



Weekly Australian Climate, Water and Agricultural Update

No. 27/2023

13 July 2023

Summary of key issues

- For the week ending 12 July 2023, a high-pressure system kept much of Australia dry. Fronts passing over southern Australia brought rainfall to parts of south-western Western Australia, southern South Australia, Victoria and alpine regions of New South Wales, as well as across much of Tasmania.
- Across cropping regions, rainfall totals of up to 25 millimetres were recorded in scattered areas in the far east of Western Australia and Victoria, much of South Australia and along south-eastern margins of New South Wales. Lighter falls of between 5 and 10 millimetres were recorded across much of southern New South Wales, and southern and western Victoria. These falls have maintained average to above average levels of upper layer soil moisture in eastern cropping regions, supporting the growth of crops and pastures. Meanwhile, in Western Australia, large areas of below average root zone soil moisture were evident as of 10 July 2023. This would imply a lack of recent effective rainfall to support crop and pasture growth and a drawdown of soil moisture reserves. These regions will require sufficient and timely rain in the coming weeks to support current levels of winter crop production (see Section 1.1).
- The Bureau of Meteorology's ENSO outlook is at El Niño ALERT. Sea-surface temperatures in the Pacific have reached the El Niño thresholds but atmospheric indicators have returned to neutral range. There is also a strong possibility of a positive IOD event developing this winter. A positive IOD can suppress winter and spring rainfall over much of Australia, potentially exacerbating the drying effect of El Niño (see Section 1.2).
- Across cropping regions, during August there is a 75% chance of rainfall totals of between 10 and 50 millimetres across southern and eastern New South Wales, and much of Victoria, South Australia and Western Australia. Below 10 millimetres are expected in the remaining cropping regions. During August to October 2023, below median rainfall is likely across cropping regions. There is 75% chance of receiving between 25 and 100 millimetres across most winter cropping regions, except for in Queensland where falls are expected to be below 25 millimetres. These falls are likely to be sufficient to support close to average plant growth. However, in areas with low soil moisture, such as Queensland and northern New South Wales these probable low three-month rainfall totals are unlikely to be sufficient to sustain average levels of crop and pasture production. Particularly as we enter the early months of spring, with higher temperatures and increased water demand for crops and pastures (see Section 1.3).
- Over the 8 days to 20 July 2023, a high-pressure system will keep most of the country dry. A cold front will bring showers up to 50 millimetres to far south-western parts of Western Australia, southern South Australia and Victoria and up to 150 millimetres are expected in Tasmania (see Section 1.4).
- Across cropping regions, rainfall totals up to 10 millimetres are expected in southern New South Wales and across Victoria, South Australia and Western Australia. If these falls eventuate as forecast, they are likely to maintain current levels soil moisture and support crop and pasture growth and development. Dry conditions are expected in the remaining cropping regions (see Section 1.4).
- Water storage levels in the Murray-Darling Basin (MDB) increased between 6 July 2023 and 13 July 2023 by 60 gigalitres (GL). Current volume of water held in storage is 20 937 GL. This is 1 percent or 196 GL more than at the same time last year.
- Allocation prices in the Victorian Murray below the Barmah Choke increased from \$15 on 6 July 2023 to \$85 on 13 July 2023.

1. Climate

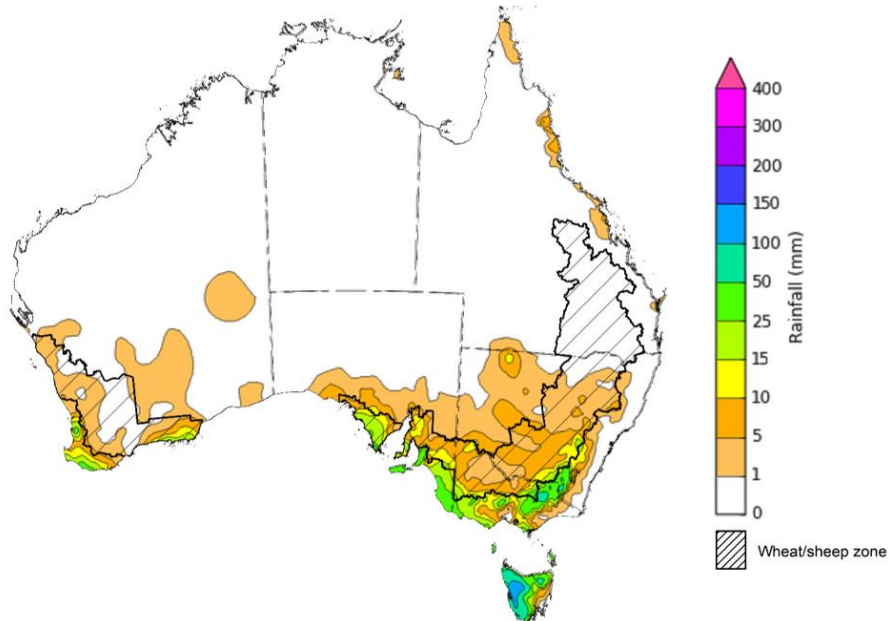
1.1. Rainfall this week

For the week ending 12 July 2023, a high-pressure system kept much of Australia dry. Fronts passing over southern Australia brought rainfall to parts of south-western Western Australia, southern South Australia, Victoria and alpine regions of New South Wales, as well as across much of Tasmania.

Across cropping regions, rainfall totals of up to 25 millimetres were recorded in scattered areas in the far east of Western Australia and Victoria, much of South Australia and along south-eastern margins of New South Wales. Lighter falls of between 5 and 10 millimetres were recorded across much of southern New South Wales, and southern and western Victoria. Little to no rainfall was recorded across remaining cropping regions. These falls have maintained average to above average levels of upper layer soil moisture in eastern cropping regions, supporting the growth of crops and pastures.

Meanwhile, in Western Australia large areas of below average root zone soil moisture were evident as of 10 July 2023. This would imply a lack of recent effective rainfall to support crop and pasture growth and a drawdown of soil moisture reserves. These regions will require sufficient and timely rain in the coming weeks to support current levels of winter crop production.

Rainfall for the week ending 12 July 2023



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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/>
Issued: 12/7/2023

1.2. Climate Drivers

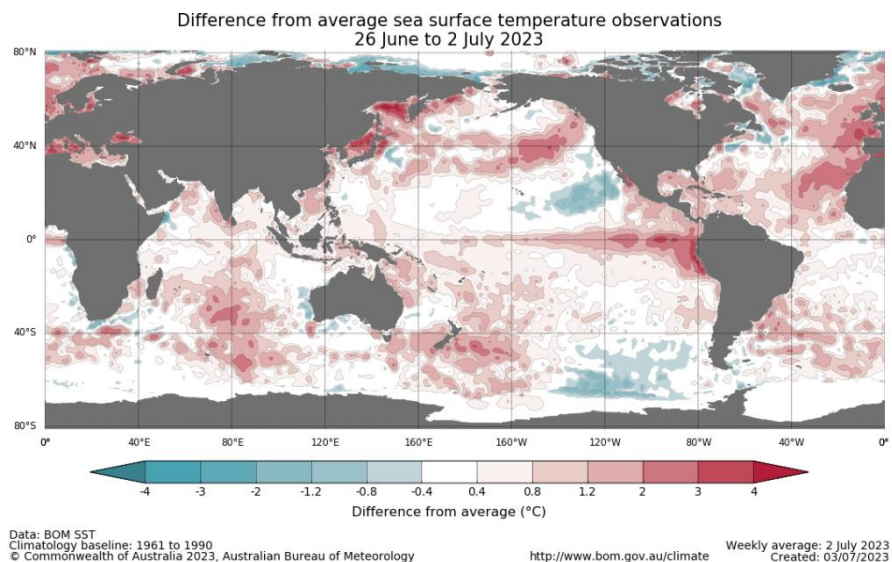
The climate drivers with the largest potential impact on Australia’s climate patterns are the El Niño–Southern Oscillation (ENSO), Madden-Julian Oscillation (MJO), Indian Ocean Dipole (IOD) and Southern Annular Mode (SAM). These climate drivers are likely to influence pasture growth across southern Australia and the growth and yield prospects for winter crops.

The Madden–Julian Oscillation (MJO) pulse is currently over the western Pacific and is forecast to become indiscernible in the coming days. At this time of the year MJO has little influence on northern Australia rainfall.

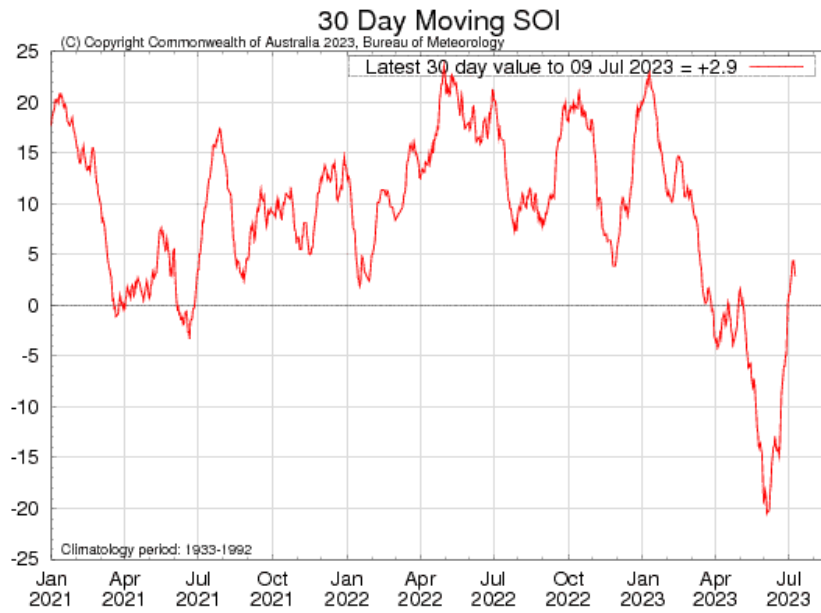
The Bureau of Meteorology’s ENSO outlook is at El Niño ALERT, indicating that there is a 70% chance of El Niño developing in 2023. Oceanic indicators are measured in terms of the sea surface temperature (SST) anomalies, which have warmed to El Niño thresholds. For the week ending 2 July, the SST anomalies were warmer than average over the central and eastern equatorial Pacific Ocean, with anomalies over 4°C in the far east. All models surveyed by the Bureau of Meteorology indicate the likelihood of further warming and the warm SSTs will remain above El Niño thresholds at least into the beginning of southern hemisphere summer.

Atmospheric indicators are measured in terms of the surface air pressure difference between Tahiti and Darwin, called the Southern Oscillation Index (SOI), the direction and strength of the trade winds and cloudiness at the date line. Some atmospheric indicators such as the SOI have returned to neutral range. For the period ending 2 July 2023, the 30-day SOI was +1.1, the 60-day SOI was -8.6, and the 90-day SOI was -5.5. The 30-day and 90-day values have shown a steady decrease in magnitude over the past month. Additionally, winds, clouds and broadscale pressure patterns indicate that the ocean and atmosphere are yet to reinforce each other, as occurs during El Niño events.

Difference from average sea surface temperature observations 26 June to 2 July 2023

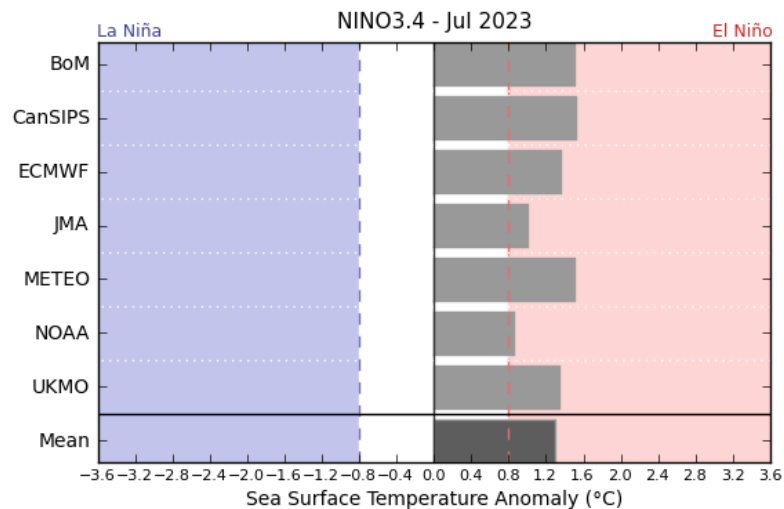


30-day Southern Oscillation Index (SOI) values ending 19 June 2023



All international climate model surveyed by the Australian Bureau of Meteorology indicate the SST anomaly values will pass El Niño thresholds during winter and remain above El Niño threshold levels through spring and at least to the beginning of the southern hemisphere summer. Note: the World Meteorological Organisation has declared El Niño.

International climate model outlooks for the ENSO in NINO 3.4 region

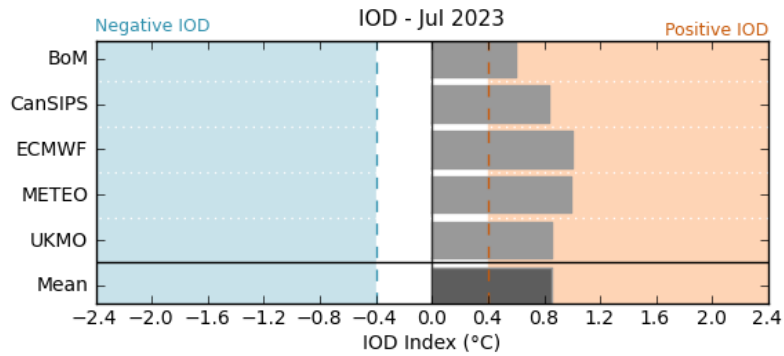


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Issued: 20/6/2023

The Indian Ocean Dipole (IOD) is currently neutral with an index value of 0.21°C for the week ending 2 July. All international climate models surveyed by the Bureau of Meteorology suggest that threshold values for a positive IOD event are likely to be reached this winter. A positive IOD can suppress winter and spring rainfall over much of central and south-eastern Australia, potentially exacerbating any drying effect of El Niño.

International climate model outlook for the Indian Ocean Dipole

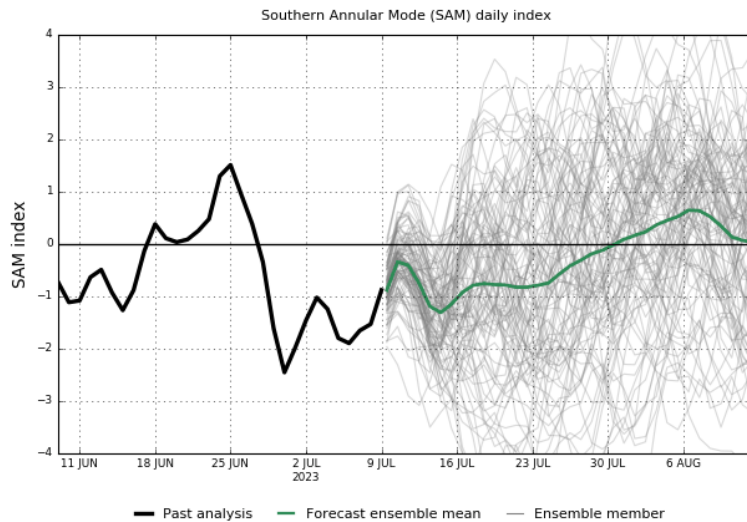


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Issued: 20/6/2023

The Southern Annular Mode (SAM) index is currently negative and is expected to remain negative for a week before returning to neutral values for at least the next two weeks. A neutral SAM has little influence on Australian climate.

Southern Annular Mode (SAM) daily index



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Model run: 9 Jul 2023 Model: ACCESS-S2
Base period 1990-2012

1.3. National Climate Outlook

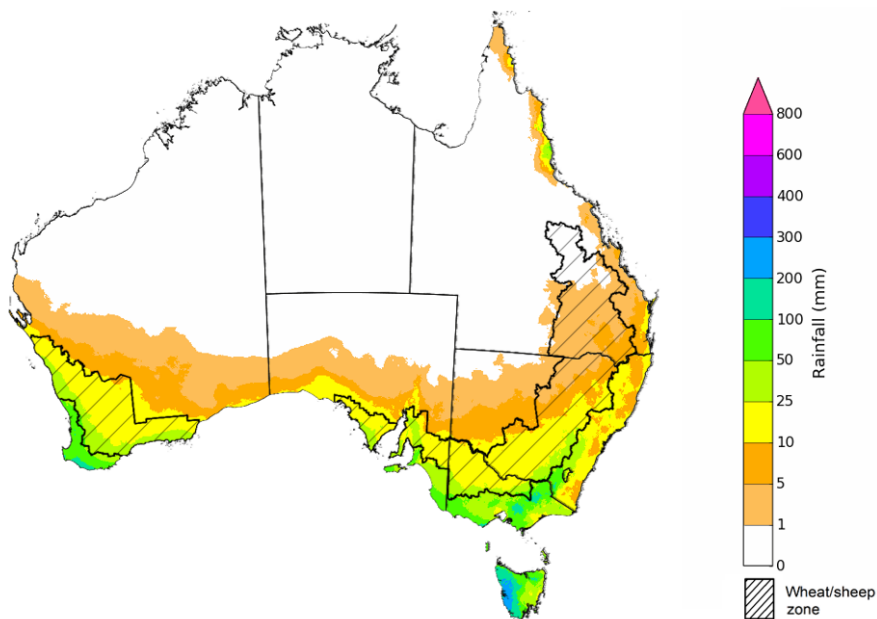
These climate outlooks are generated by ACCESS–S (Australian Community Climate Earth-System Simulator–Seasonal). ACCESS–S is the Bureau of Meteorology's dynamic (physics-based) weather and climate model used for monthly, seasonal, and longer-lead climate outlooks. For further information, go to <http://www.bom.gov.au/climate/ahead/about/>.

The Bureau of Meteorology's latest rainfall outlook for August 2023 indicates drier than average conditions are expected across much of Australia.

The ACCESS-S climate model suggests that there is a 75% chance of rainfall totals between 10 and 50 millimetres across eastern and southern New South Wales, scattered areas of coastal Queensland, much of Victoria and Tasmania, southern South Australia, and southwest Western Australia. Rainfall totals in excess of 100 millimetres are expected across western Tasmania, far southwest Western Australia and alpine areas of Victoria.

Across cropping regions, there is a 75% chance of rainfall totals of between 10 and 50 millimetres across southern and eastern New South Wales, and much of Victoria, South Australia and Western Australia. August rainfall totals are expected to be below 10 millimetres in the remaining cropping regions.

Rainfall totals that have a 75% chance of occurring in August 2023



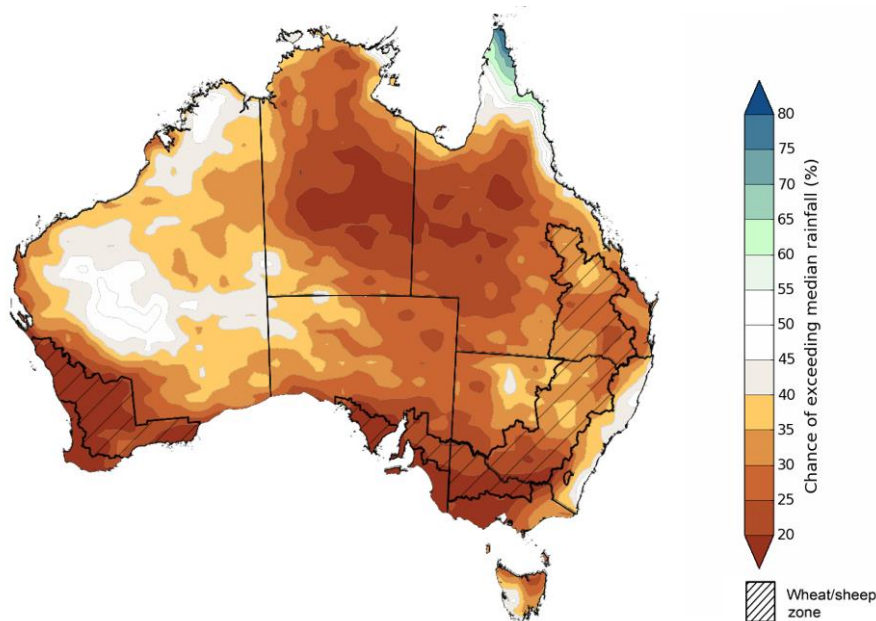
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The rainfall outlook for August to October 2023 suggests that below median rainfall is likely to very likely (60% to greater than 80% chance) across most of Australia. However, there is close to equal chances of above or below median rainfall for parts of northern and central Western Australia, coastal New South Wales and western Tasmania. Above median rainfall is likely in the Queensland tropics.

Across cropping regions, below median rainfall is more likely through August to October period.

Chance of exceeding the median rainfall August to October 2023



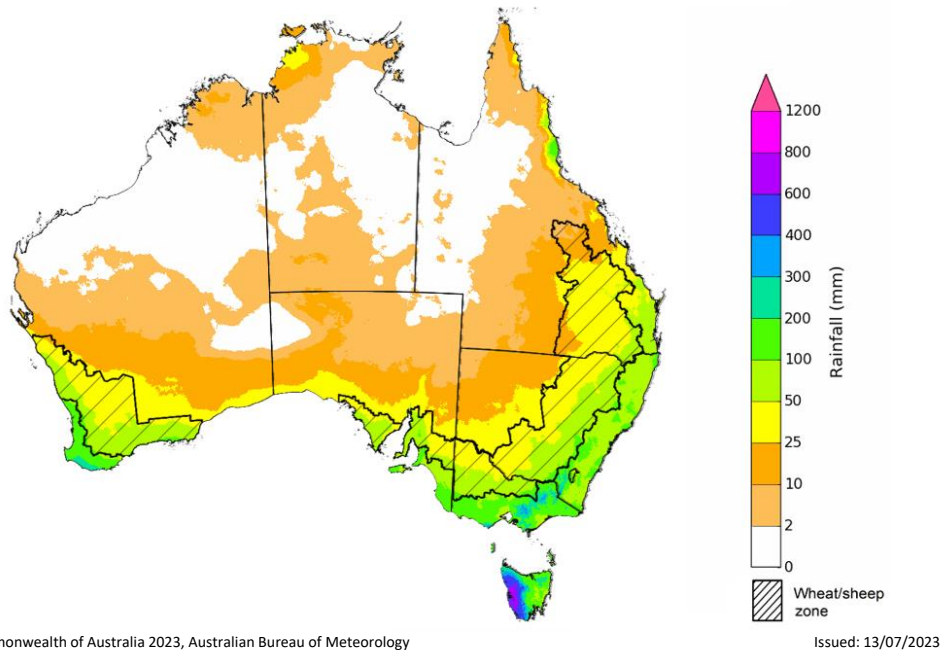
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Issued: 13/07/2023

The outlook for August to October 2023 suggests there is a 75% chance of rainfall totals between 25 and 100 millimetres across much of New South Wales, Victoria and Tasmania, parts of south-eastern and coastal Queensland, and southern parts of South Australia and Western Australia. Rainfall totals in excess of 200 millimetres are forecast for alpine regions of Victoria and New South Wales, far southwest of Western Australia and western Tasmania.

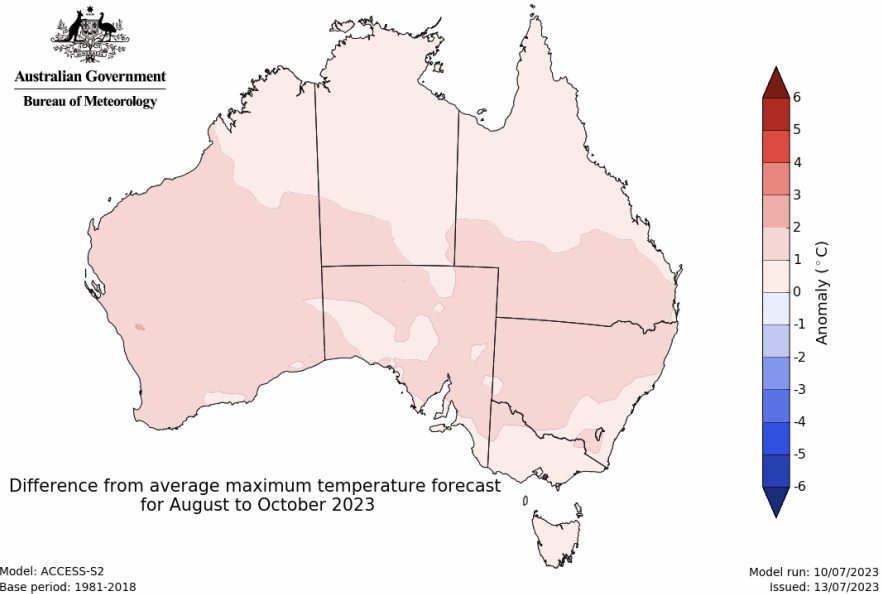
There is a 75% chance of receiving between 25 and 100 millimetres across most winter cropping regions, except for northern cropping regions in Queensland where falls are expected to be below 25 millimetres. These falls are likely to be sufficient to support close to average plant growth. However, in areas with low soil moisture, such as Queensland and northern New South Wales these probable low three-month rainfall totals are unlikely to be sufficient to sustain average levels of crop and pasture production. Particularly as we enter the early months of spring, with higher temperatures and increased water demand for crops and pastures.

Rainfall totals that have a 75% chance of occurring August to October 2023

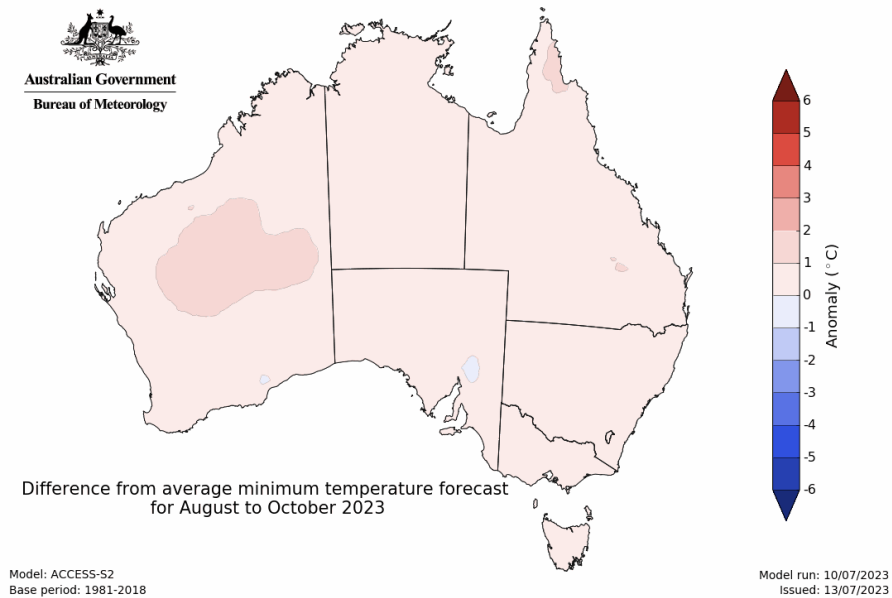


The temperature outlook for August to October 2023 indicates that maximum temperatures across northern Australia, central South Australia, coastal east, Victoria and Tasmania are likely to be close to the 1990–2012 average (-1°C to +1°C). Meanwhile maximum temperatures are expected to be warmer than average (above +1°C) across much of the remainder of southern Australia. Minimum temperatures are expected to be close to the 1990–2012 average (-1°C to +1°C) across most of Australia. The night-time temperatures in central parts of Western Australia are likely to be warmer than average (above +1°C).

Predicted maximum temperature anomaly for August to October 2023



Predicted minimum temperature anomaly for August to October 2023

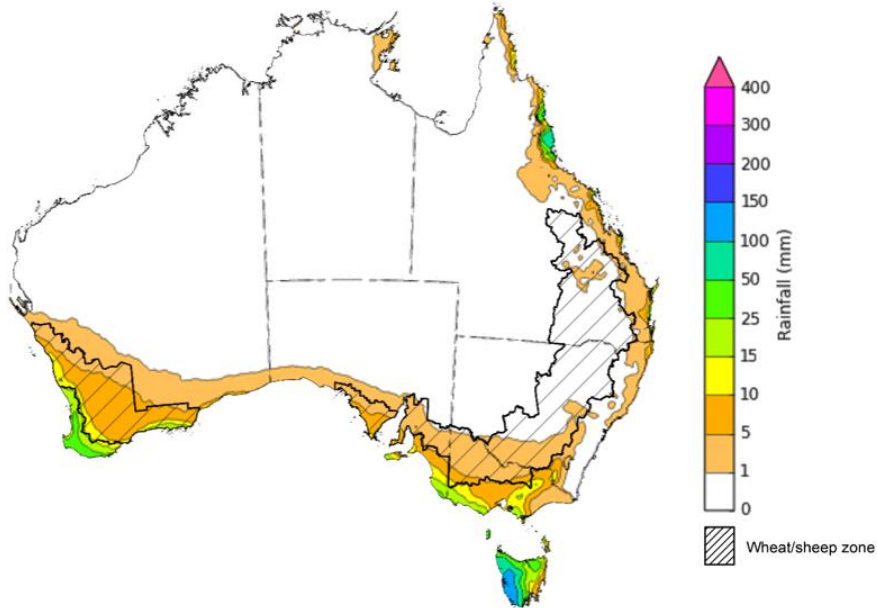


1.4. Rainfall forecast for the next eight days

Over the 8-days to 20 July 2023, a high-pressure system will keep most of the country dry. A cold front will bring showers up to 50 millimetres to far south-western parts of Western Australia, southern South Australia and Victoria and up to 150 millimetres are expected in Tasmania.

Across cropping regions, rainfall totals up to 10 millimetres are expected in southern New South Wales and across Victoria, South Australia and Western Australia. If these falls eventuate as forecast, they are likely to maintain current levels soil moisture and support crop and pasture growth and development. Dry conditions are expected in the remaining cropping regions.

Total forecast rainfall for the period 13 July 2023 to 20 July 2023



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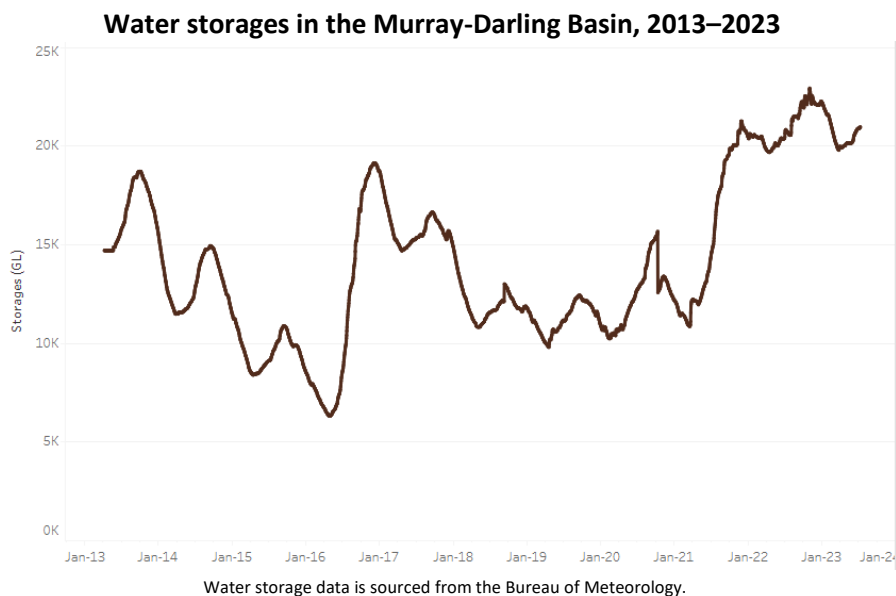
Issued 13/7/2023

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

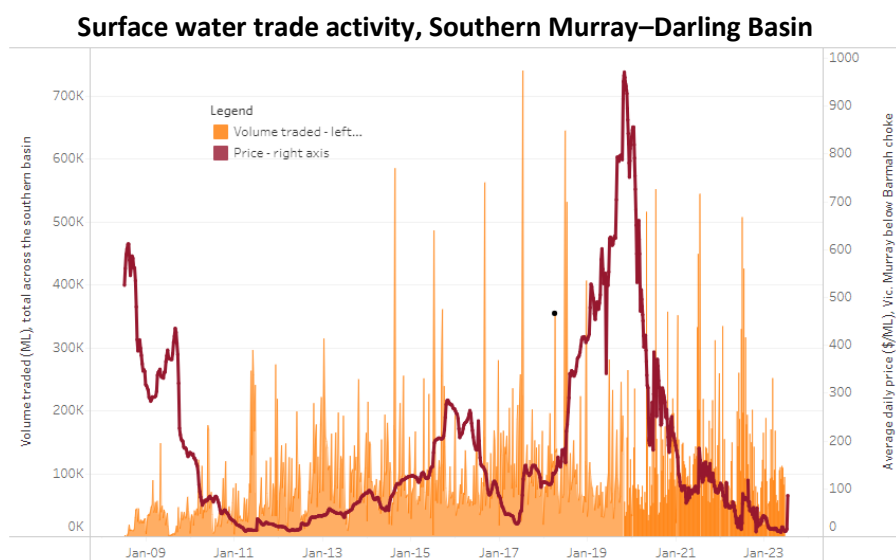
2.1. Water markets – current week

Water storage levels in the Murray-Darling Basin (MDB) increased between 6 July 2023 and 13 July 2023 by 60 gigalitres (GL). Current volume of water held in storage is 20 937 GL. This is 1 percent or 196 GL more than at the same time last year.



Allocation prices in the Victorian Murray below the Barmah Choke increased from \$15 on 6 July 2023 to \$85 on 13 July 2023.

Region	\$/ML
NSW Murray Above	21
NSW Murrumbidgee	87
VIC Goulburn-Broken	54
VIC Murray Below	85



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. Only the price data shown is current on 13 July 2023.

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

https://www.agriculture.gov.au/abares/products/weekly_update/weeakly-update-13723

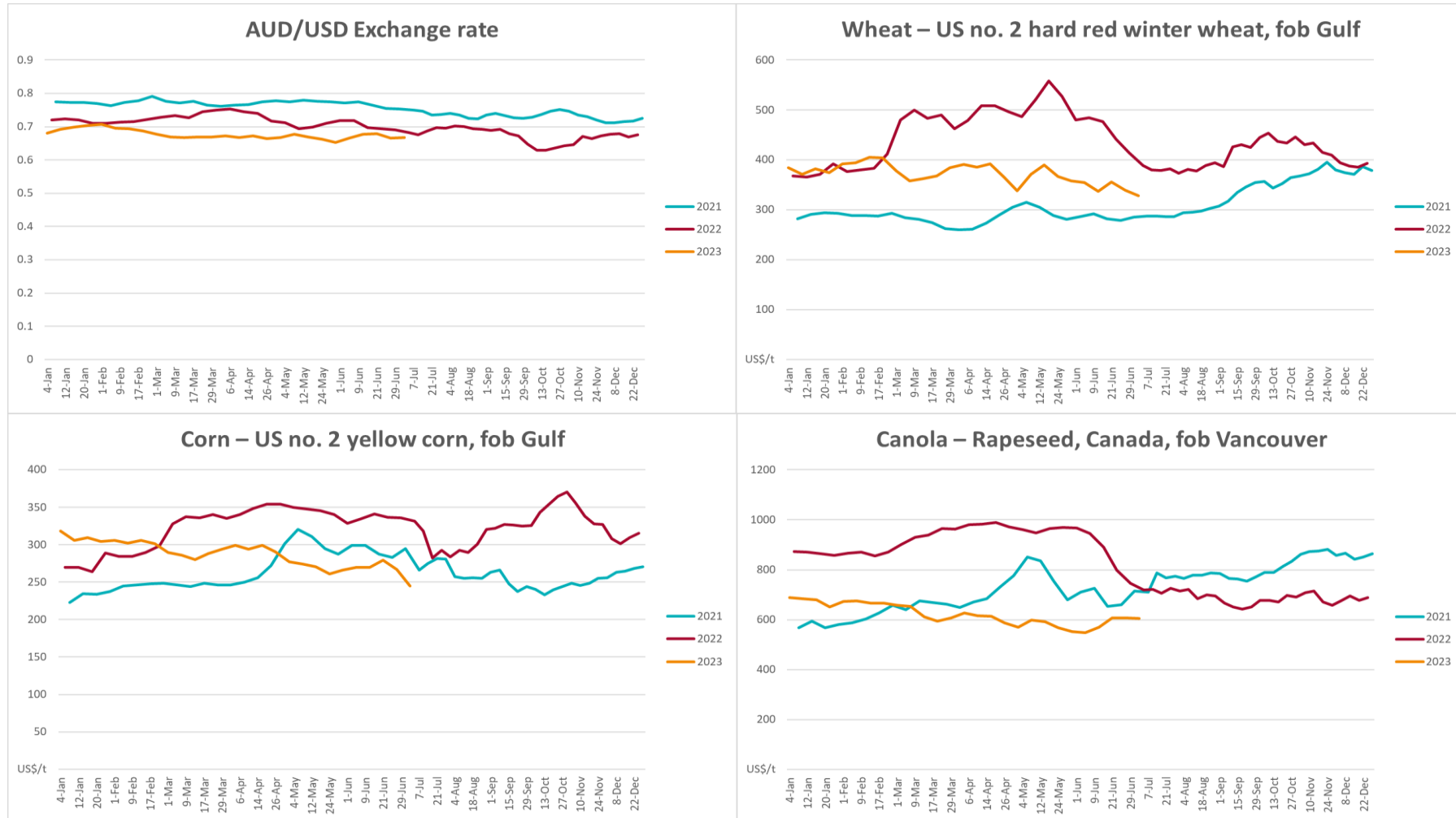
3. Commodities

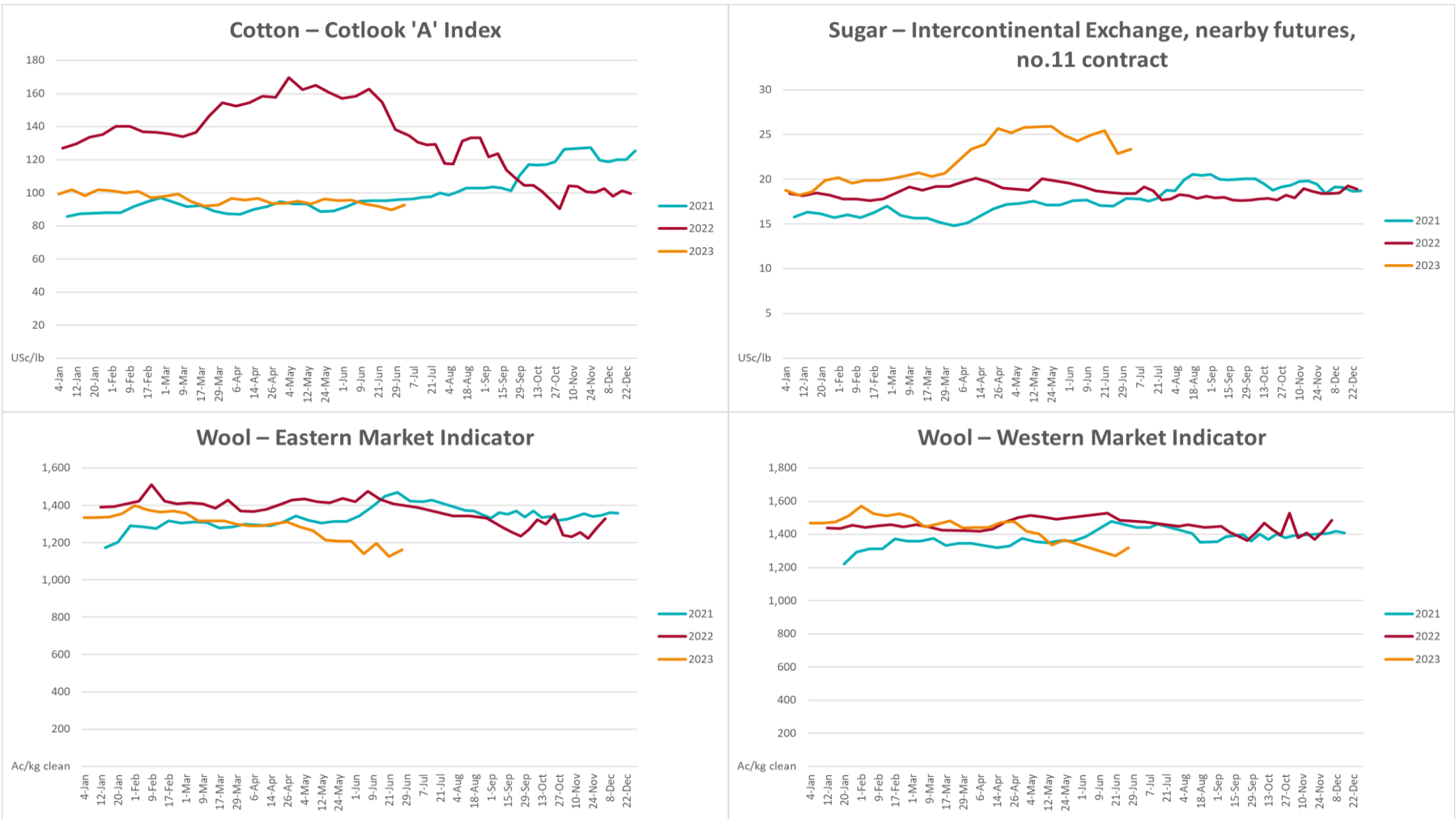
Indicator	Week ended	Unit	Latest Price	Previous Week	Weekly change	Price 12 months ago	Annual change
Selected world indicator prices							
AUD/USD Exchange rate	12-Jul	A\$/US\$	0.67	0.67	0%	0.69	-3%
Wheat – US no. 2 hard red winter wheat, fob Gulf	12-Jul	US\$/t	334	328	2%	378	-12%
Corn – US no. 2 yellow corn, fob Gulf	12-Jul	US\$/t	242	244	-1%	282	-14%
Canola – Rapeseed, Canada, fob Vancouver	12-Jul	US\$/t	626	606	3%	705	-11%
Cotton – Cotlook 'A' Index	12-Jul	USc/lb	90	92	-2%	129	-30%
Sugar – Intercontinental Exchange, nearby futures, no.11 contract	12-Jul	USc/lb	23.6	23.4	1%	19	26%
Wool – Eastern Market Indicator	05-Jul	Ac/kg clean	1,179	1,162	1%	1,414	-17%
Wool – Western Market Indicator	05-Jul	Ac/kg clean	1,339	1,320	1%	1,421	-6%
Selected Australian grain export prices							
Milling Wheat – APW, Port Adelaide, SA	12-Jul	A\$/t	449	440	2%	598	-25%
Feed Wheat – ASW, Port Adelaide, SA	12-Jul	A\$/t	429	417	3%	558	-23%
Feed Barley – Port Adelaide, SA	12-Jul	A\$/t	345	340	1%	508	-32%
Canola – Kwinana, WA	12-Jul	A\$/t	803	811	-1%	1,119	-28%
Grain Sorghum – Brisbane, QLD	12-Jul	A\$/t	472	475	-1%	434	9%
Selected domestic livestock indicator prices							
Beef – Eastern Young Cattle Indicator	12-Jul	Ac/kg cwt	566	558	2%	1,005	-44%
Mutton – Mutton indicator (18–24 kg fat score 2–3), Vic	12-Jul	Ac/kg cwt	318	292	9%	634	-50%
Lamb – Eastern States Trade Lamb Indicator	05-Jul	Ac/kg cwt	528	523	1%	776	-32%
Pig – Eastern Seaboard (60.1–75 kg), average of buyers & sellers	28-Jun	Ac/kg cwt	357	357	0%	368	-3%
Goats – Eastern States (12.1–16 kg)	07-Jun	Ac/kg cwt	324	330	-2%	838	-61%

Live cattle – Light steers ex Darwin to Indonesia	17-Aug	Ac/kg lwt	420	480	-13%	320	31%
Live sheep – Live wethers (Muchea WA saleyard) to Middle East	14-Sep	\$/head	93	113	-18%	114	-18%
Global Dairy Trade (GDT) weighted average prices ^a							
Dairy – Whole milk powder	05-Jul	US\$/t	3,149	3,172	-1%	3,997	-21%
Dairy – Skim milk powder	05-Jul	US\$/t	2,525	2,667	-5%	3,356	-25%
Dairy – Cheddar cheese	05-Jul	US\$/t	4,386	4,533	-3%	4,328	1%
Dairy – Anhydrous milk fat	05-Jul	US\$/t	4,579	4,758	-4%	5,687	-19%

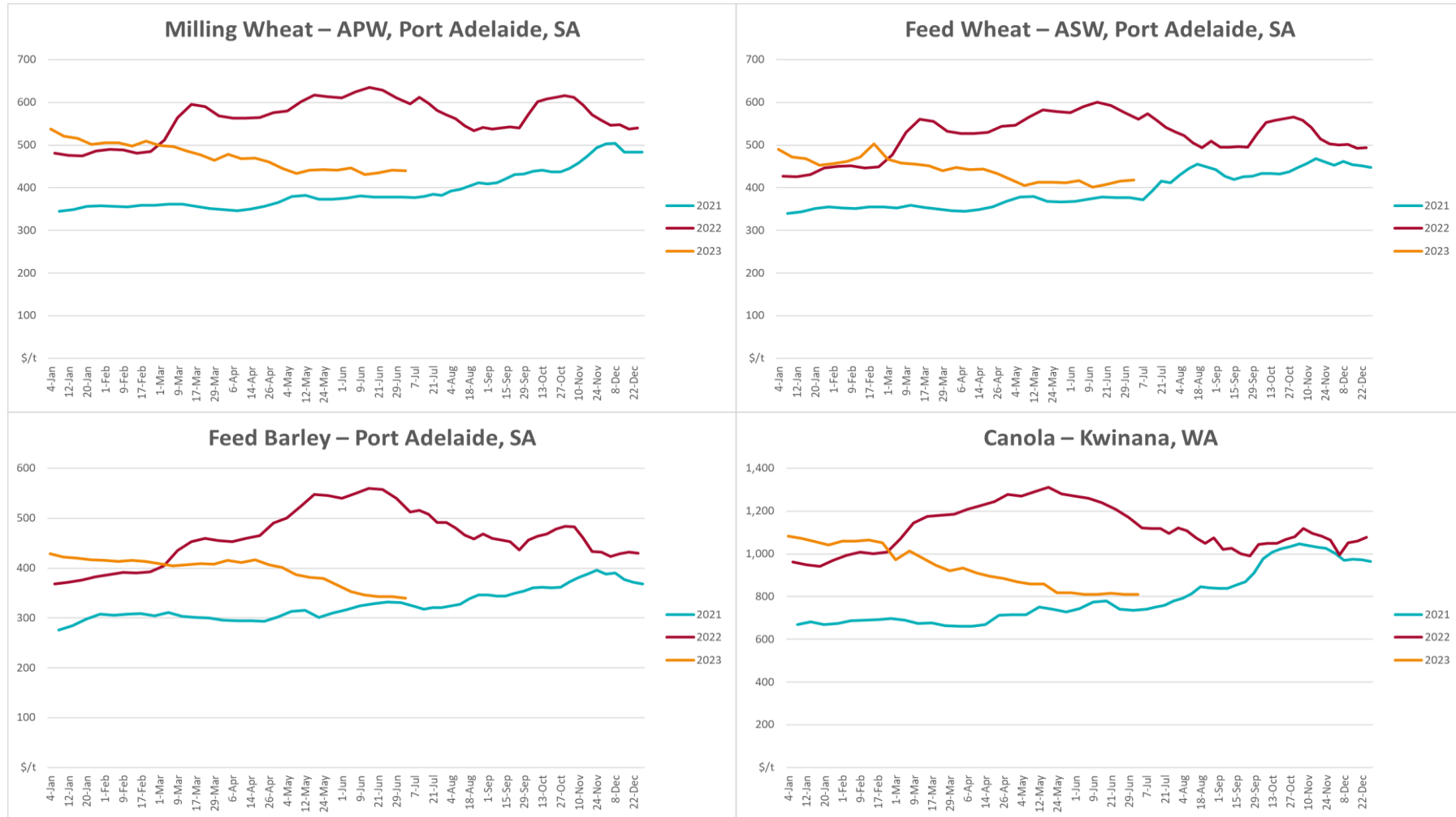
^a Global Dairy Trade prices are updated twice monthly on the first and third Tuesday of each month.

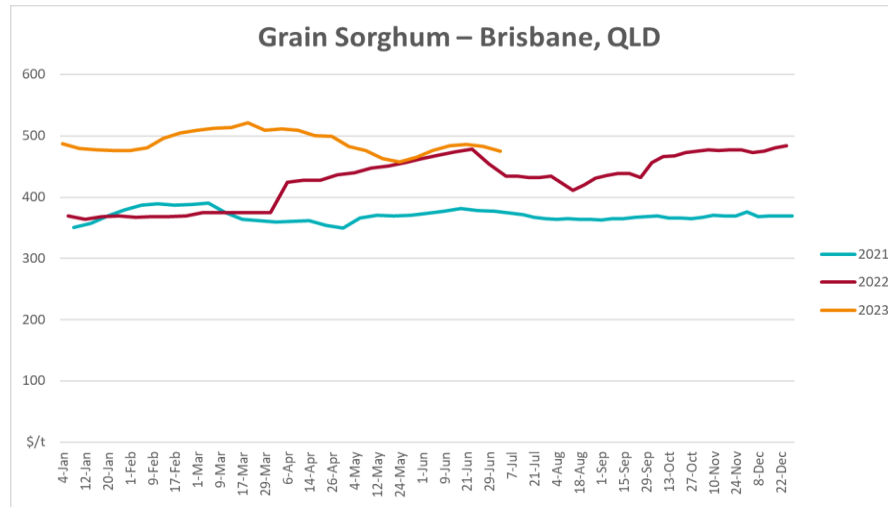
3.1. Selected world indicator prices



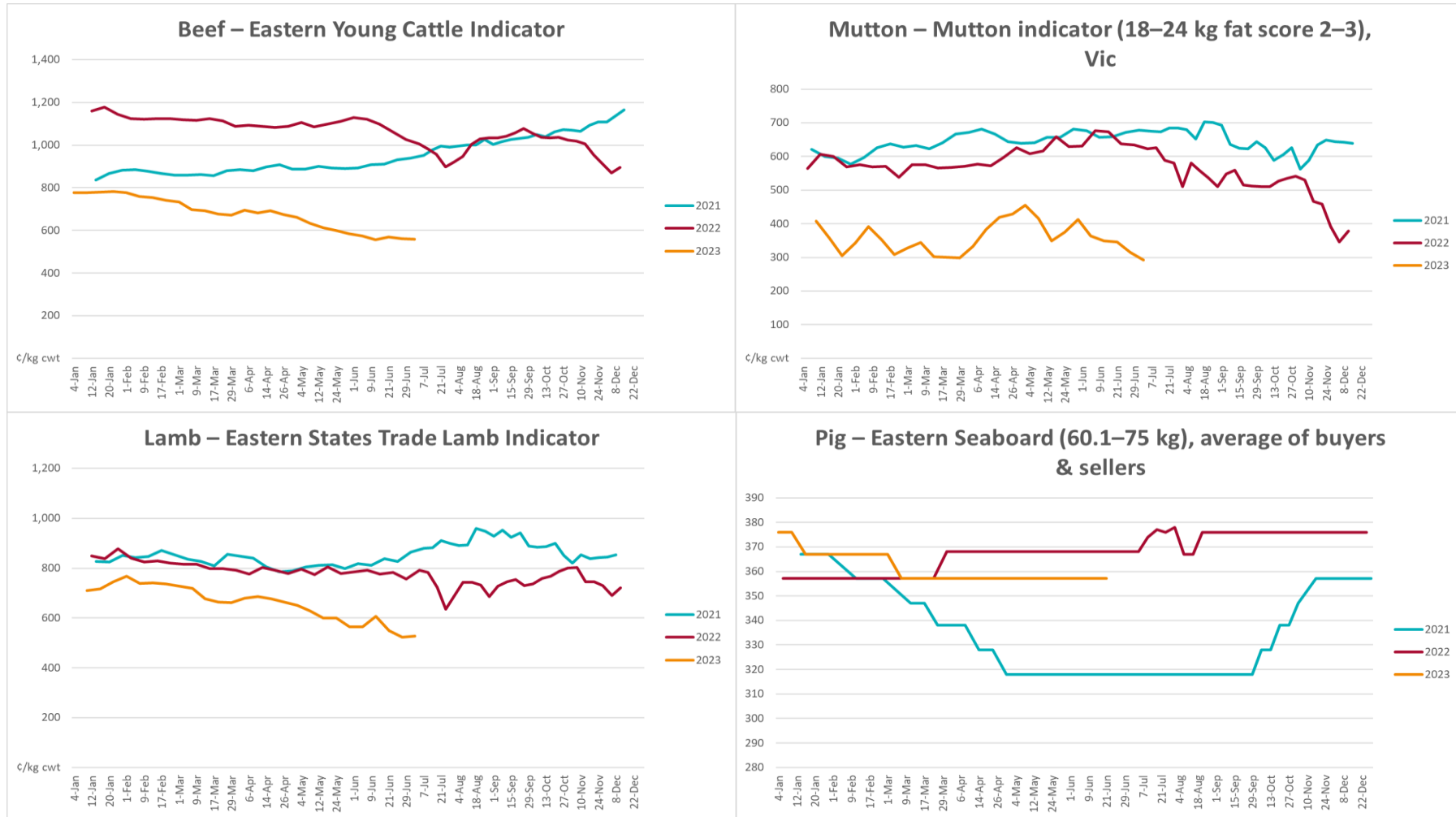


3.2. Selected domestic crop indicator prices

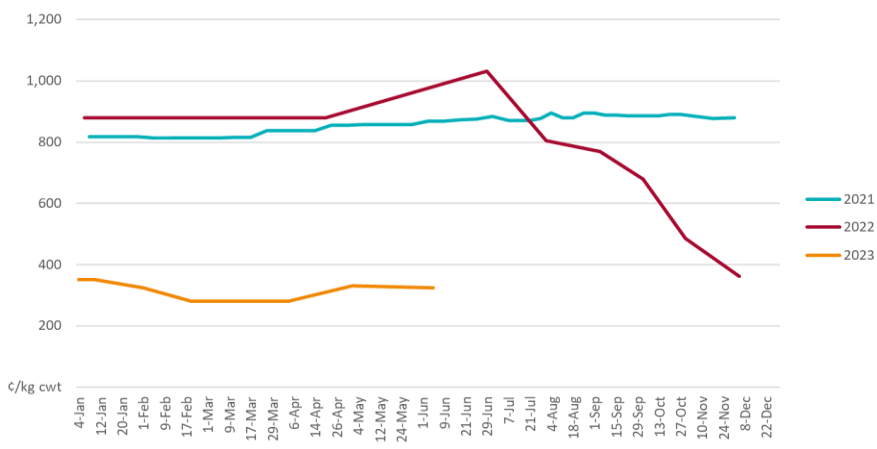




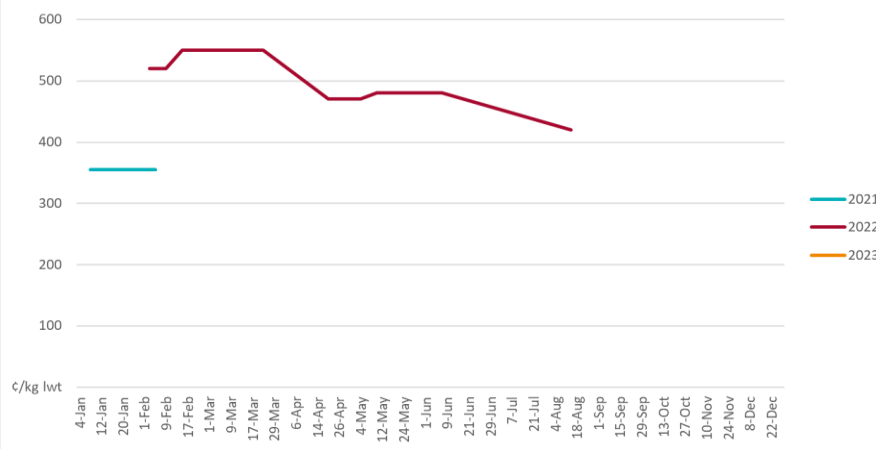
3.3. Selected domestic livestock indicator prices



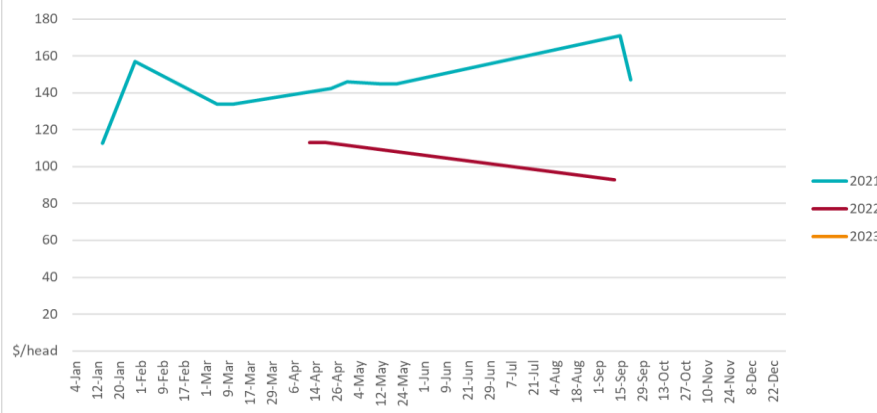
Goats – Eastern States (12.1–16 kg)



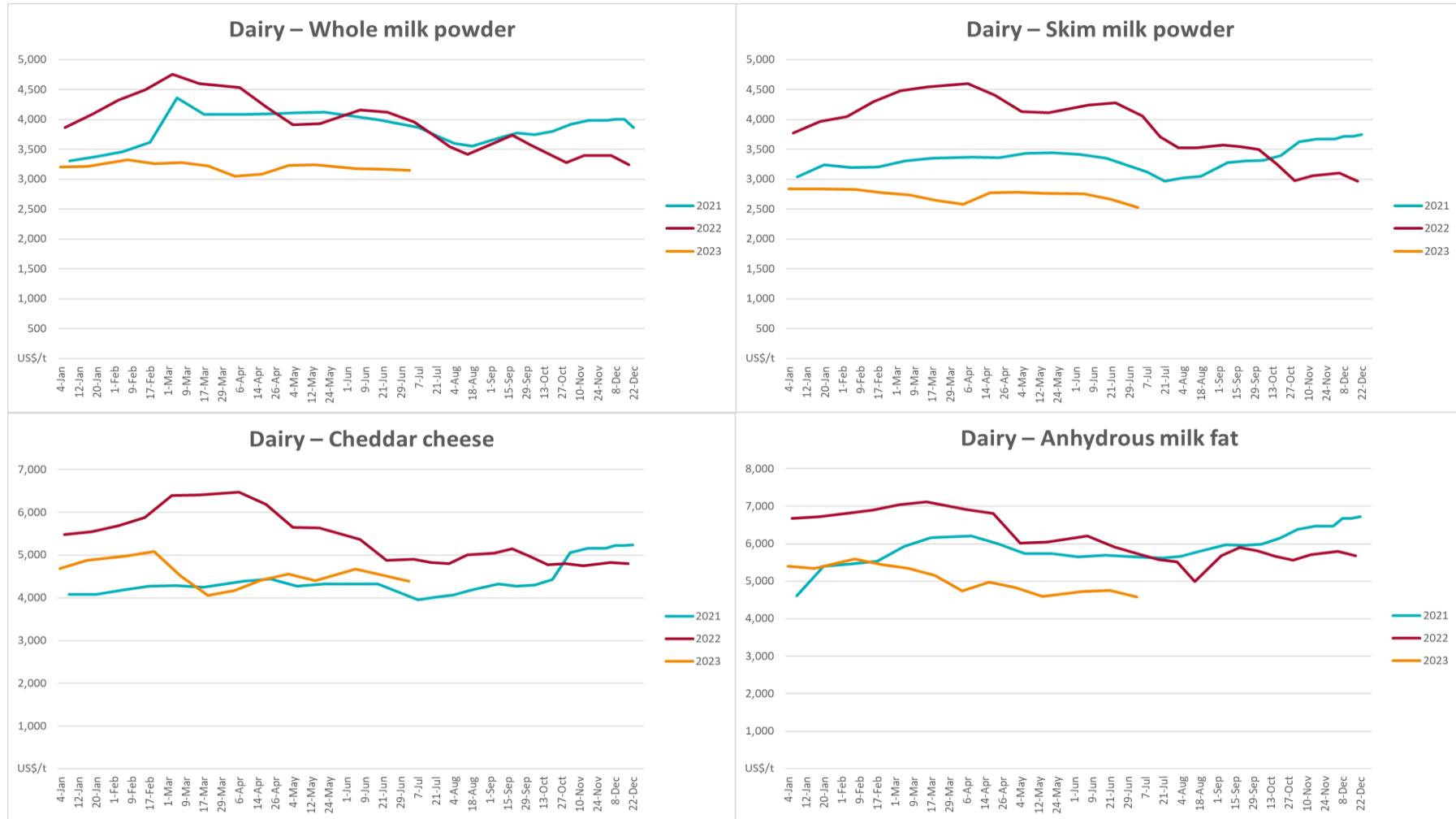
Live cattle – Light steers ex Darwin to Indonesia



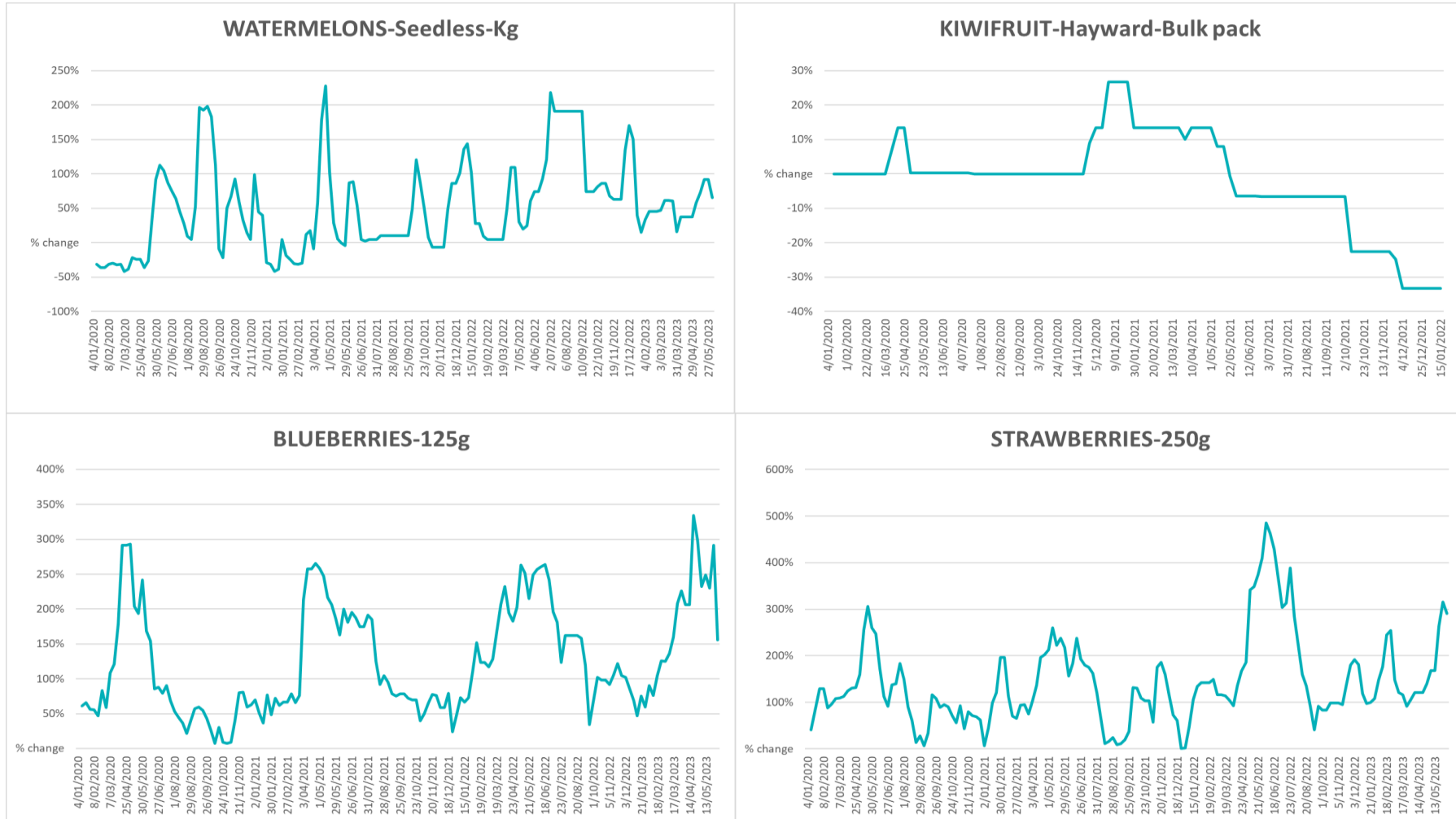
Live sheep – Live wethers (Muecha WA saleyard) to Middle East

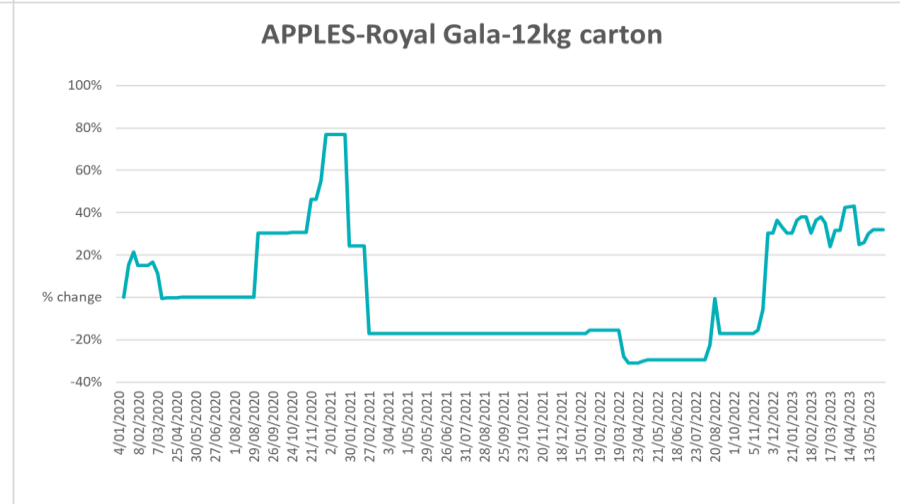
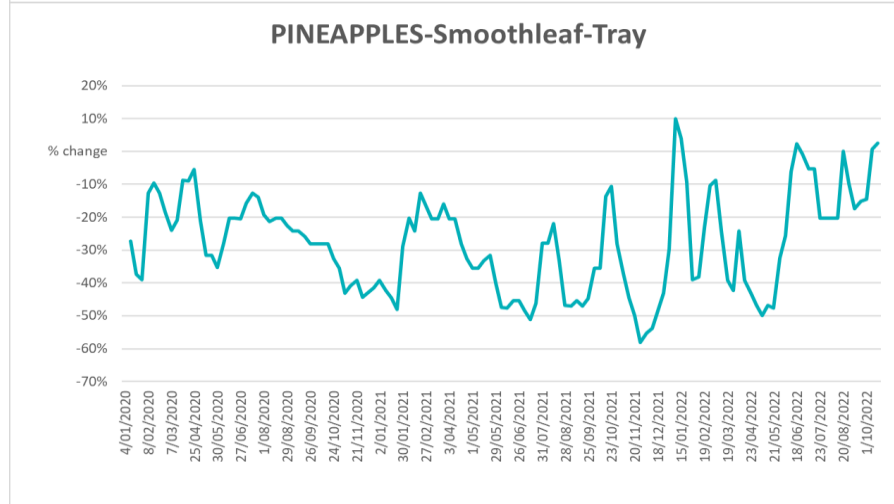
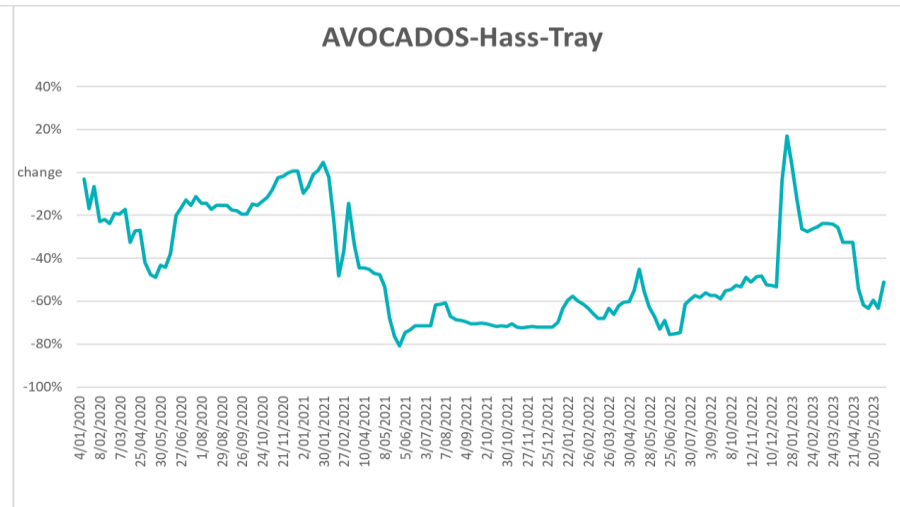
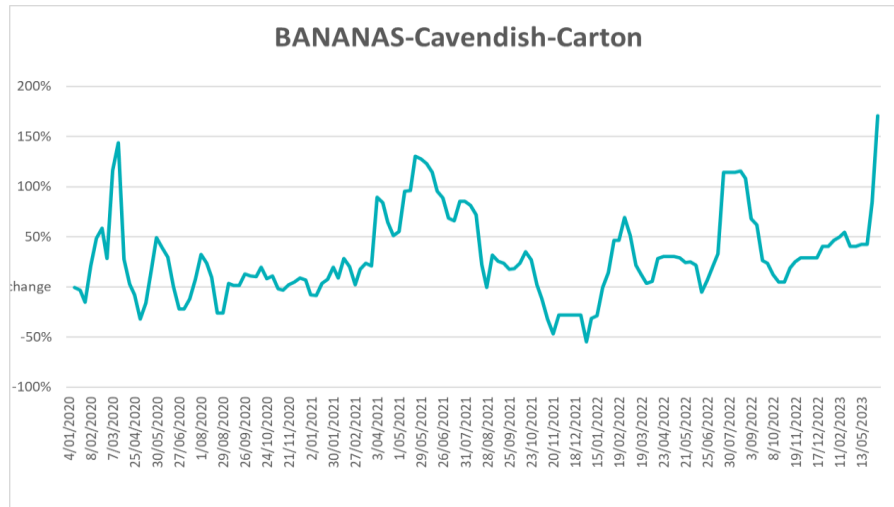


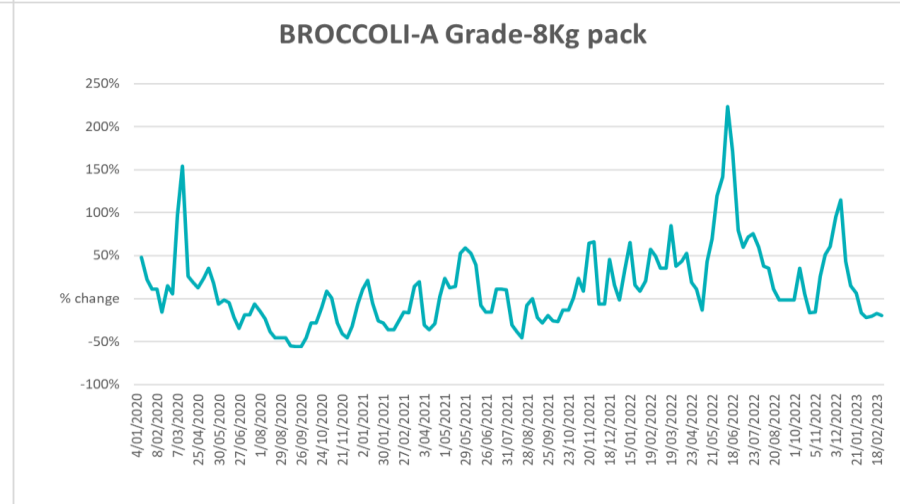
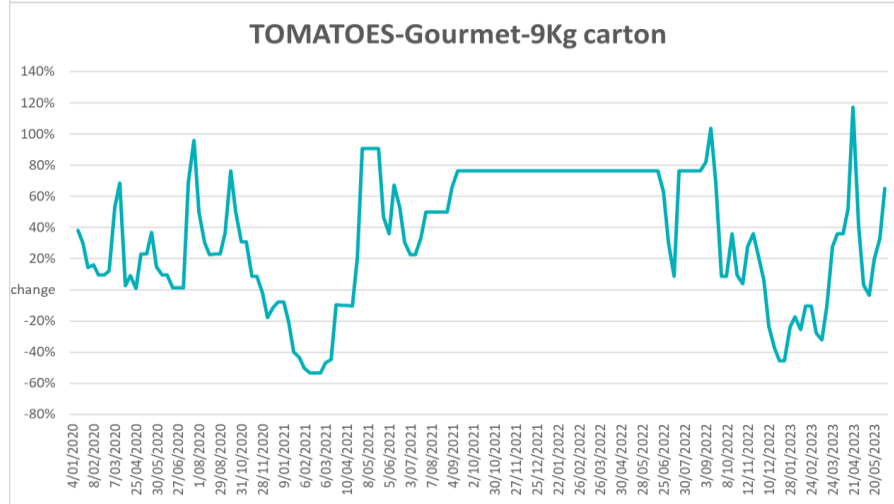
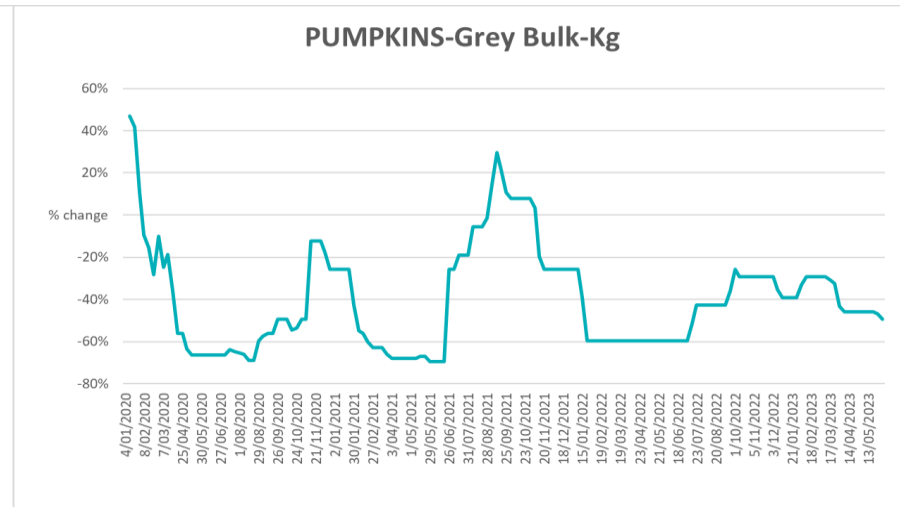
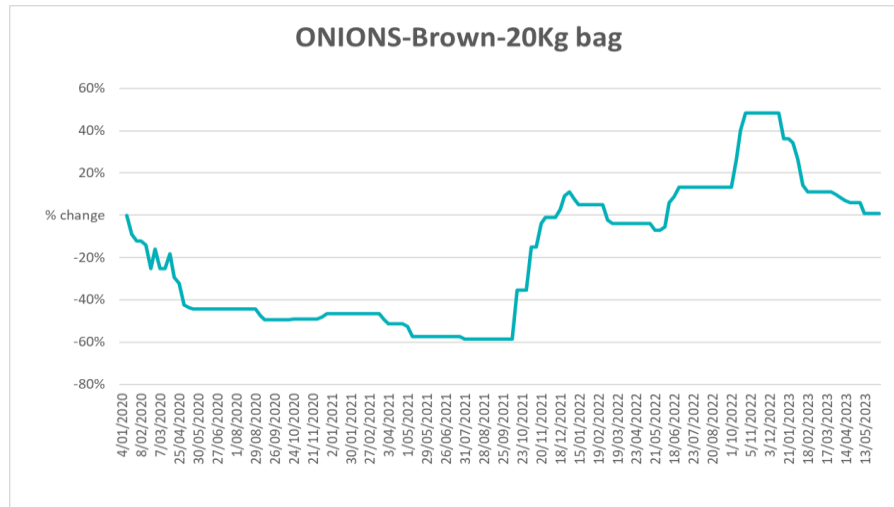
3.4. Global Dairy Trade (GDT) weighted average prices

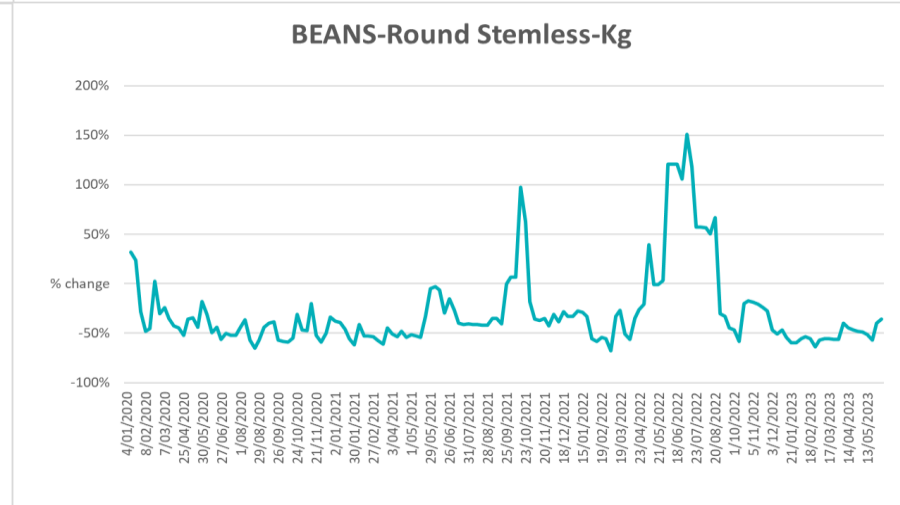
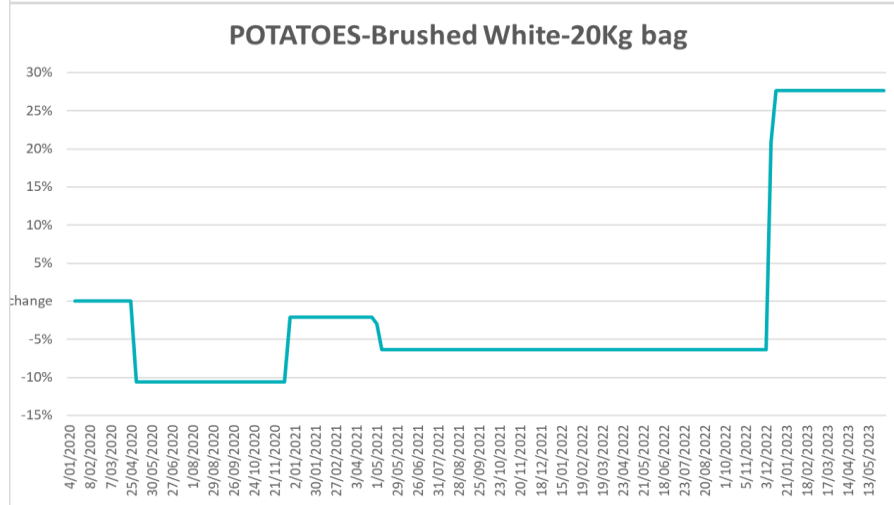
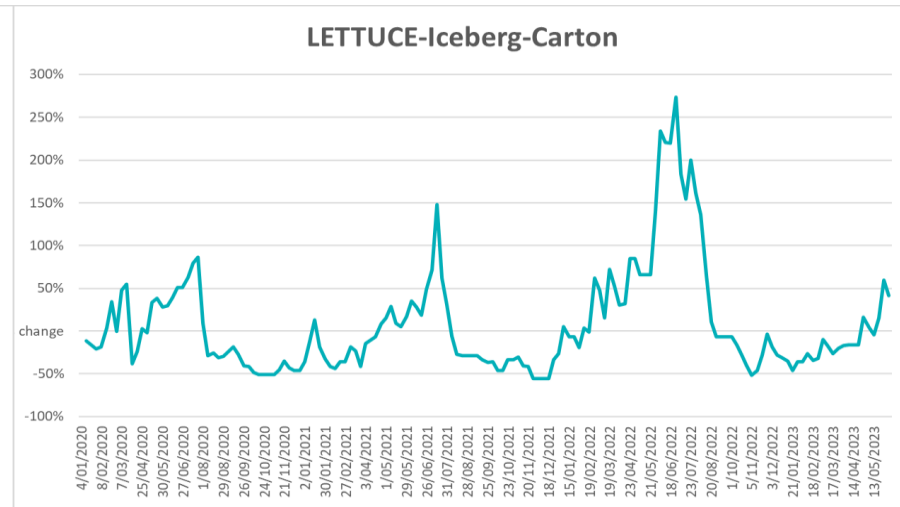
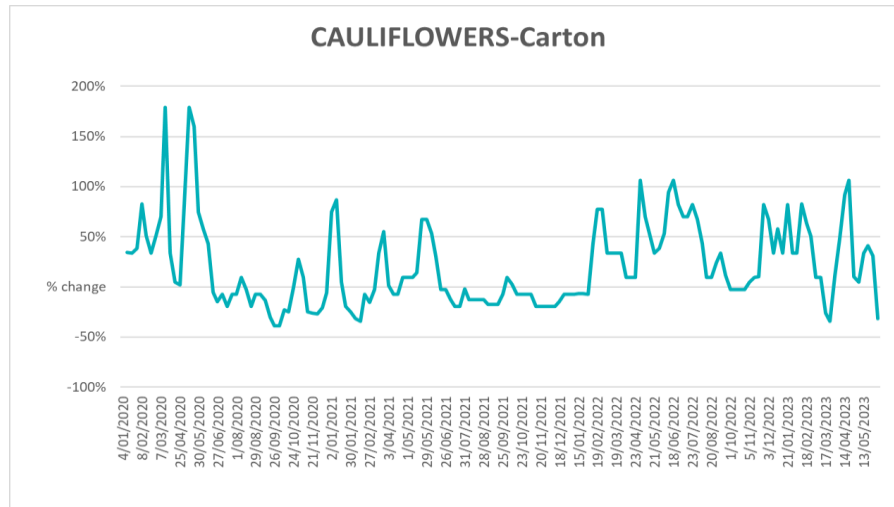


3.5. Selected fruit and vegetable prices

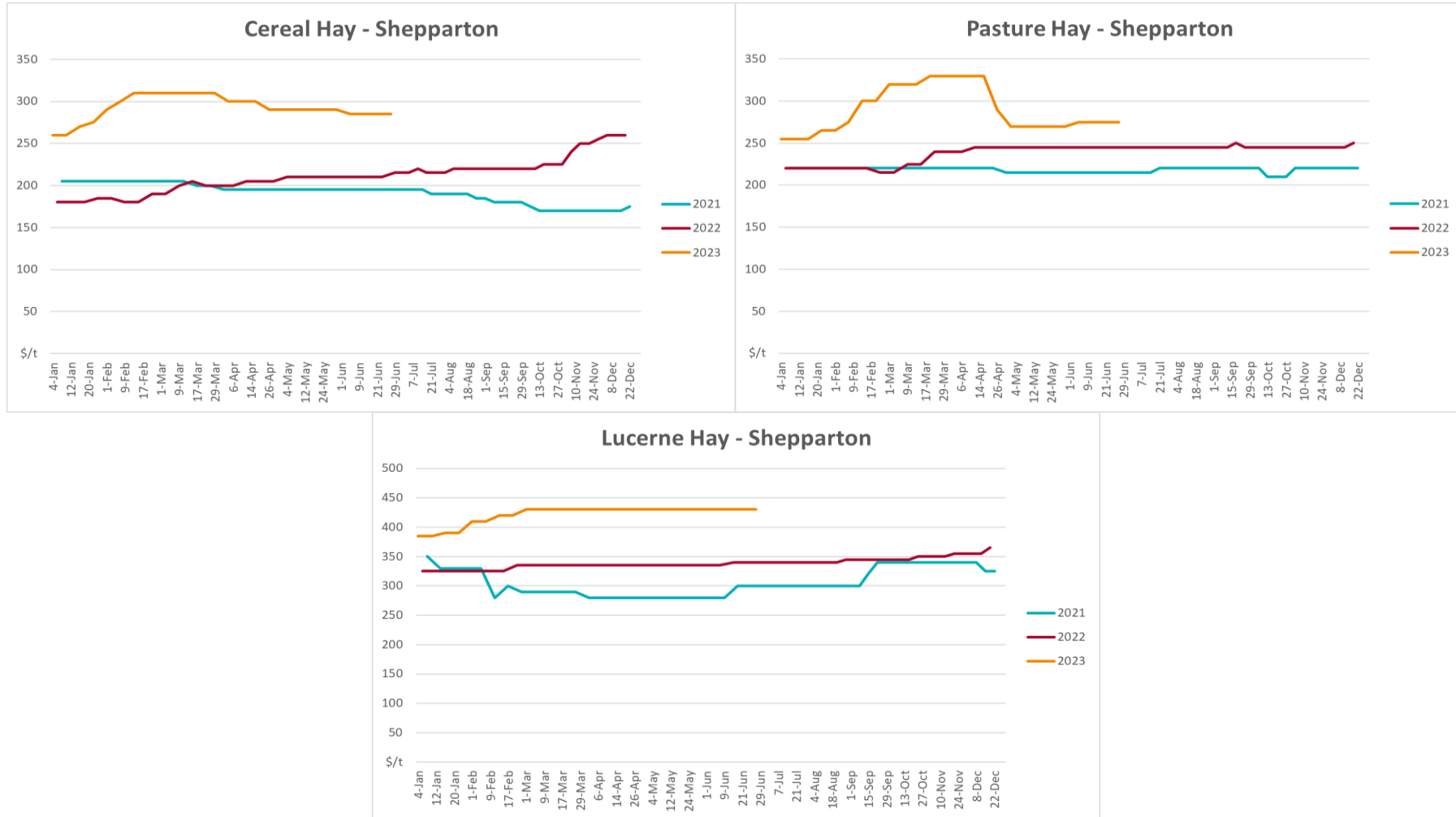








3.6 Selected domestic fodder indicator prices



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://rmetsonline.wiley.com/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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