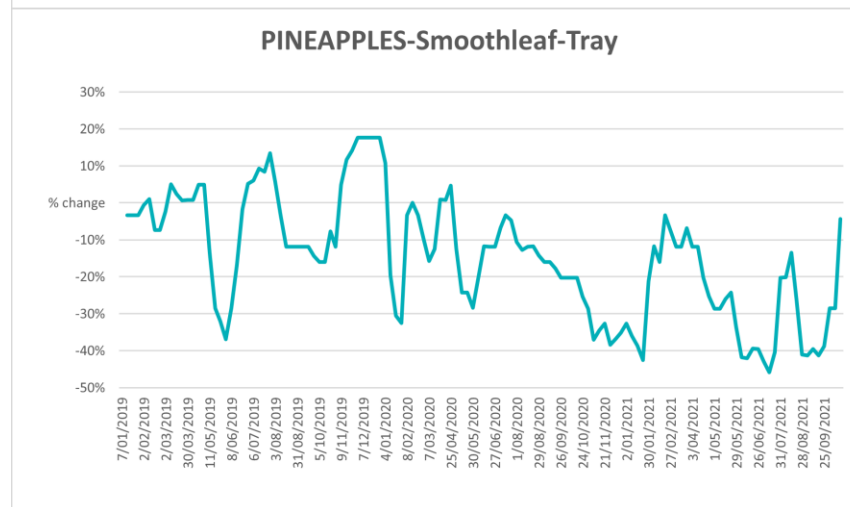
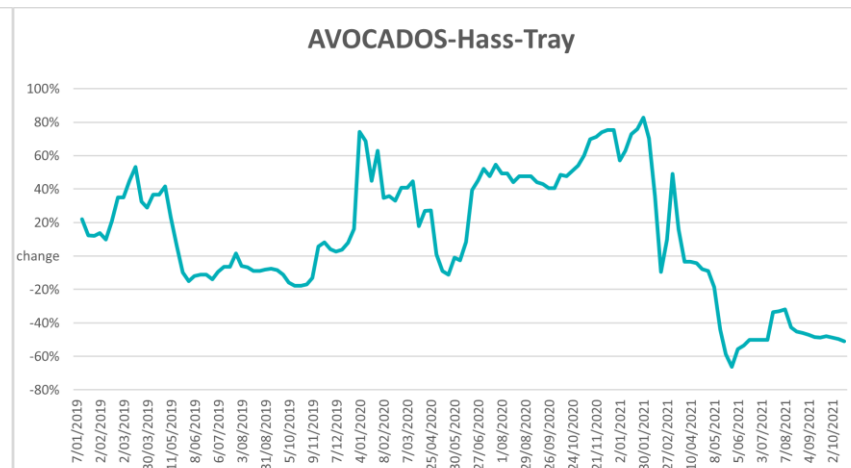
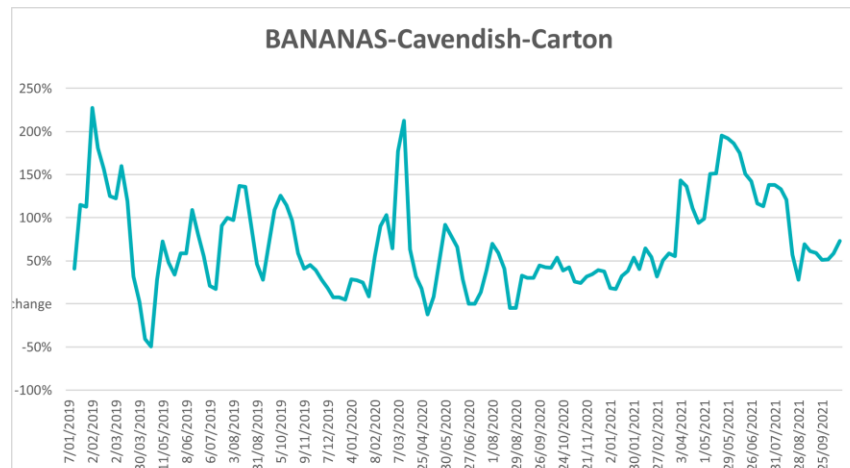


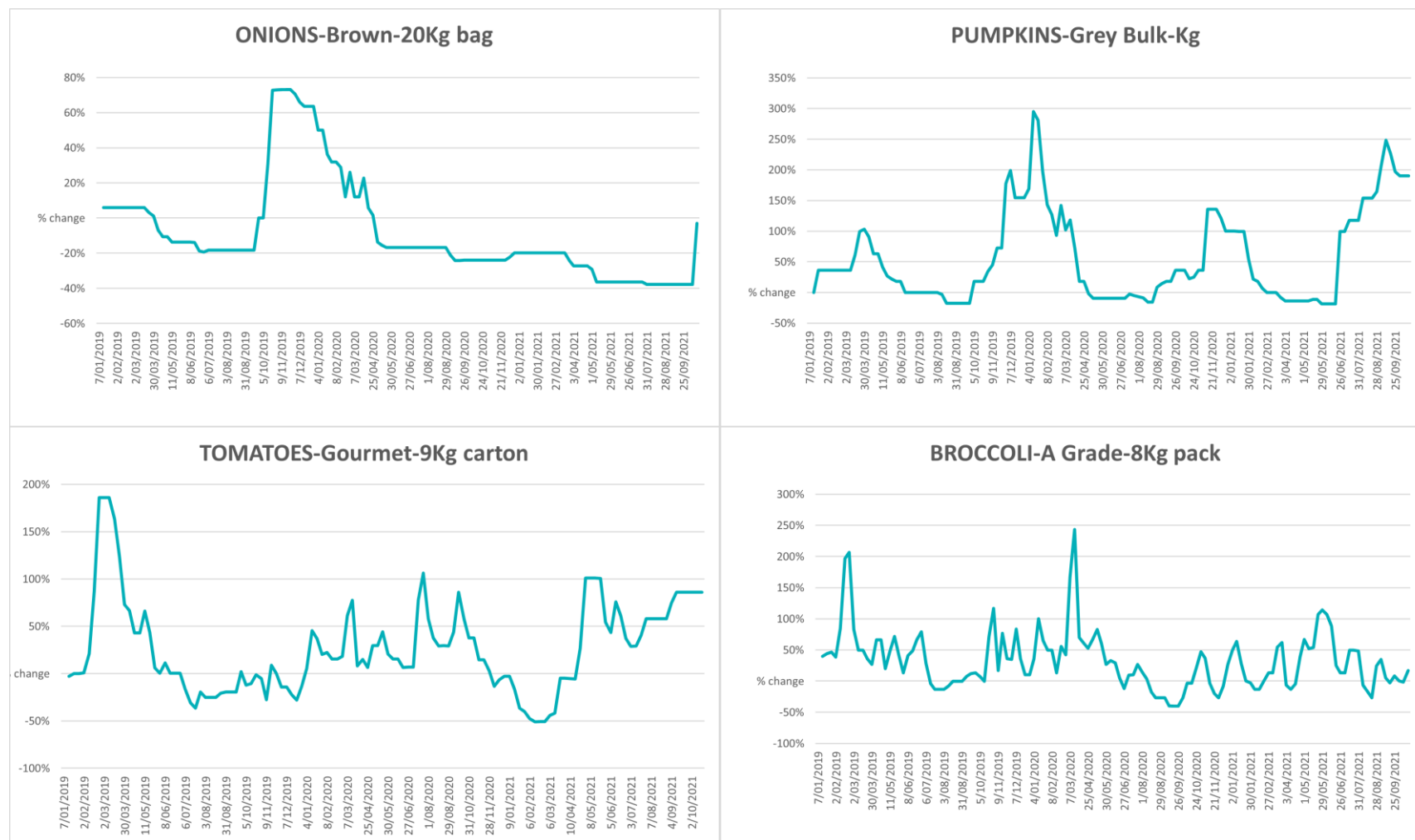
3.4. Global Dairy Trade (GDT) weighted average prices

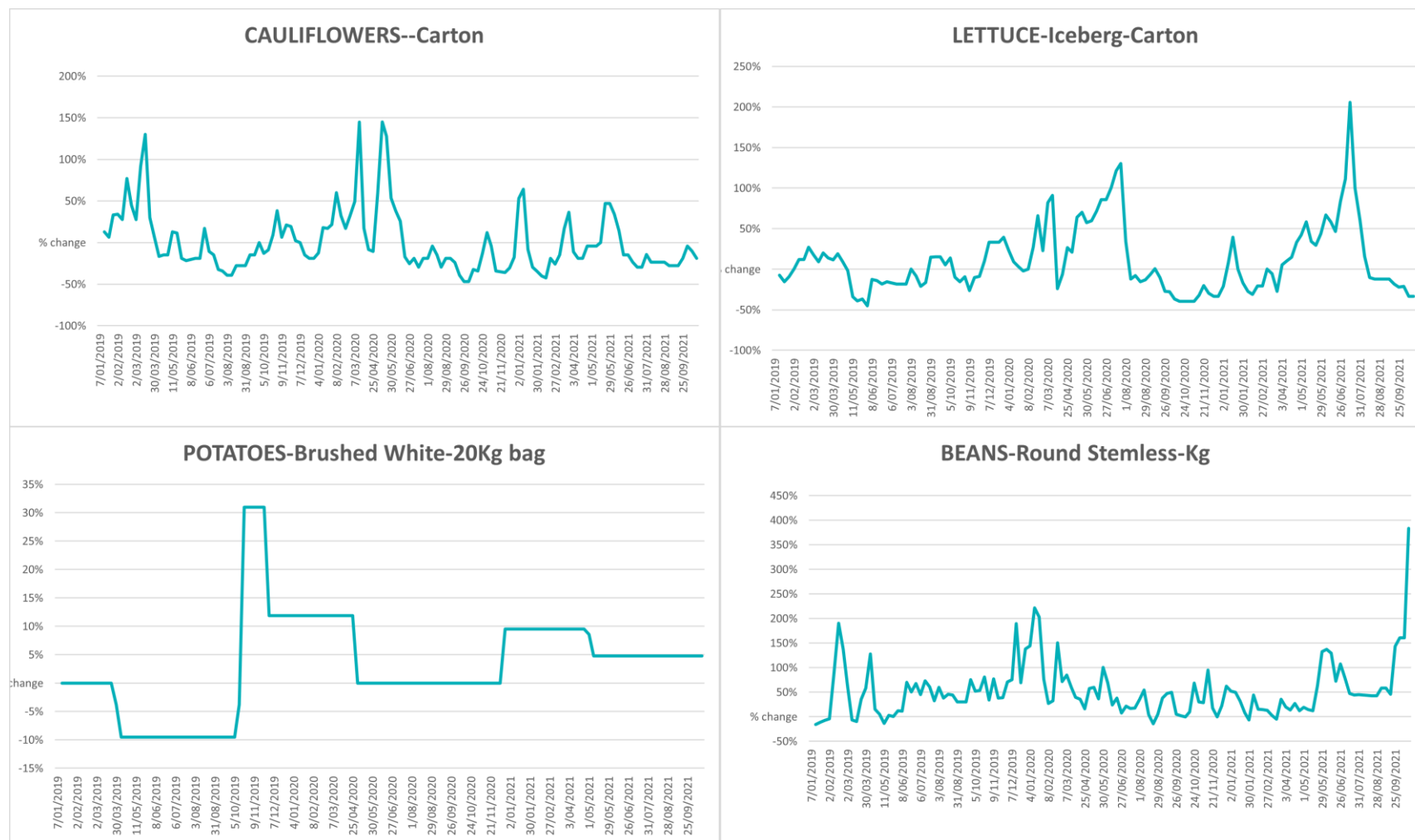


3.5. Selected fruit and vegetable prices

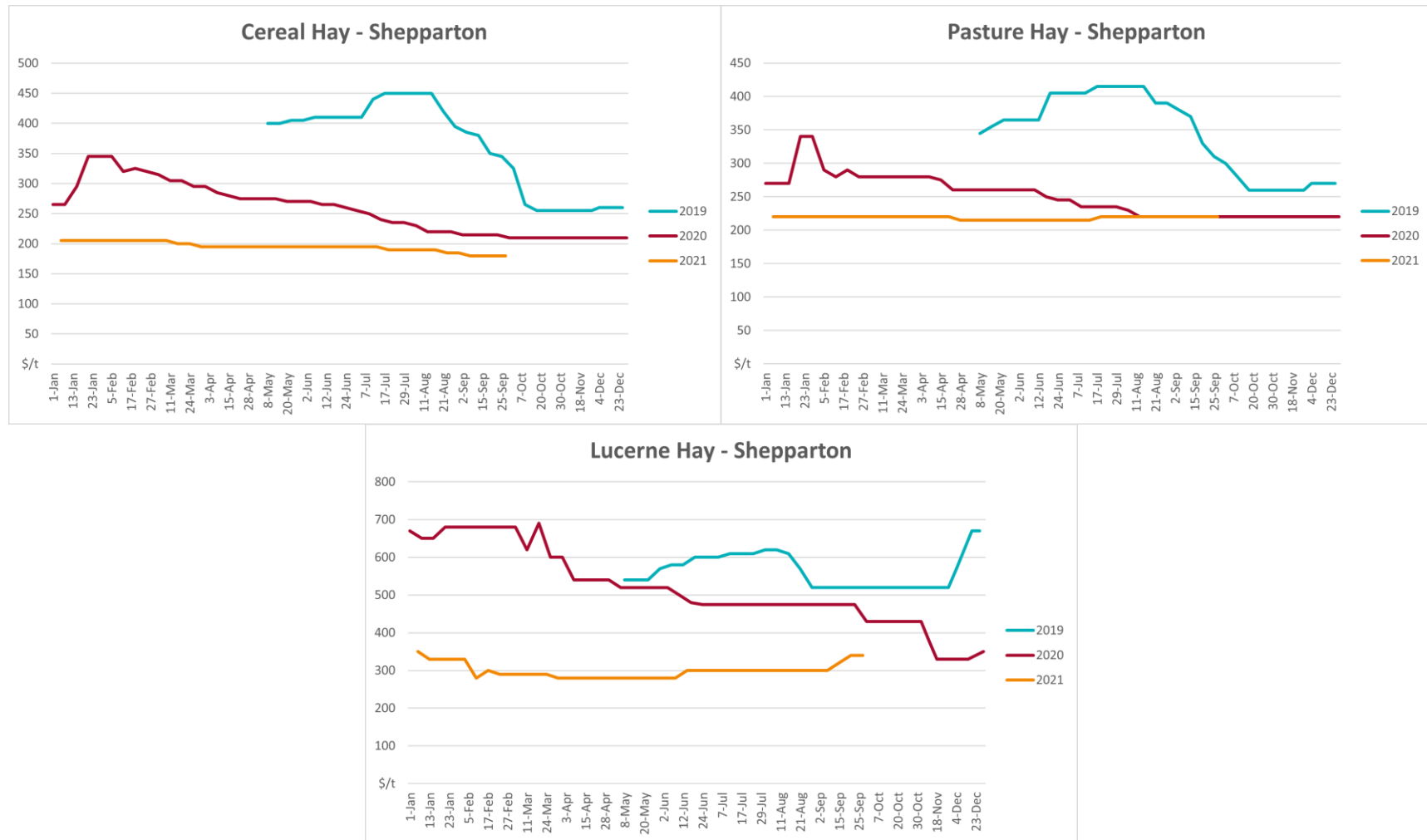








3.6. Selected domestic fodder indicator prices



4. Data attribution

Climate

Bureau of Meteorology

- Weekly rainfall totals: www.bom.gov.au/climate/maps/rainfall/
- Monthly and last 3-month rainfall percentiles: www.bom.gov.au/water/landscape/
- Temperature anomalies: www.bom.gov.au/jsp/awap/temp/index.jsp
- Rainfall forecast: www.bom.gov.au/jsp/watl/rainfall/pme.jsp
- Seasonal outlook: www.bom.gov.au/climate/outlooks/#/overview/summary/
- Climate drivers: <http://www.bom.gov.au/climate/enso/>
- Soil moisture: www.bom.gov.au/water/landscape/

Other

- Pasture growth: www.longpaddock.qld.gov.au/aussiegrass/
- 3-month global outlooks: [Environment and Climate Change Canada](#), [NOAA Climate Prediction Center](#), [EUROBRISA CPTEC/INPE](#), [European Centre for Medium-Range Weather Forecasts](#), [Hydrometcenter of Russia](#), [National Climate Center Climate System Diagnosis and Prediction Room \(NCC\)](#), [International Research Institute for Climate and Society](#)
- Global production: <https://ipad.fas.usda.gov/ogamaps/cropmapsandcalendars.aspx>
- Autumn break: Pook et al., 2009, <https://rmets-onlinelibrary-wiley-com.virtual.anu.edu.au/doi/epdf/10.1002/joc.1833>

Water

Prices

- Waterflow: <https://www.waterflow.io/>
- Ruralco: <https://www.ruralcowater.com.au/>

Bureau of Meteorology:

- Allocation trade: <http://www.bom.gov.au/water/dashboards/#/water-markets/mdb/at>
- Storage volumes: <http://www.bom.gov.au/water/dashboards/#/water-storages/summary/drainage>

Trade constraints:

- Water NSW: <https://www.watarnsw.com.au/customer-service/ordering-trading-and-pricing/trading/murrumbidgee>
- Victorian Water Register: <https://www.waterregister.vic.gov.au/TradingRules2019/>

Commodities

Fruit and vegetables

- Datafresh: www.freshstate.com.au

Pigs

- Australian Pork Limited: www.australianpork.com.au

Dairy

- Global Dairy Trade: www.globaldairytrade.info/en/product-results/

World wheat, canola

- International Grains Council

World coarse grains

- United States Department of Agriculture

World cotton

- Cotlook: www.cotlook.com/

World sugar

- New York Stock Exchange - Intercontinental Exchange

Wool

- Australian Wool Exchange: www.awex.com.au/
- Domestic wheat, barley, sorghum, canola and fodder
 - Jumbuk Consulting Pty Ltd: <http://www.jumbukag.com.au/>

Cattle, beef, mutton, lamb, goat and live export

- Meat and Livestock Australia: www.mla.com.au/Prices-and-market

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