



# Weekly Australian Climate, Water and Agricultural Update

No. 49/2022

15 December 2022



This week's Update will be the last for 2022.

The next Update will be published on 12 January 2023.

## Summary of key issues

- For the week ending 14 December 2022, high-pressure systems brought a third consecutive week of relatively dry conditions to much of Australia. In Australian cropping regions, rainfall totals of between 15 and 100 millimetres were recorded across northern and south-eastern Queensland, central and eastern New South Wales and south-eastern Western Australia. Little to no rainfall was recorded in remaining cropping regions for the week ending 14 December 2022 (see Section 1.1).
- Three consecutive weeks of little to no rainfall across cropping regions of Victoria, South Australia and Western Australia would have continued to support the harvesting of winter crops. Across parts of southern Queensland and northern New South Wales, little rainfall would have allowed for field access to finalise the sowing of summer and harvesting of winter crops.
- Below average rainfall globally during November is likely to result in lower-than-expected wheat production potential in Argentina, and adversely affected planting and establishment of winter wheat across parts of the United States, the European Union, Turkey, and the Russian Federation. Further, the conflict in Ukraine continues to generate uncertainty around wheat, corn and soybean production in 2022 and 2023. Below average rainfall and above average temperatures in recent months have also negatively affected corn production across parts of Argentina and the European Union. Global production conditions have deteriorated compared to those used to formulate ABARES forecasts of global grain supplies and world prices in its December 2022 edition of the Agricultural Commodities Report. As a result, global grain and oilseed production is likely to be lower than that forecast earlier in December (see Section 1.2).
- Over the 8-days to 22 December 2022, little to no rainfall is forecast across most of Australian cropping regions. The continuation of dry conditions is expected to provide some relief to flood-affected cropping regions of south-eastern Australia and will likely further allow saturated soil to drain, however, a flooding risk remains to some areas as flood waters make their way further downstream. Little to no rainfall forecast across most cropping regions is likely to provide favourable conditions for winter crop harvesting and summer crop planting (see Section 1.3).
- Water storage levels in the Murray-Darling Basin (MDB) increased between 7 December 2022 and 14 December 2022 by 24 gegalitres (GL). Current volume of water held in storage is 24 043 GL which represents 95 percent of total capacity. This is 5 percent or 1183 GL more than at the same time last year.
- Allocation prices in the Victorian Murray below the Barmah Choke increased from \$40 per ML on 8 December to \$42 per ML on 15 December 2022. Prices are lower in the Murrumbidgee and regions above the Barmah choke due to the binding of the Murrumbidgee export limit and Barmah choke trade constraint (see Section 2).

# 1. Climate

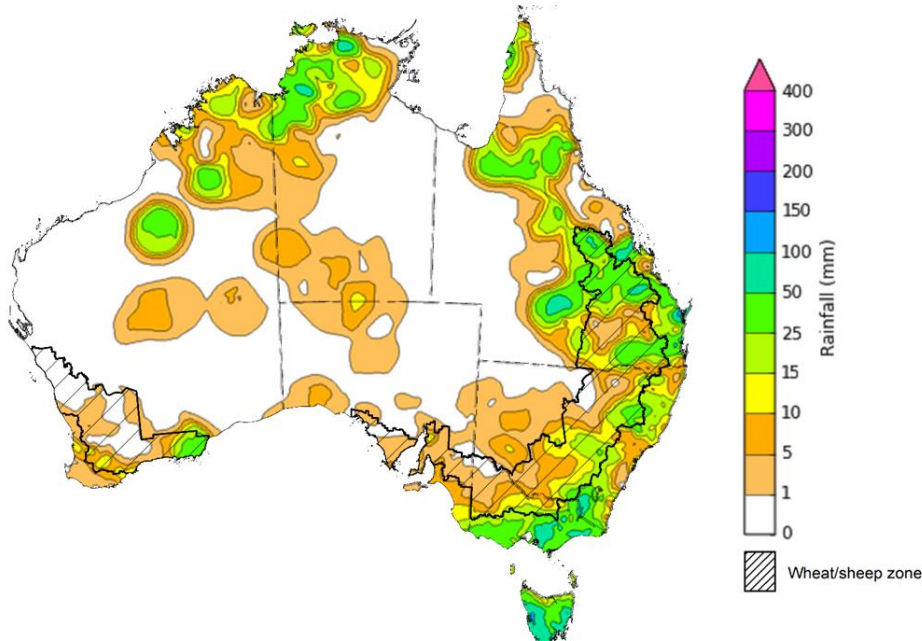
## 1.1. Rainfall this week

For the week ending 14 December 2022, high-pressure systems brought a third consecutive week of relatively dry conditions to much of Australia. Weekly rainfall totals exceeding 50 millimetres were observed across scattered areas of south-eastern New South Wales, Victoria and Queensland, as well as the far north of the Northern Territory and much of Tasmania.

In Australian cropping regions, rainfall totals of between 15 and 100 millimetres were recorded across northern and south-eastern Queensland, central and eastern New South Wales and south-eastern Western Australia. Little to no rainfall was recorded in remaining cropping regions for the week ending 14 December 2022.

Three consecutive weeks of little to no rainfall across cropping regions of Victoria, South Australia and Western Australia would have continued to support the harvesting of winter crops. Across parts of southern Queensland and northern New South Wales, little rainfall would have allowed for field access to finalise the sowing of summer and harvesting of winter crops.

**Rainfall for the week ending 14 December 2022**



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Issued: 14/12/2022

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. Global production conditions and climate outlook

Crop production is affected by long-term trends in average rainfall and temperature, interannual climate variability, shocks during specific growth stages, and extreme weather events (IPCC 2012). Some crops are more tolerant than others to certain types of stresses, and at each growth stage, different types of stresses affect each crop species in different ways.

The precipitation anomalies and outlooks presented here give an indication of the current and future state of production conditions for the major grain and oilseed producing countries which are responsible for over 80% of global production. This is an important input to assessing the global grain supply outlook.

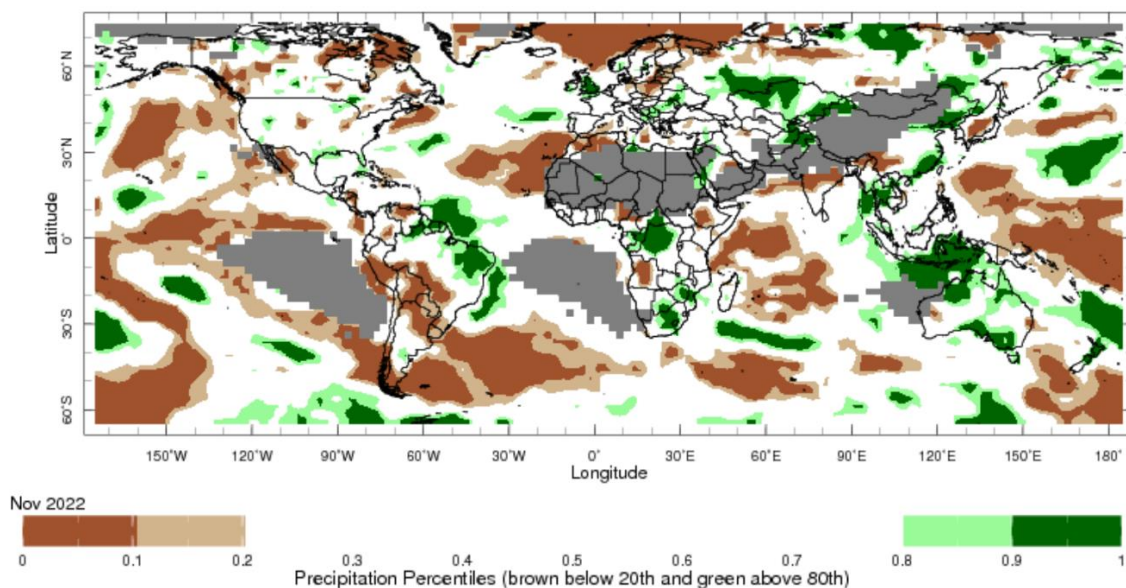
### November precipitation percentiles and current production conditions

As of the end of November 2022, rainfall was below average across several of the world's major grain-producing and oilseed-producing regions.

In the northern hemisphere, precipitation was below average across parts of central United States, eastern and south-western Canada, central Europe, and south-western China. Precipitation was above average for much of United Kingdom and Kazakhstan, parts of the Russian Federation, eastern China and Southeast Asia. Precipitation was close to average across the remainder of the major grain-producing and oilseed-producing regions in the northern hemisphere.

In the southern hemisphere, November precipitation was below average for central and eastern South America and parts of Angola. Precipitation was above average for parts of southern Australia, and small area of central and south-eastern Africa, as well as parts of northern and north-eastern Brazil. Precipitation was close to average across the remainder of major grain-producing and oilseed-producing regions in the southern hemisphere.

**Global precipitation percentiles, November 2022**



Note: The world precipitation percentiles indicate a ranking of precipitation for November, with the driest (0<sup>th</sup> percentile) being 0 on the scale and the wettest (100<sup>th</sup> percentile) being 1 on the scale. Percentiles are based on precipitation estimates from the NOAA Climate Prediction Center's [Climate Anomaly Monitoring System Outgoing Precipitation Index](#) dataset. Precipitation estimates for November 2022 are compared with rainfall recorded for that period during the 1991 to 2020 base period.

Source: International Research Institute for Climate and Society

As of 28 November, 2022, global production conditions were quite variable for the production of wheat, corn, rice and soybean.

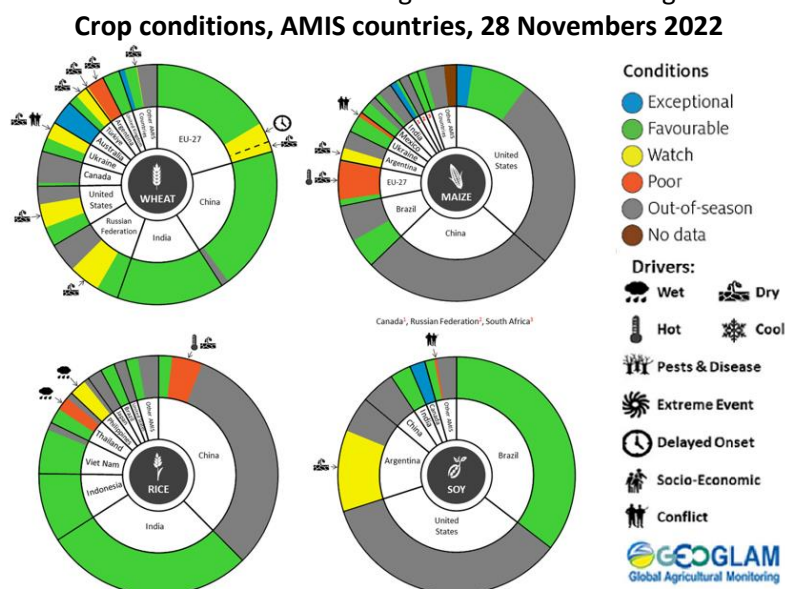
In the northern hemisphere winter wheat is going into winter dormancy under highly variable production conditions. In the European Union, production conditions are generally favourable although low soil moisture delayed sowing activities in the southern countries. In Turkey, sowing

activities are wrapping up with dry conditions in the west. In Ukraine, production conditions are generally favourable, however there has been persistent dryness in Odessa and disruptions/security concerns in the southern and eastern regions due to the ongoing war. In the Russian Federation winter wheat sowing is also well underway under generally favourable conditions except for dryness in the southern Caucasus. In the US dry conditions across the Great Plains from South Dakota to Texas continues to be a concern going into winter. In China, Canada and India, conditions are favourable for winter wheat due to ample soil moisture. In the southern hemisphere, production conditions are exceptionally good in most areas of Australia, despite ongoing flooding in parts of eastern Australia. In Argentina, harvest is continuing in the north and beginning in the main producing areas, but with poor yields expected due to ongoing drought.

Conditions are favourable for ongoing sowing of corn in Brazil and South Africa, while conditions are favourable for ongoing harvest activities of corn in Mexico, US and Canada. In Ukraine, harvesting activities are slowly progressing with just over half the crop collected so far and hence many crops will likely be harvested during the winter or early spring. In the European Union, droughts and heatwaves have resulted in a below-average yield outlook for corn across most growing regions. In Argentina, sowing of the early-planted crop continues at a slow pace due to dryness.

Harvesting of late rice is wrapping up across China under variable conditions due to persistent extremely heat and dry weather in the Yangtze River during the flowering period. India is transitioning from Kharif rice to Rabi rice. In Southeast Asia, wet-season rice harvesting is at its peak under mixed conditions in northern countries while Indonesia wraps up dry-season rice harvesting. Brazil is wrapping up rice sowing with a reduction in the total sown area as well.

Soybean harvesting is wrapping up in Canada under exceptional conditions in Ontario, Manitoba, and Quebec. In Ukraine harvest is wrapping up under generally favourable conditions except the occupied territories. In India, harvesting is wrapping up in the major producing states under favourable conditions. In Brazil, sowing is progressing under favourable conditions despite earlier delays due to adverse weather. In Argentina, sowing activities are beginning in the main producing areas of Buenos Aires, Entre Ríos, Santa Fe, and Córdoba, as recent rains improved soil moisture conditions. However, the lack of surface soil moisture might impact the sowing progress, with southern Santa Fe and northern Buenos Aires being the most affected regions.



AMIS Agricultural Market Information System.

Source: AMIS

The global climate outlook for December 2022 to February 2023 indicates that variable rainfall conditions are expected for the world's major grain-producing and oilseed-producing regions. Outlooks and potential production impacts for the major grain and oilseed producing countries are presented in the table.

### Rainfall outlook and potential impact on the future state of production conditions between December 2022 to February 2023

Region	December to February rainfall outlook	Potential impact on production
<b>Argentina</b>	Below average rainfall is expected in north-eastern and central Argentina between December 2022 to February 2023.	Below average rainfall is likely to adversely affect flowering and grain filling of corn, cotton, peanuts, soybeans, and sunflowers. The dry conditions may also negatively impact yield potentials of those crops.
<b>Black Sea Region</b>	Below average precipitation is forecast for eastern Ukraine, Turkey and small areas of western Kazakhstan. However, above average precipitation is expected across eastern and north-eastern parts of the Russian Federation between December 2022 and February 2023.	Winter wheat and canola will remain dormant throughout December to February across the Black Sea Region. The above average rainfall conditions are likely to provide sufficient snowpack to prevent winterkill from freezing temperatures across most regions. However, below average precipitation in many parts may increase the risk of winterkill due to below average snowpack.
<b>Brazil</b>	Above average rainfall is expected in northern Brazil and parts of the central west between December 2022 to February 2023. Parts of southern Brazil are expected to receive below-average rainfall.	Below average rainfall in much of southern Brazil is likely to adversely affect flowering and yield potential of corn and soybeans in December, cotton and peanuts flowering and grain filling for southern growing regions in January. Above average rainfall in central Brazil will benefit the flowering and filling of soybeans.
<b>Canada</b>	Above average precipitation is possible across much of Canada between December 2022 to February 2023.	Through December, January and February, winter wheat and canola will remain dormant. Above average rainfall will likely provide sufficient snowpack to prevent winterkill of winter wheat and canola.
<b>China</b>	Below average rainfall is more likely in parts of central, south-eastern and south-western China in December 2022 to February 2023.	Through December, January and February, winter wheat and canola will remain dormant. Below average rainfall may increase the risk of winterkill due to limited snowpack during winter.
<b>Europe</b>	Below average precipitation is likely for most of Europe while above average precipitation is expected in Norway, Finland and north-west tips of Sweden between December 2022 to February 2023.	Below average rainfall may limit snowpack in parts of central Europe, increasing the risk of winterkill for winter wheat and canola. Meanwhile, above average rainfall in southern Europe should provide favourable conditions for winter wheat crops.
<b>South Asia (India)</b>	Close to average rainfall is forecast for much of India, with above average rainfall in far southern India and below average rainfall expected in central-eastern and north-eastern India.	Close to average rainfall across much of India will support the harvest of corn, cotton, peanuts, millet, rice, sorghum, and sunflowers in December. However, below average rainfall in central and north-eastern India may negatively impact vegetative growth and heading of winter wheat and canola between December and February. In the far south, winter crops may benefit from above average rainfall.
<b>Southeast Asia (SEA)</b>	Above average rainfall is likely across much of maritime SEA between December 2022 to February 2023, particularly in the Philippines. Northern mainland SEA will likely experience below average rainfall.	Above average rainfall in SEA likely supports vegetative growth for corn and rice production throughout December to February. However, excessive rainfall may result in flooding and crop damage. Below average rainfall for northern mainland SEA may negatively impact germination and establishment of spring rice.
<b>The United States of America</b>	Above average precipitation is more likely for the north-western and north-eastern US and below average precipitation is more likely across much of the southern half the US.	Above average precipitation conditions expected across the northern US are likely to provide sufficient snow cover through winter to protect wheat and canola through dormancy.



### 1.3. Rainfall forecast for the next eight days

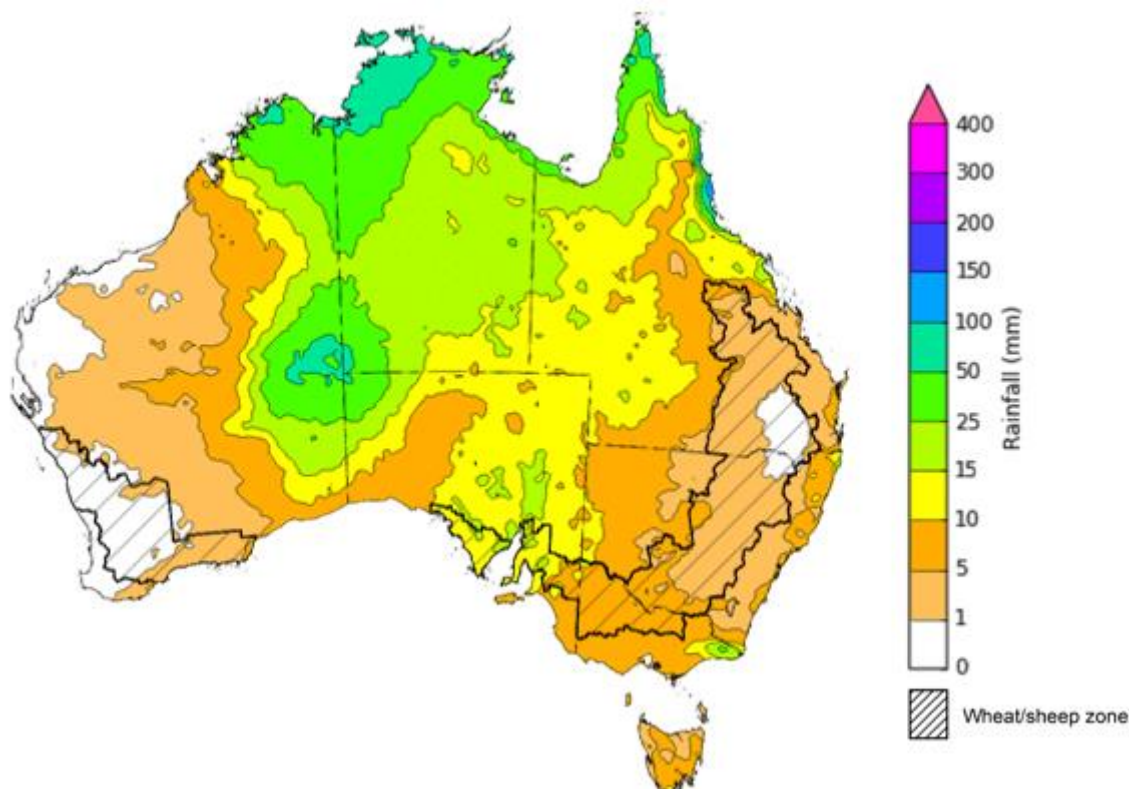
Over the 8-days to 22 December 2022, rainfall is expected across most of Australia. For the first 4 days, a broad trough and a cold front are forecasted to bring moderate rainfall to parts of north-western and central Australia and the north-eastern tip of Queensland and south-eastern Victoria, as well as eastern Tasmania. However, high pressure systems will provide clear, mostly dry conditions across much of Australia except far north of Australia for the next four days.

Rainfall totals of between 10 and 50 millimetres are expected for much of northern and central Australia, as well as a small area of eastern Victoria. Rainfall in excess of 50 millimetres is expected in scattered areas of far north-western Northern Territory, north-eastern Queensland and central Australia.

Little to no rainfall is forecast across most of Australian cropping regions for the next eight days. The main exception being central and western South Australia where rainfall totals of between 10 to 15 millimetres are expected.

The continuation of dry conditions is expected to provide some relief to flood-affected cropping regions of south-eastern Australia and will likely further allow saturated soil to drain, however, a flooding risk remains to some areas as flood waters make their way further downstream. Little to no rainfall forecast across most cropping regions will provide favourable conditions for winter crop harvesting and summer crop planting following three relatively dry weeks.

**Total forecast rainfall for the period 15 December to 22 December 2022**



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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.

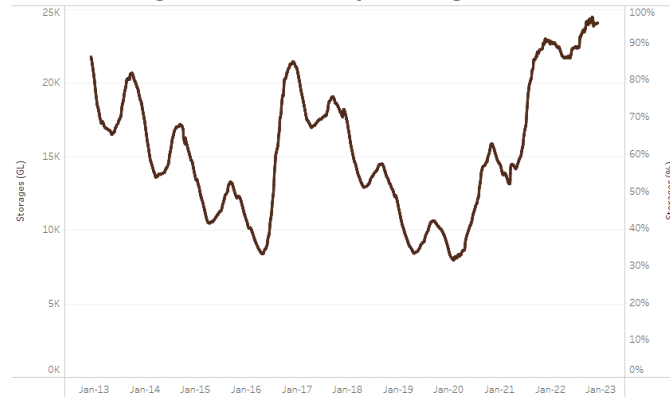
Issued 15/12/2022

## 2. Water

### 2.1. Water markets – current week

Water storage levels in the Murray-Darling Basin (MDB) increased between 7 December 2022 and 14 December 2022 by 24 gegalitres (GL). Current volume of water held in storage is 24 043 GL which represents 95 percent of total capacity. This is 5 percent or 1183 GL more than at the same time last year.

**Water storages in the Murray-Darling Basin, 2013–2022**

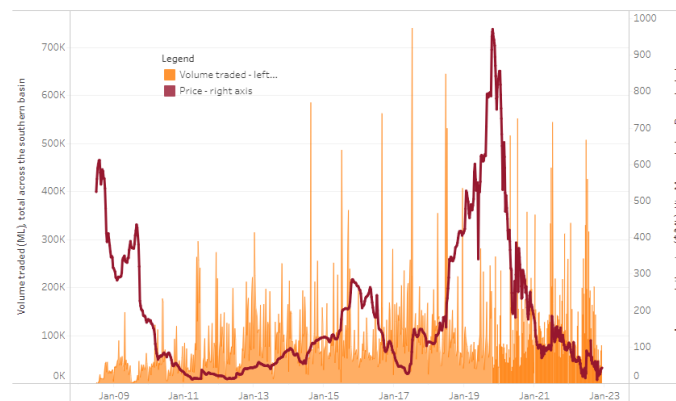


Water storage data is sourced from the Bureau of Meteorology.

Allocation prices in the Victorian Murray below the Barmah Choke increased from \$40 per ML on 8 December to \$42 per ML on 15 December 2022. Prices are lower in the Murrumbidgee and regions above the Barmah choke due to the binding of the Murrumbidgee export limit and Barmah choke trade constraint.

Region	\$/ML
NSW Murray Above	16
NSW Murrumbidgee	20
VIC Goulburn-Broken	36
VIC Murray Below	42

**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 15 December 2022.

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-151222](http://www.agriculture.gov.au/abares/products/weekly_update/weekly-update-151222)

### 3. Commodities

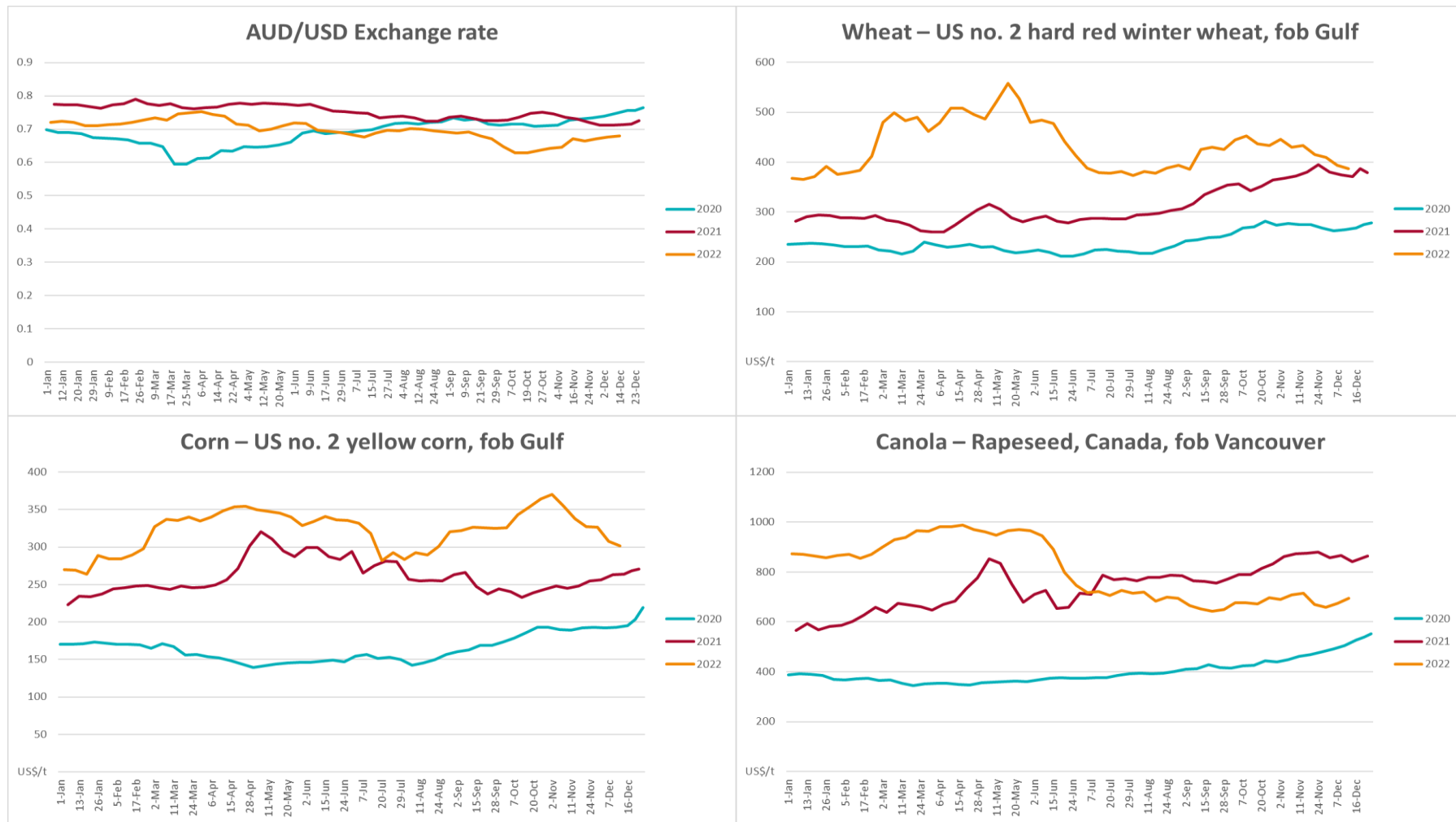
Indicator	Week ended	Unit	Latest price	Previous week	Weekly change	Price 12 months ago	Annual change
<b>Selected world indicator prices</b>							
AUD/USD Exchange rate	14-Dec	A\$/US\$	0.68	0.68	0%	0.72	-5%
Wheat – US no. 2 hard red winter wheat, fob Gulf	14-Dec	US\$/t	387	394	-2%	387	0%
Corn – US no. 2 yellow corn, fob Gulf	14-Dec	US\$/t	301	308	-2%	268	12%
Canola – Rapeseed, Canada, fob Vancouver	14-Dec	US\$/t	694	674	3%	852	-18%
Cotton – Cotlook 'A' Index	14-Dec	USc/lb	98	103	-5%	120	-18%
Sugar – Intercontinental Exchange, nearby futures, no.11 contract	14-Dec	USc/lb	18.5	18.4	0%	19	-1%
Wool – Eastern Market Indicator	23-Nov	Ac/kg clean	1,224	1,256	-3%	1,369	-11%
Wool – Western Market Indicator	16-Nov	Ac/kg clean	1,408	1,379	2%	1,462	-4%
<b>Selected Australian grain export prices</b>							
Milling Wheat – APW, Port Adelaide, SA	14-Dec	A\$/t	548	547	0%	483	13%
Feed Wheat – ASW, Port Adelaide, SA	14-Dec	A\$/t	501	500	0%	451	11%
Feed Barley – Port Adelaide, SA	14-Dec	A\$/t	428	424	1%	371	15%
Canola – Kwinana, WA	14-Dec	A\$/t	1,051	995	6%	972	8%
Grain Sorghum – Brisbane, QLD	14-Dec	A\$/t	475	473	0%	369	29%
<b>Selected domestic livestock indicator prices</b>							
Beef – Eastern Young Cattle Indicator	14-Dec	Ac/kg cwt	894	870	3%	1,109	-19%
Mutton – Mutton indicator (18–24 kg fat score 2–3), Vic	14-Dec	Ac/kg cwt	378	346	9%	642	-41%
Lamb – Eastern States Trade Lamb Indicator	07-Dec	Ac/kg cwt	689	730	-6%	821	-16%
Pig – Eastern Seaboard (60.1–75 kg), average of buyers & sellers	16-Nov	Ac/kg cwt	376	376	0%	328	15%
Goats – Eastern States (12.1–16 kg)	07-Dec	Ac/kg cwt	361	485	-26%	818	-56%
Live cattle – Light steers ex Darwin to Indonesia	17-Aug	Ac/kg lwt	420	480	-13%	320	31%
Live sheep – Live wethers (Mucnea WA saleyard) to Middle East	14-Sep	\$/head	93	113	-18%	114	-18%

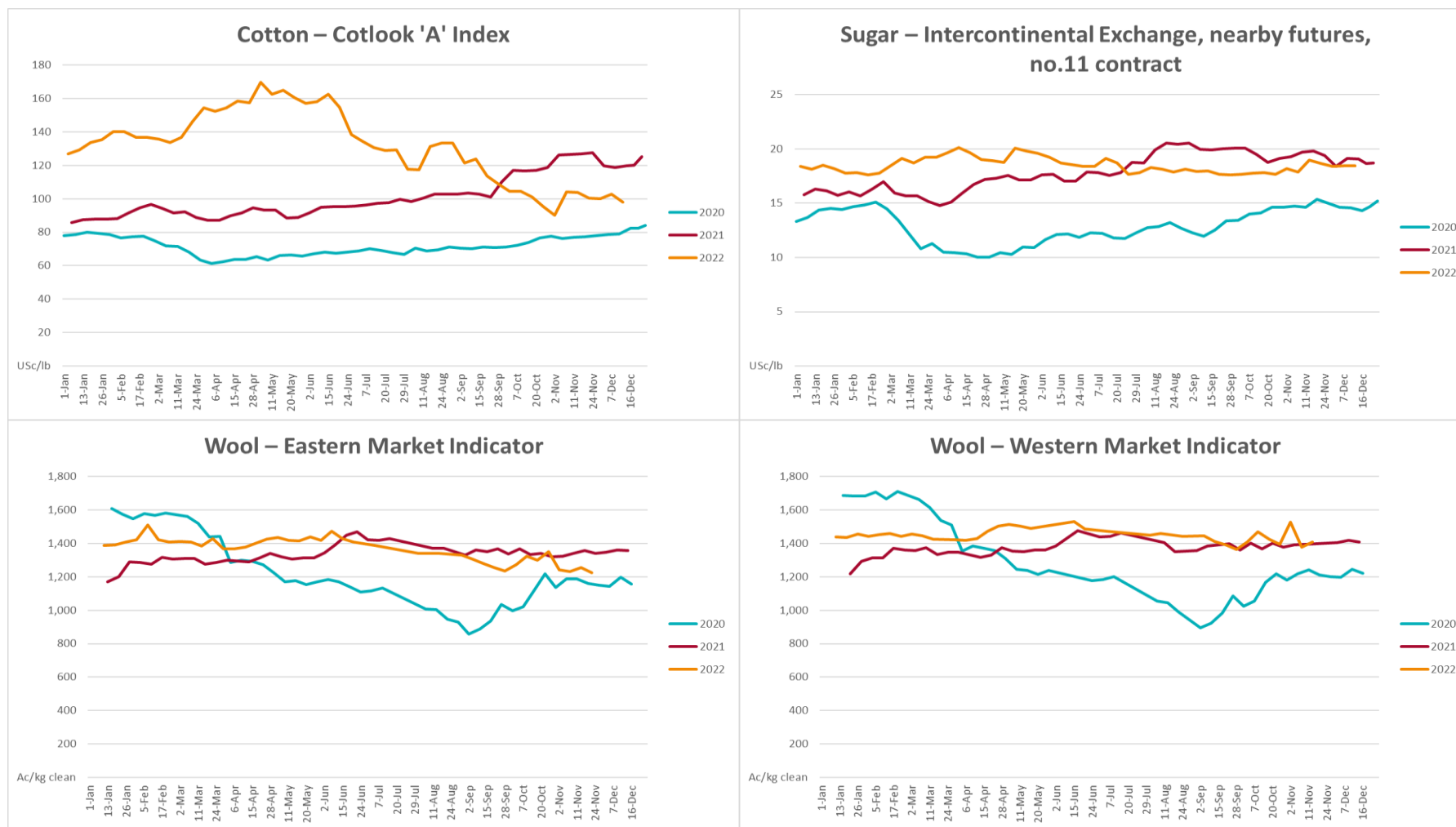


Indicator	Week ended	Unit	Latest price	Previous week	Weekly change	Price 12 months ago	Annual change
<b>Global Dairy Trade (GDT) weighted average prices <sup>a</sup></b>							
Dairy – Whole milk powder	07-Dec	US\$/t	3,400	3,397	0%	3,037	12%
Dairy – Skim milk powder	07-Dec	US\$/t	3,102	3,057	1%	2,799	11%
Dairy – Cheddar cheese	07-Dec	US\$/t	4,826	4,746	2%	3,641	33%
Dairy – Anhydrous milk fat	07-Dec	US\$/t	5,797	5,711	2%	4,175	39%

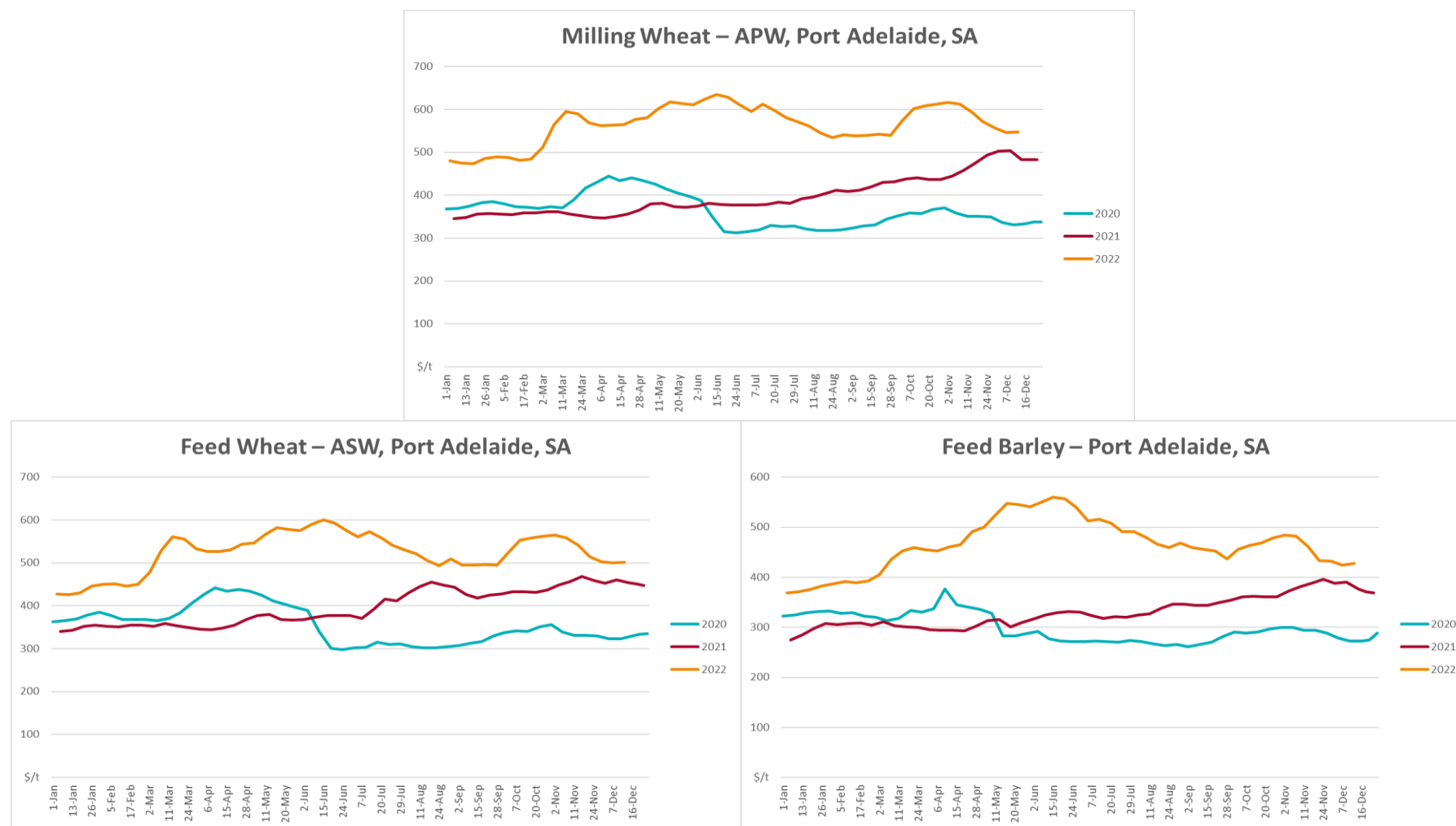
**a** Global Dairy Trade prices are updated twice monthly on the first and third Tuesday of each month.

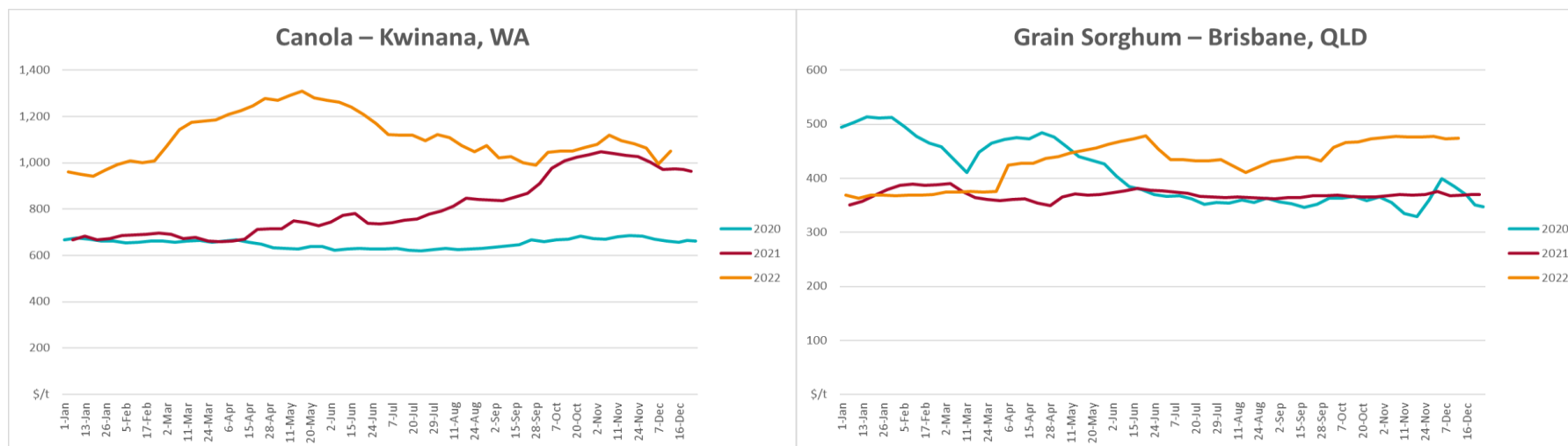
### 3.1. Selected world indicator prices





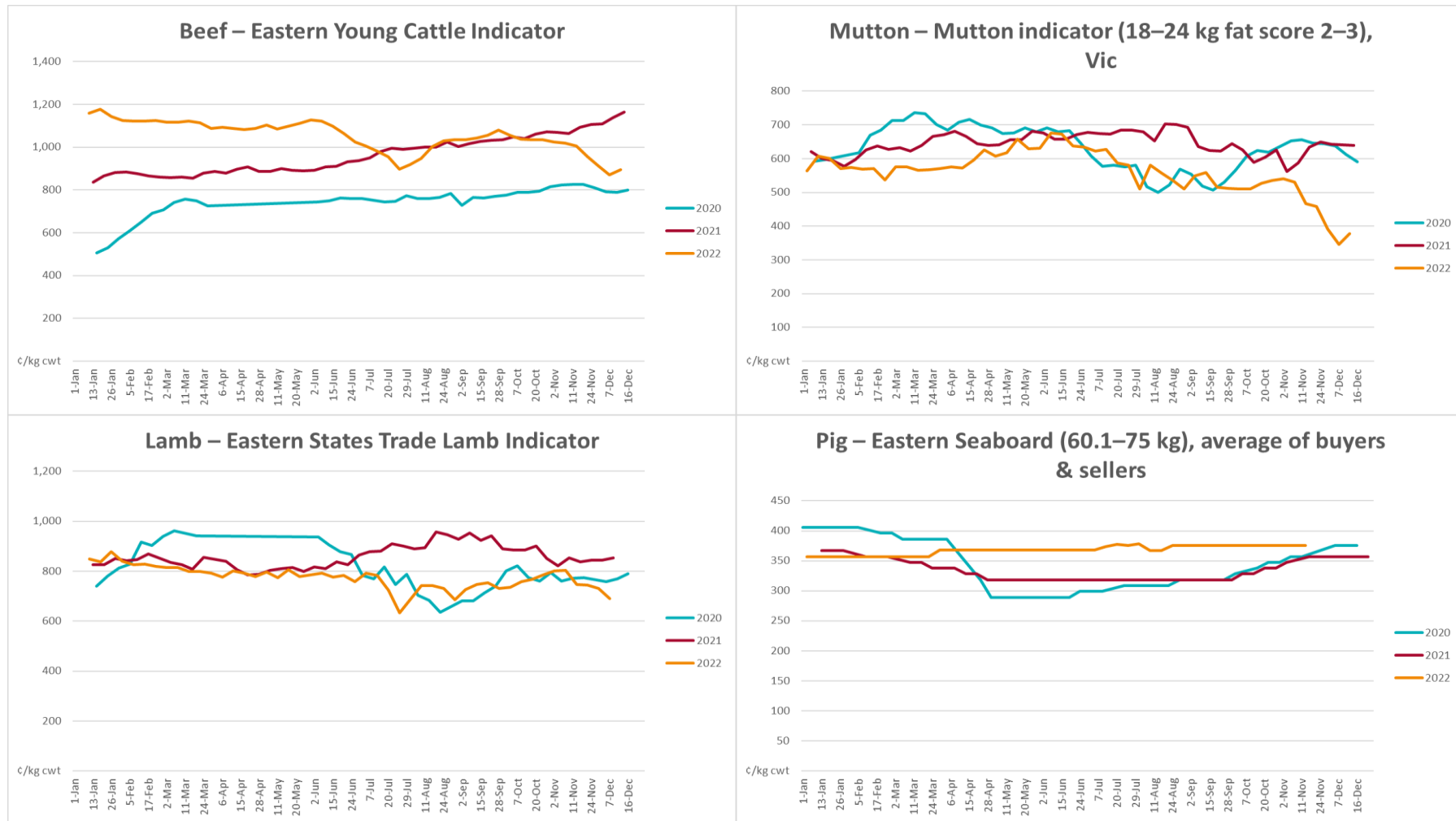
### 3.2. Selected domestic crop indicator prices

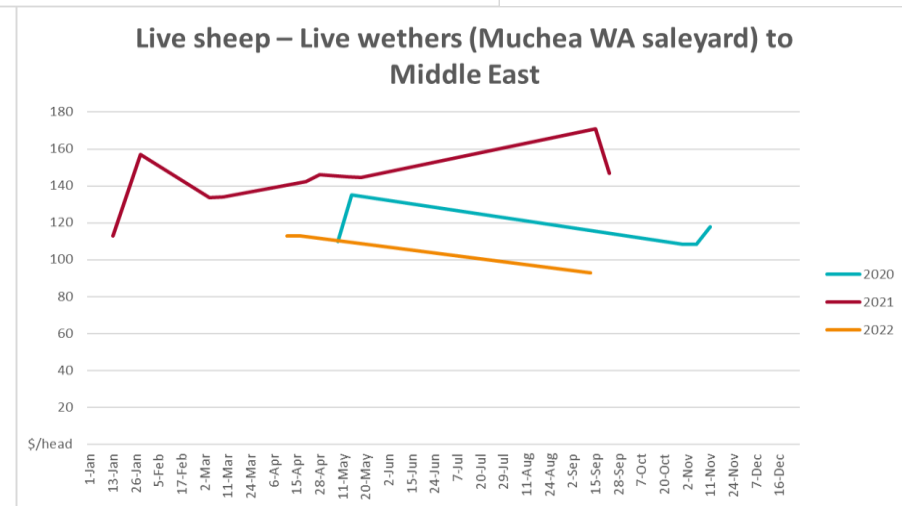
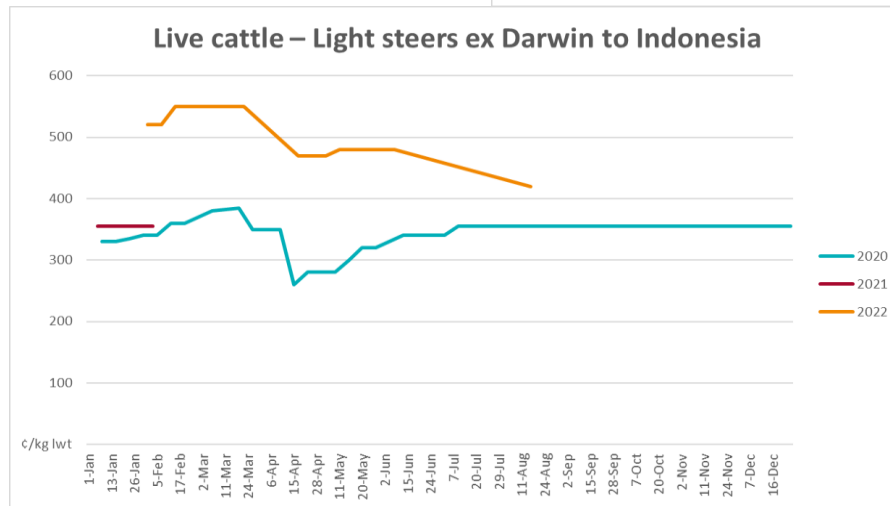
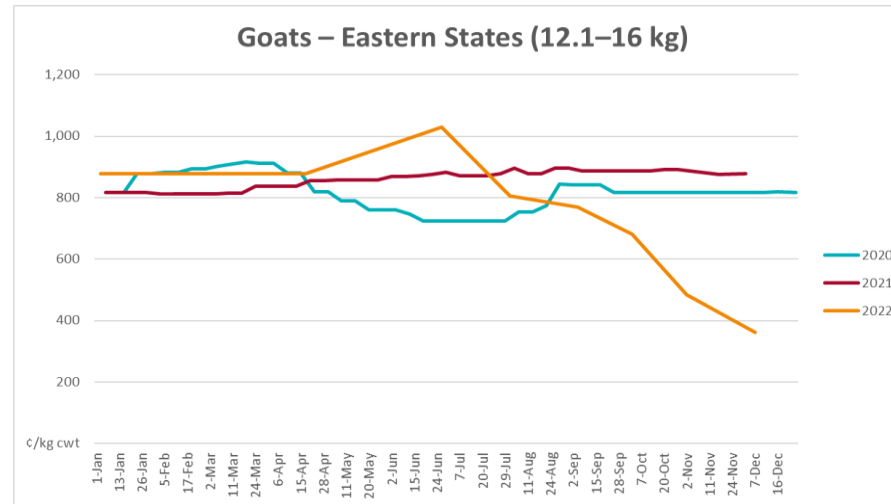




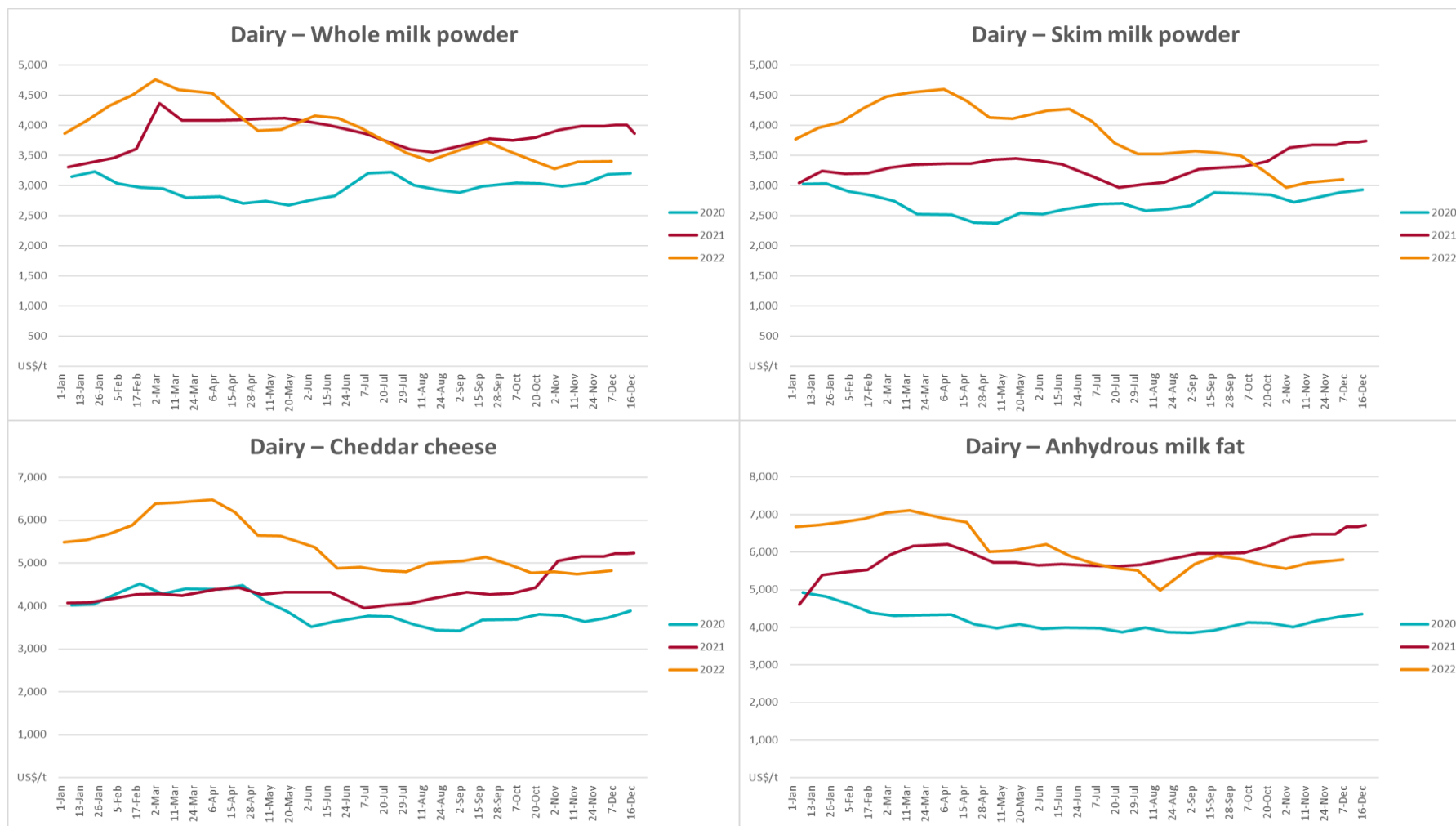


### 3.3. Selected domestic livestock indicator prices

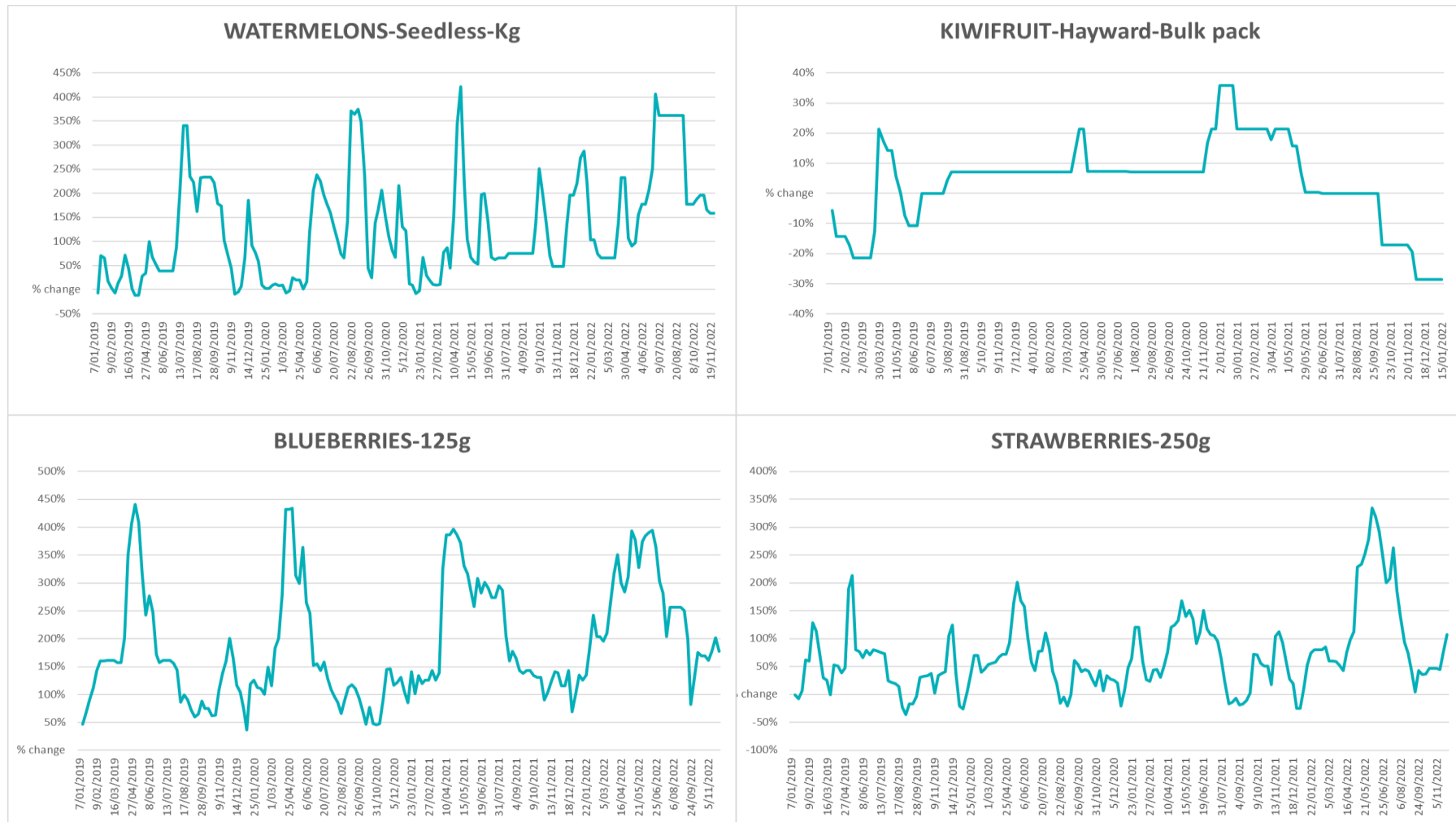


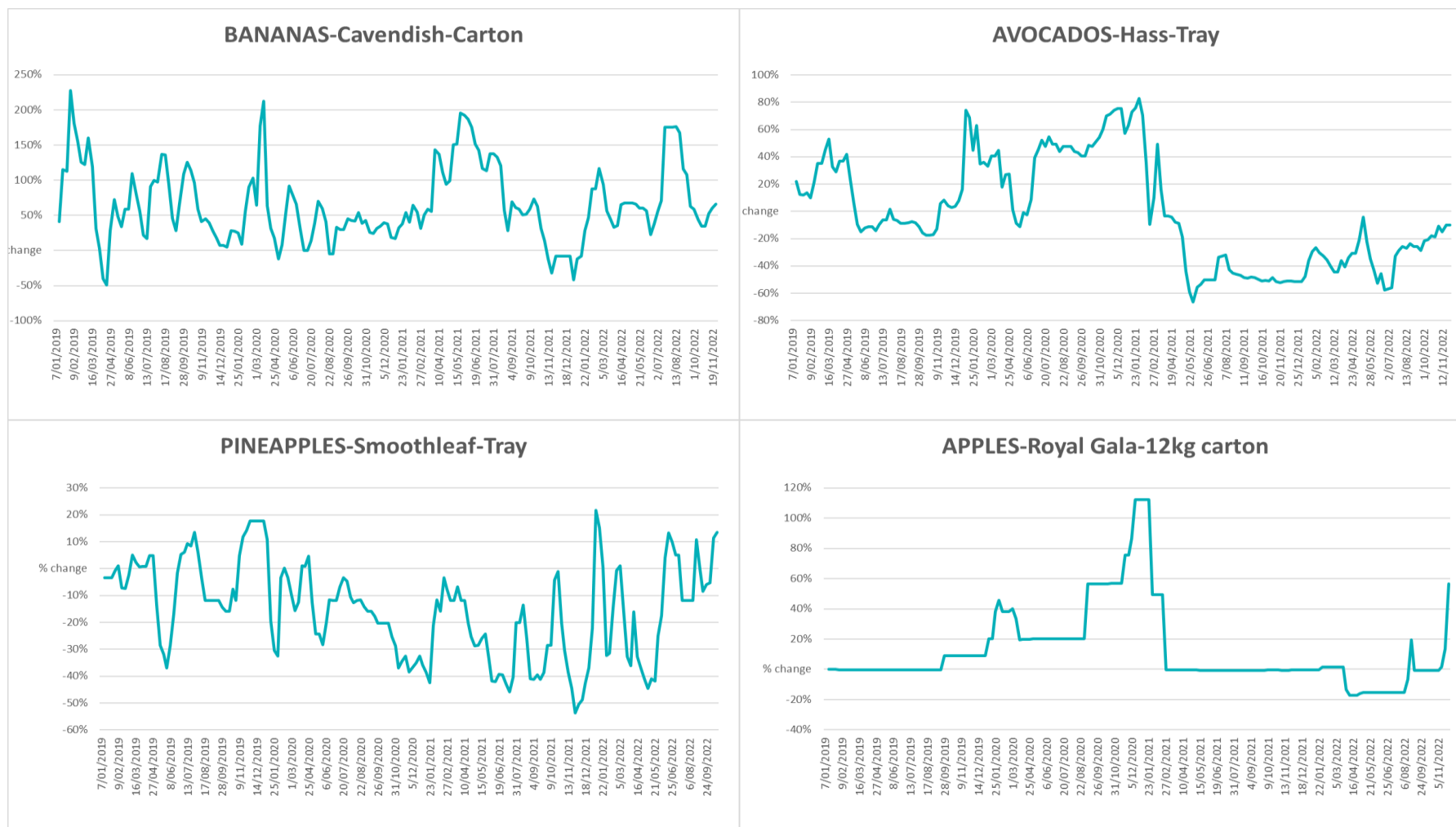


### 3.4. Global Dairy Trade (GDT) weighted average prices

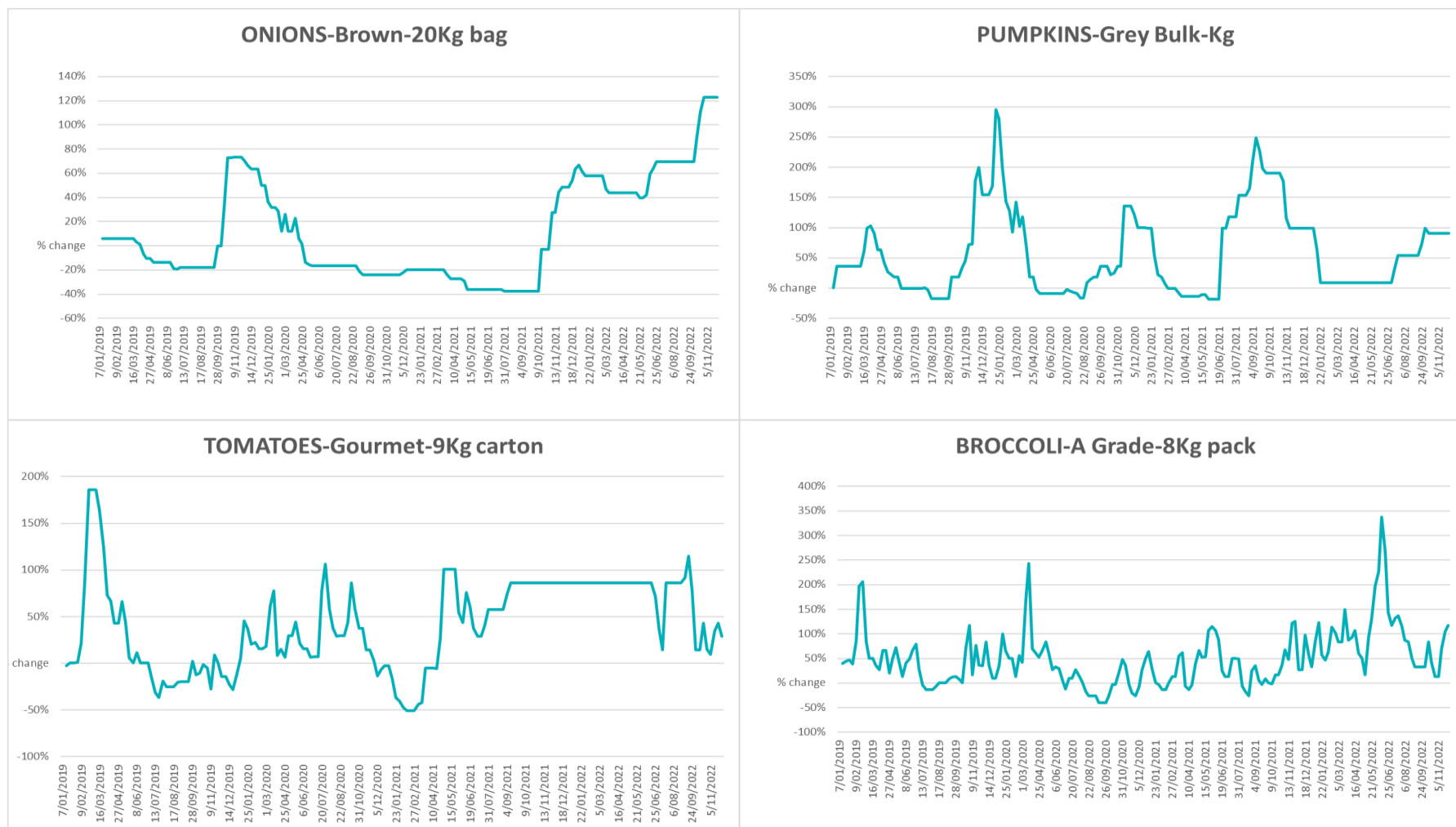


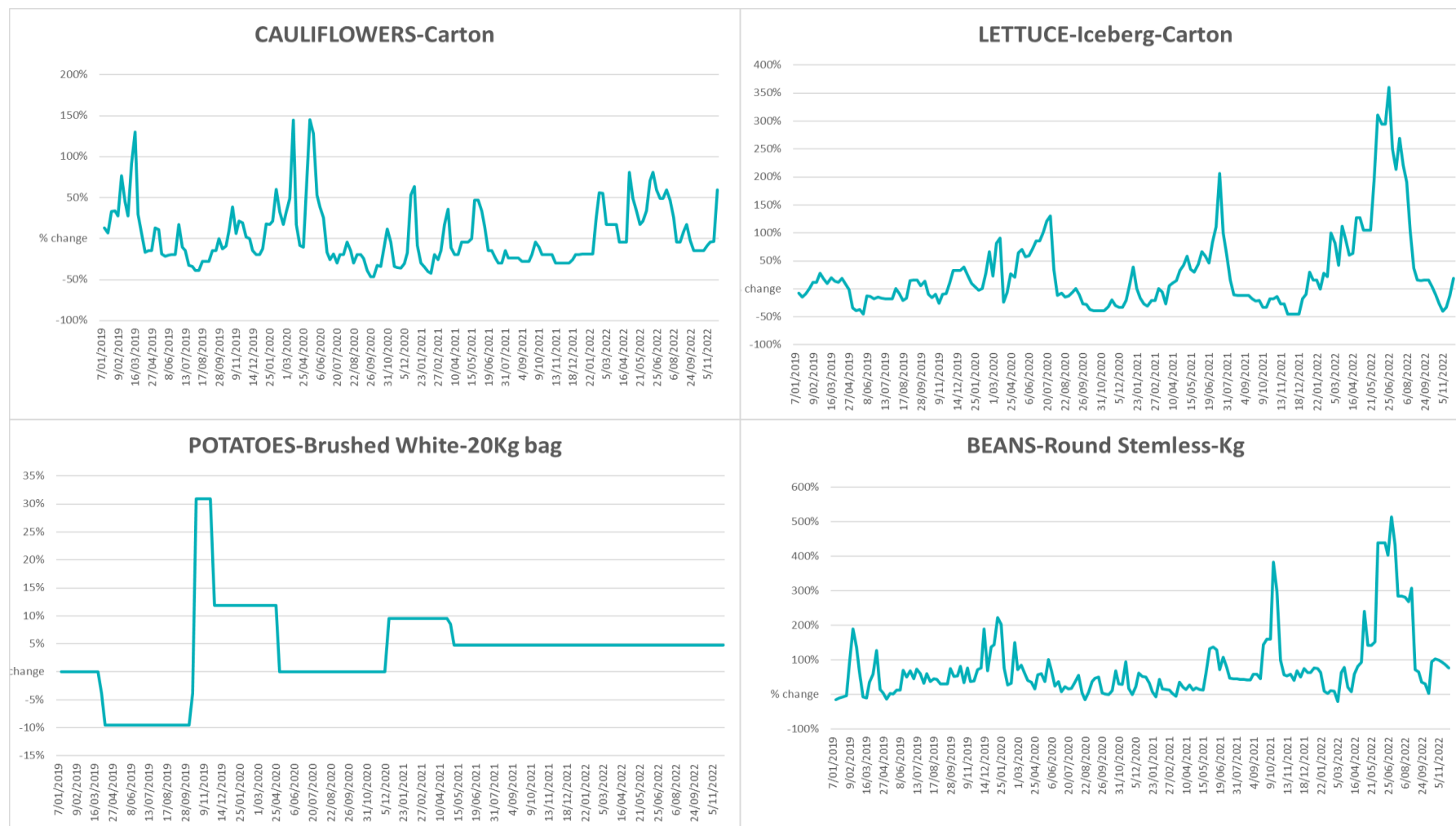
### 3.5. Selected fruit and vegetable prices



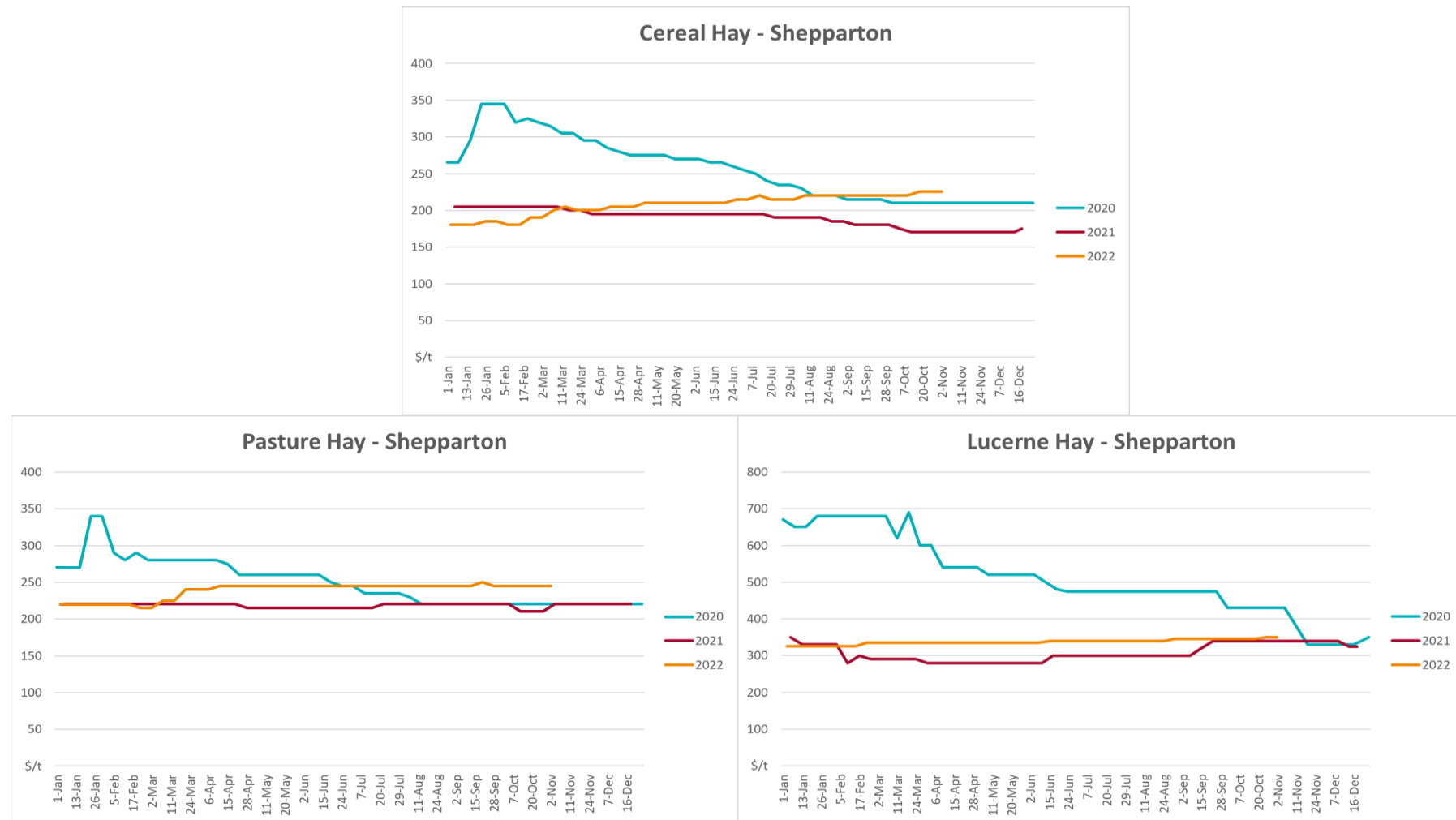








### 3.6. Selected domestic fodder indicator prices



## 4. Data attribution

### Climate

#### Bureau of Meteorology

- Weekly rainfall totals: [www.bom.gov.au/climate/maps/rainfall/](http://www.bom.gov.au/climate/maps/rainfall/)
- Monthly and last 3-month rainfall percentiles: [www.bom.gov.au/water/landscape/](http://www.bom.gov.au/water/landscape/)
- Temperature anomalies: [www.bom.gov.au/jsp/awap/temp/index.jsp](http://www.bom.gov.au/jsp/awap/temp/index.jsp)
- Rainfall forecast: [www.bom.gov.au/jsp/watl/rainfall/pme.jsp](http://www.bom.gov.au/jsp/watl/rainfall/pme.jsp)
- Seasonal outlook: [www.bom.gov.au/climate/outlooks/#/overview/summary/](http://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/](http://www.bom.gov.au/water/landscape/)

#### Other

- Pasture growth: [www.longpaddock.qld.gov.au/aussiegrass/](http://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](http://www.freshstate.com.au)

#### Pigs

- Australian Pork Limited: [www.australianpork.com.au](http://www.australianpork.com.au)

#### Dairy

- Global Dairy Trade: [www.globaldairytrade.info/en/product-results/](http://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/](http://www.cotlook.com/)

#### World sugar

- New York Stock Exchange - Intercontinental Exchange

#### Wool

- Australian Wool Exchange: [www.awex.com.au/](http://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](http://www.mla.com.au/Prices-and-market)

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Department of Agriculture, Fisheries and Forestry

GPO Box 858 Canberra ACT 2601

Telephone 1800 900 090

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