Australian Government
Department of Agriculture, Fisheries and Forestry
ABARES

Weekly Australian Climate, Water and Agricultural Update

No. 7/2023

23 February 2023

Summary of key issues

- For the week ending 22 February 2023, a tropical low active in the Gulf of Carpentaria brought heavy rainfall to surrounding areas of the tropical north of Australia. Meanwhile, a low-pressure trough brought scattered rainfall to areas of southern Queensland as well as coastal and central New South Wales.
- In cropping regions, rainfall was restricted to parts of central New South Wales and isolated areas of western and northern Queensland. Ongoing dry conditions across most summer cropping regions would have allowed for uninterrupted access to fields for crop maintenance activities and for the harvesting of early sown crops. However, in regions with below average soil moisture levels little to no rainfall is likely to negative affected the growth and yield potential of late sown summer crops (see Section 1.1).
- The La Niña event is continuing to weaken. The Madden Julian Oscillation (MJO) is currently in the Western Pacific Ocean and will likely support ongoing monsoonal activity across northern Australia, although this influence will reduce if the MJO progresses eastward and into the eastern Pacific (see Section 1.2).
- The outlook for March to May 2023 suggests there is a 75% chance of receiving between 25 and 50 millimetres across cropping regions of western New South Wales, northern and south-western Queensland, most of Victoria and Western Australia, and southern areas of South Australia.
- These rainfall totals are below average for this three-month period across most cropping regions. Given that rootzone soil moisture levels are below average to average across most summer cropping regions in New South Wales and Queensland, this below average rainfall outlook represents a significant downside production risk for late sown summer crops. This below average rainfall outlook also represents a potential downside risk for pasture growth and the early planting of winter crops across large areas of southern Australia. In contrast, drier than average conditions will assist in a largely uninterrupted harvest for early sown summer crops and led to less rain affected grain quality downgrades (see Section 1.3).
- Over the 8-days to 2 March, rainfall is expected to be restricted to northern Australia under the influence of monsoonal troughs. Little to no rainfall is expected across cropping regions. Little to no rainfall for summer cropping regions in northern New South Wales and Queensland is expected to improve access to fields for crop maintenance activities and allow for the uninterrupted harvest of early sown crops (see Section 1.4).
- Water storage levels in the Murray-Darling Basin (MDB) decreased between 15 February 2023 and 22 February 2023 by 196 gigalitres (GL). Current volume of water held in storage is 23 059 GL which represents 91 per cent of total capacity. This is 3 percent or 624 GL more than at the same time last year.
- Allocation prices in the Victorian Murray below the Barmah Choke remained steady at $15 per ML from 16 February 2023 to 23 February 2023. Prices are lower in the Murrumbidgee due to the binding of the Murrumbidgee export limit and Barmah choke trade constraint.

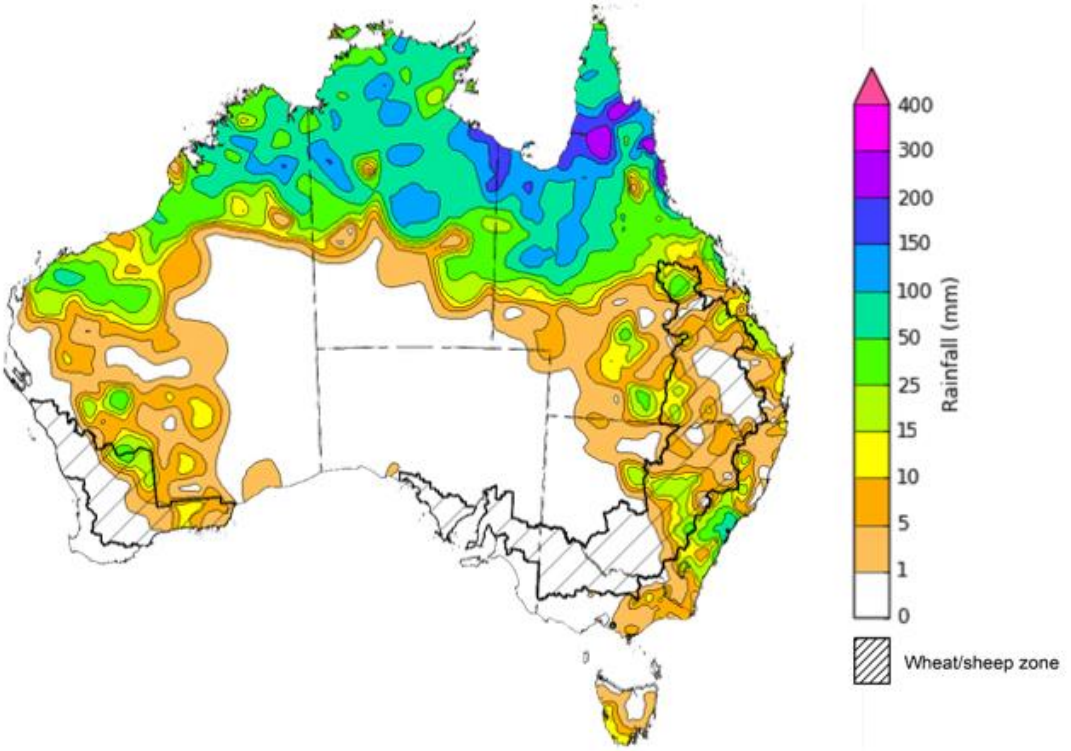
1. Climate

1.1. Rainfall this week

For the week ending 22 February 2023, a tropical low active in the Gulf of Carpentaria brought heavy rainfall to surrounding areas of the tropical north of Australia. Weekly rainfall totals exceeded 100 millimetres in these areas. Meanwhile, a low-pressure trough brought rainfall totals of between 25 and 50 millimetres to scattered areas of southern Queensland as well as coastal and central New South Wales.

In cropping regions, rainfall was restricted to parts of central New South Wales and isolated areas of western and northern Queensland. Little to no rainfall was recorded across remaining cropping regions. Ongoing dry conditions across most summer cropping regions would have allowed for uninterrupted access to fields for crop maintenance activities and for the harvesting of early sown crops. However, in regions with below average soil moisture levels little to no rainfall is likely to negative affected the growth and yield potential of late sown summer crops.

Rainfall for the week ending 22 February 2023



 Issued: 22/02/2023

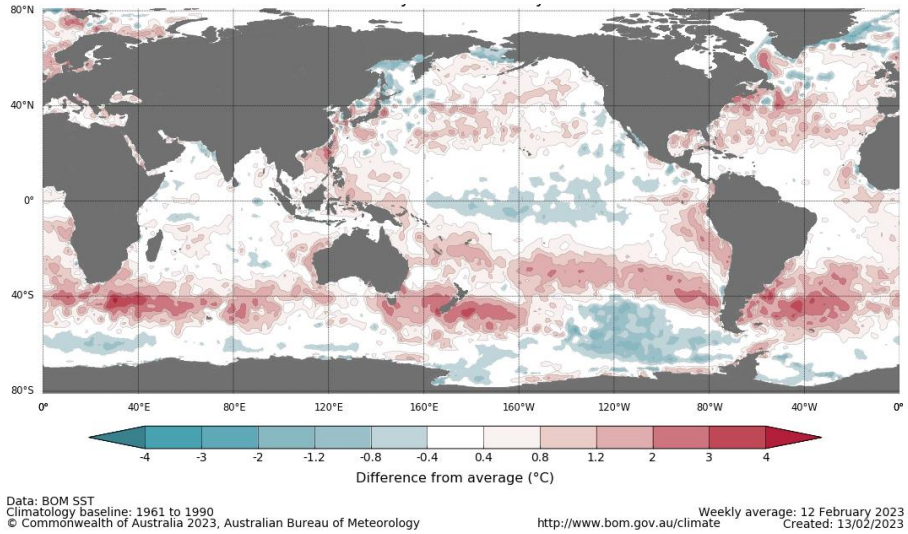
Note: The rainfall analyses and associated maps utilise data contained in the Bureau of Meteorology climate database, the Australian Data Archive for Meteorology (ADAM). The analyses are initially produced automatically from real-time data with limited quality control. They are intended to provide a 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

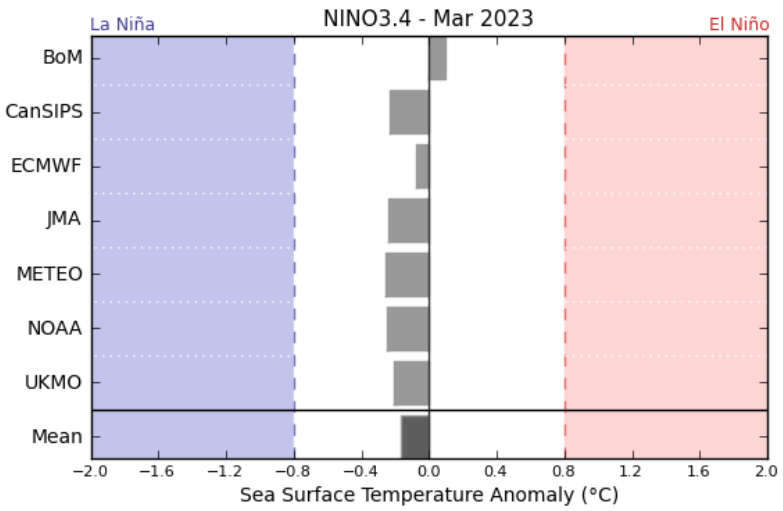
Throughout summer the climate drivers with the largest potential impact on Australia's climate patterns are the El Niño–Southern Oscillation (ENSO), the Southern Annular Mode (SAM) and the Madden-Julian Oscillation (MJO). These climate drivers are likely to influence the growth and development of summer crops in northern growing regions and pasture growth across northern Australia with the northern wet season.

La Niña continues in the tropical Pacific, but oceanic indicators have weakened to ENSO-neutral values. Sea surface temperature (SST) anomalies in the central equatorial Pacific continue to weaken, which is consistent with a weakening La Niña. Warmer than average temperatures persist to the south of Australia from the eastern Great Australian Bight to waters around New Zealand's South Island, while generally weak warm anomalies persist across the west, north of the Maritime Continent and across the east of Australia. Trade winds have been stronger than average in the western half of the tropical Pacific Ocean. Elsewhere, trade wind strength was close to average. Cloudiness near the Date Line has been mostly below average, which reflects the easing La Niña event. As La Niña weakens it can continue to influence global weather and climate.

Difference from average sea surface temperature observations 6 to 12 February 2023



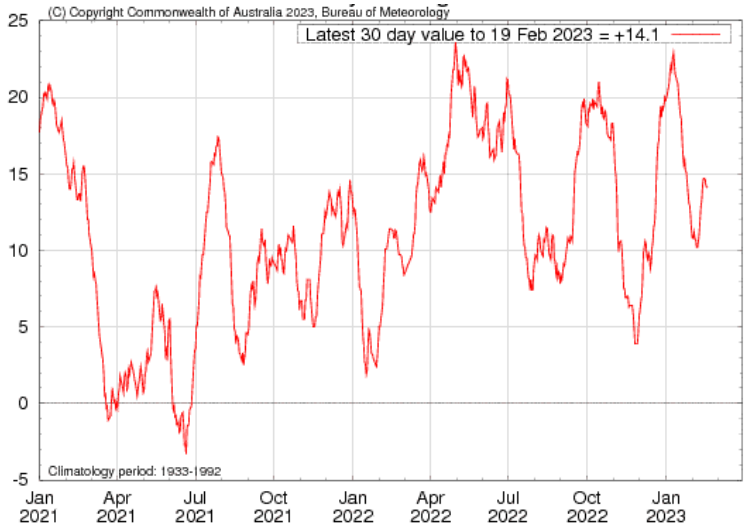
International climate model outlooks for the NINO 3.4 region in March 2023



 Issued: 14/2/2023

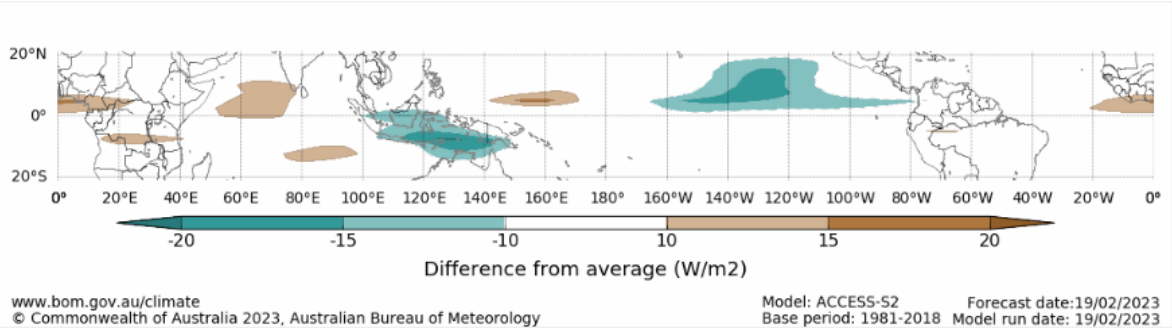
All climate models surveyed by the Bureau of Meteorology anticipate central Pacific sea-surface temperatures will remain ENSO-neutral into the southern hemisphere autumn. For the period ending 19 February 2023, the 30-day SOI was +14.1. For the period ending 12 February 2023, the 90-daySOI was +15.1, both above the La Niña threshold of +7.

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



As at 19 February 2023 the Madden–Julian Oscillation (MJO) is currently over the western Pacific Ocean. Most climate models suggest the MJO is likely to progress eastwards into the eastern Pacific in the coming week. While over the western Pacific, it will likely support ongoing monsoonal activity across northern Australia, although this influence will reduce if the MJO progresses eastward and into the eastern Pacific. The MJO is a pulse of cloud and rainfall that moves eastward along the equator and increases the chance of above average cloudiness and rainfall across northern Australia.

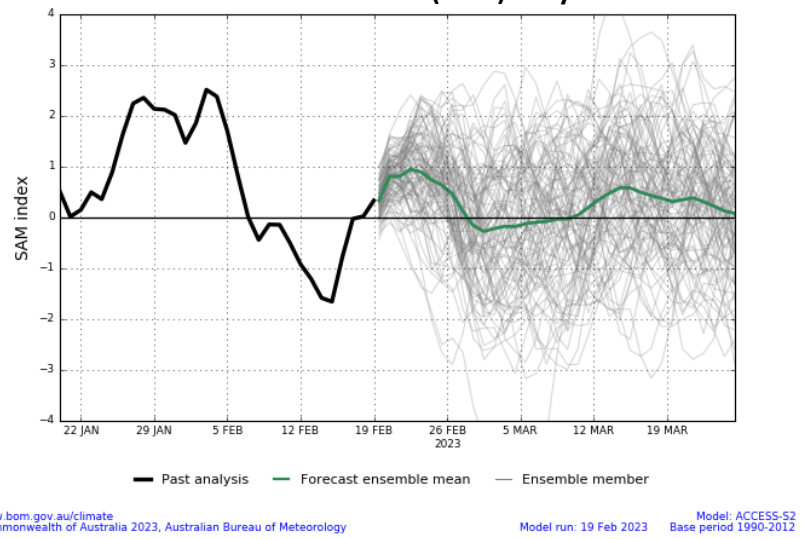
Madden–Julian Oscillation (MJO) daily index



Note: This map displays the forecast outgoing longwave radiation (OLR) difference from expected cloudiness to identify convective rain clouds and the position of the Madden–Julian Oscillation (MJO). The blue shading indicates higher than normal, active or enhanced tropical weather and the brown shading indicates lower than normal clouds or suppressed conditions.

The Southern Annular Mode (SAM) is neutral but is expected to briefly dip into negative values before remaining neutral for the coming weeks to months. During summer, a negative SAM typically suppresses rainfall over south-eastern Australia.

Southern Annular Mode (SAM) daily index



1.3. National Climate Outlook

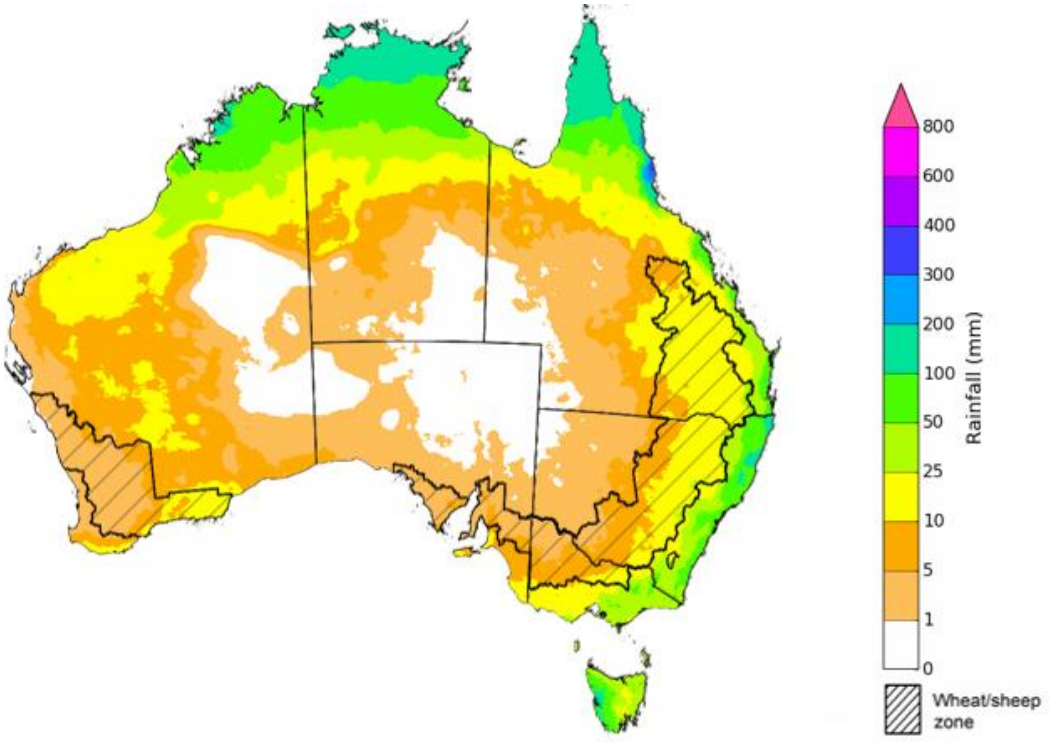
These climate outlooks are generated by ACCESS–S (Australian Community Climate Earth-System Simulator–Seasonal). ACCESS–S is the Bureau of Meteorology's dynamic (physics-based) weather and climate model used for monthly, seasonal, and longer-lead climate outlooks. For further information, go to http://www.bom.gov.au/climate/ahead/about/.

The Bureau of Meteorology's latest rainfall outlook for March 2023 indicates wetter than average conditions are expected across parts of western and eastern Australia. The ACCESS-S climate model suggests there is a greater than 55% chance of exceeding median March rainfall totals across eastern New South Wales, as well as parts of Victoria and Tasmania, and central areas of Western Australia.

The outlook for March 2023 indicates that there is a 75% chance of rainfall totals between 25 and 200 millimeters for tropical northern Australia, eastern and south-eastern coastal areas, as well as Tasmania. For the remainder of Australia, rainfall totals are not expected to exceed 25 millimeters.

Across cropping regions there is a 75% chance of rainfall totals of between 10 and 25 millimeters across eastern New South Wales, much of Queensland and small areas of eastern Victoria and Western Australia. There is a 75% chance of less than 10 millimeters of rainfall for the remaining cropping regions.

Rainfall totals that have a 75% chance of occurring March 2023

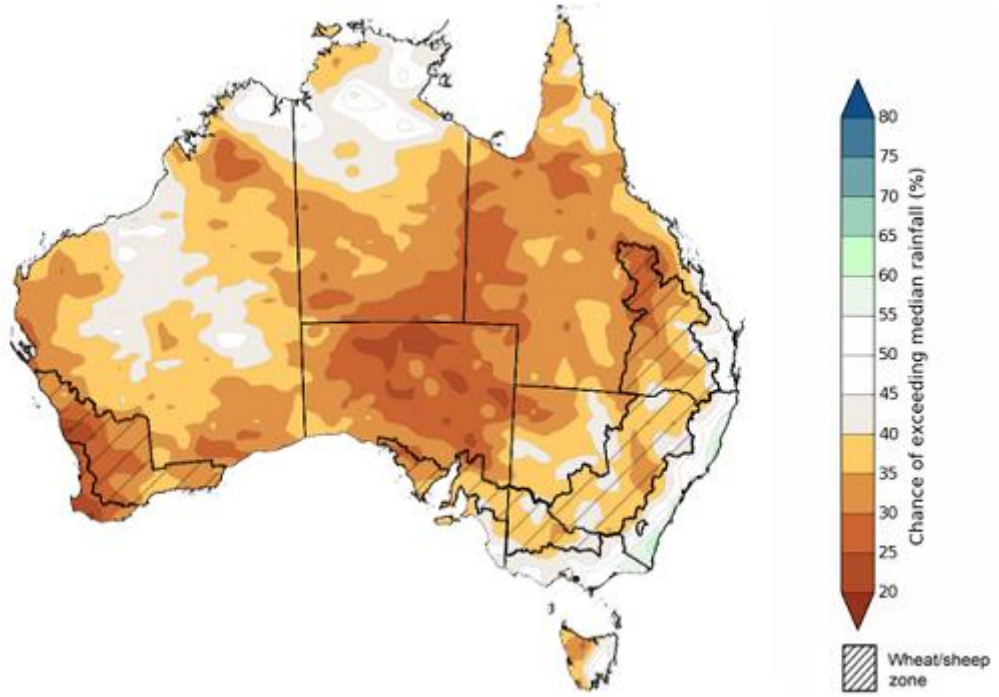


Issued: 23/2/2023

The rainfall outlook for March to May 2023 suggests that there is a more than 60% chance of below median rainfall for much of Australia over the next three months. In contrast, for coastal New South Wales, southern Victoria, eastern Tasmania and scattered areas of Australia's tropical north, there is no strong tendency of above or below median rainfall.

Bureau of Meteorology rainfall outlooks for March to May have greater than 50% past accuracy across large area of Australia. Outlook accuracy is greater than 65% across Queensland, the Northern Territory and Kimberley region of Western Australia. Past accuracy is low (less than 50%) for inland distracts of Western Australia, parts of north-western New South Wales, eastern and north-western South Australia.

Chance of exceeding the median rainfall March to May 2023



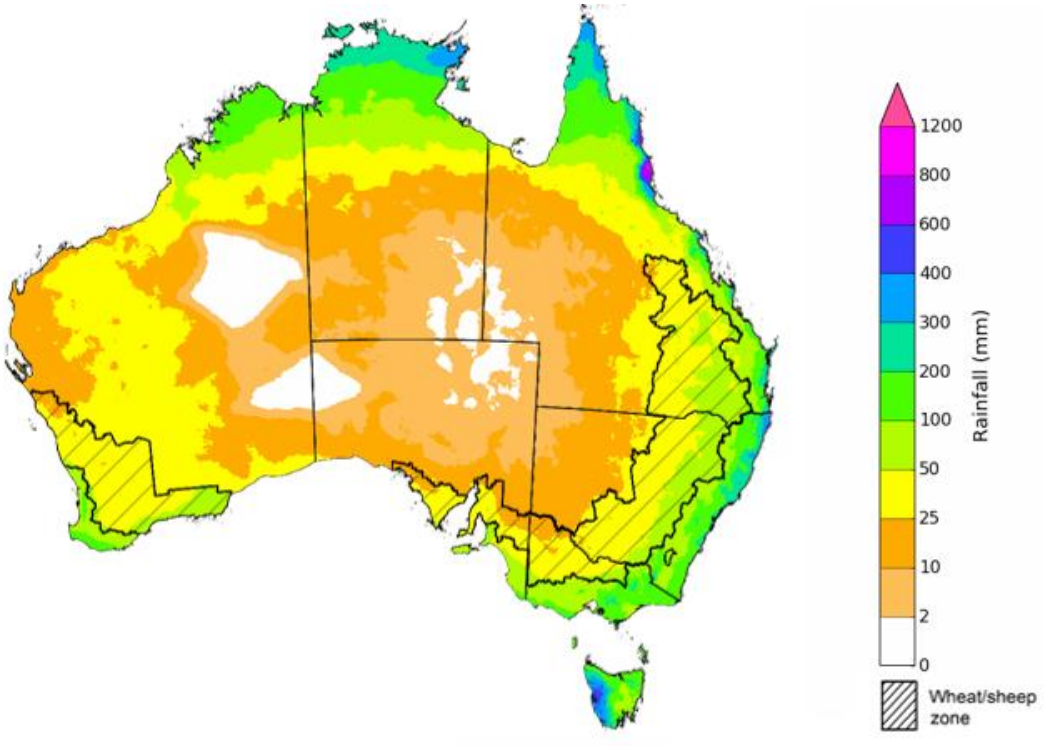
Issued: 23/2/2023

The outlook for March to May 2023 suggests there is a 75% chance of rainfall totals between 25 and 200 millimetres across most of Victoria and Tasmania, central and eastern New South Wales, eastern and northern Queensland, the far south of South Australia, the south-west and the Kimberley region of Western Australia, and the north of the Northern Territory. Rainfall totals in excess of 200 millimetres are forecast for the Top End of the Northern Territory, the Cape York Peninsula of Queensland and western Tasmania.

Across cropping regions, there is a 75% chance of receiving between 25 and 50 millimetres in western New South Wales, northern and south-western Queensland, most of Victoria and Western Australia, and southern areas of South Australia. There is a 75% chance of receiving between 50 and 100 millimetres across eastern New South Wales and Queensland, as well as parts of the far southeast of Western Australia.

These rainfall totals are below average for this three-month period across most cropping regions. Given that rootzone soil moisture levels are below average to average across most summer cropping regions in New South Wales and Queensland, this below average rainfall outlook represents a significant downside production risk for late sown summer crops. This below average rainfall outlook also represents a potential downside risk for pasture growth and the early planting of winter crops across large areas of southern Australia. In contrast, drier than average conditions will assist in a largely uninterrupted harvest for early sown summer crops and led to less rain affected grain quality downgrades.

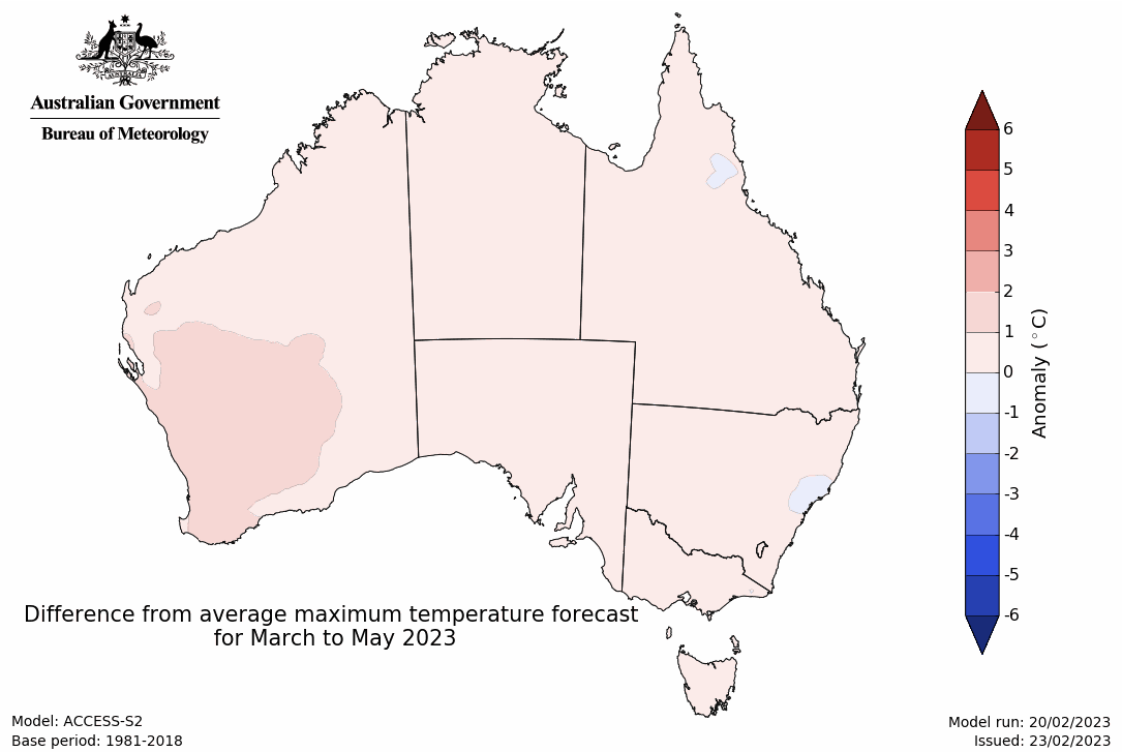
Rainfall totals that have a 75% chance of occurring March to May 2023



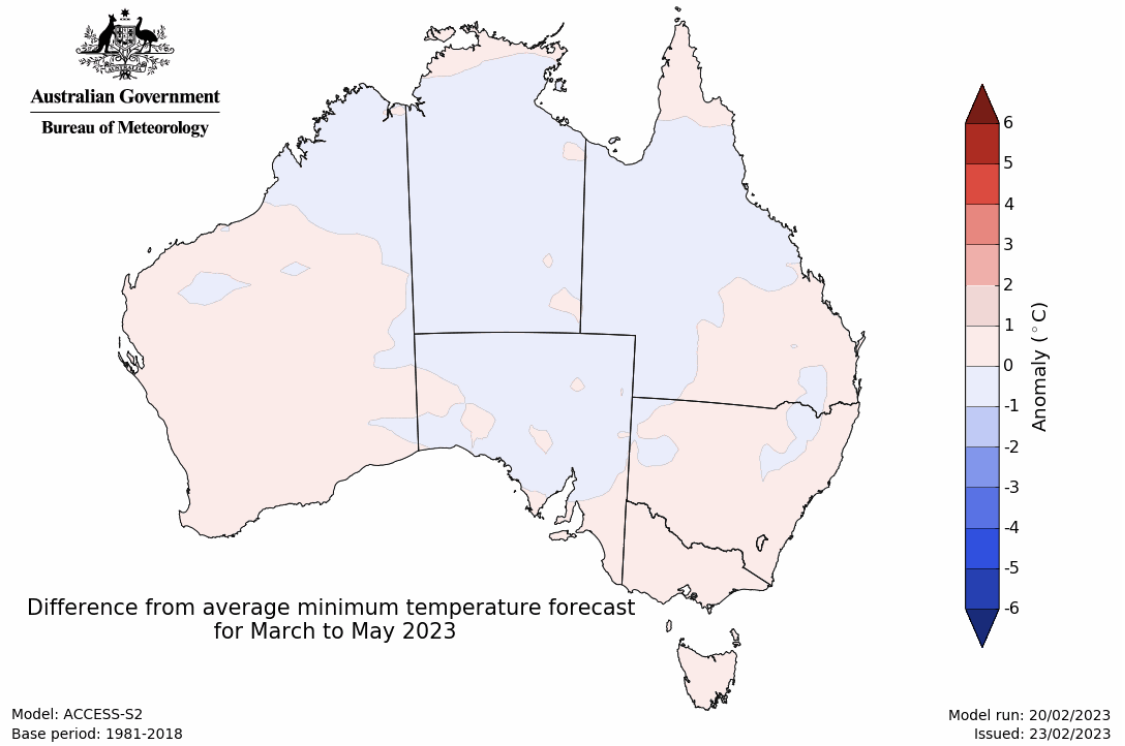
Issued: 23/2/2023

The temperature outlook for March to May 2023 indicates that maximum temperatures across most of Australia are likely to be close to the 1990-2012 average (- 1°C to 1°C) with slightly high temperature in the southern Western Australia. Minimum temperatures are expected to be slightly below average for the Northern Territory, Queensland, South Australia, Kimberly region of Western Australia, and above average for the rest of Australia (Bureau of Meteorology 'National Climate Outlook', 23 February 2023).

Predicted maximum temperature anomaly for March to May 2023



Predicted minimum temperature anomaly for March to May 2023


Australian Government
Bureau of Meteorology
Difference from average minimum temperature forecast
for March to May 2023
Anomaly (°C)
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
Model: ACCESS-S2
Base period: 1981-2018
Model run: 20/02/2023
Issued: 23/02/2023

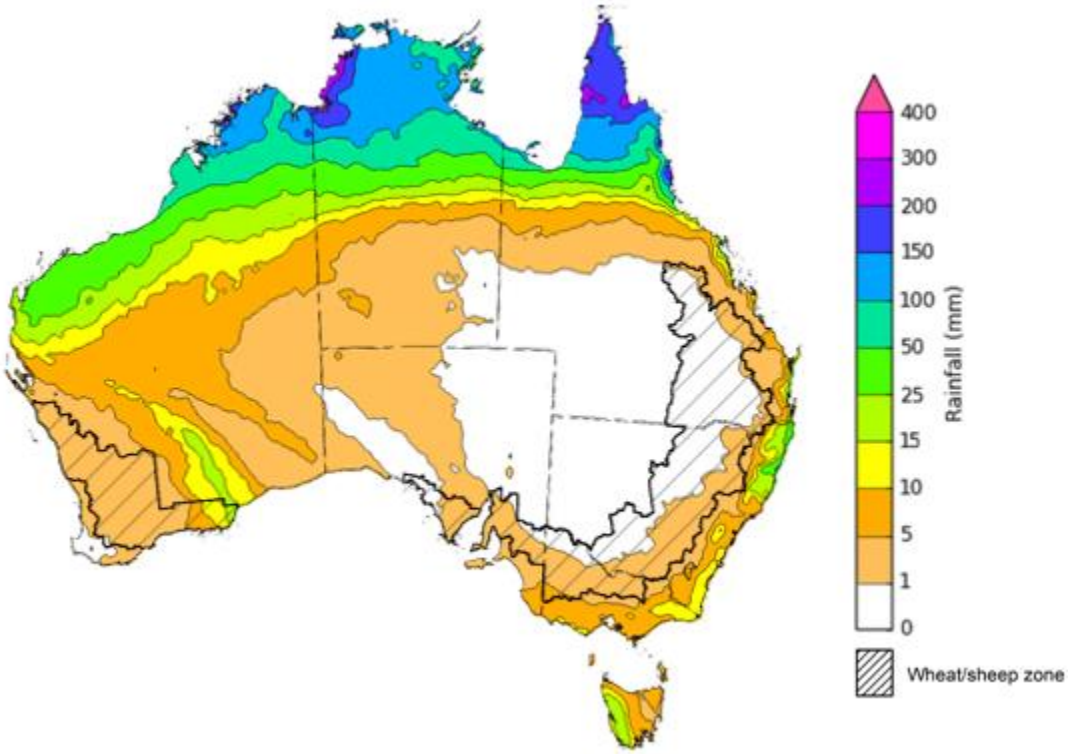
1.4. Rainfall forecast for the next eight days

Over the 8-days to 2 March 2023, tropical low activity persisting in northern Australia is expected to bring continuing heavy rainfall across Australia's northern tropic. Meanwhile, low-pressure troughs in the eastern Australia are expected to bring scattered rainfall to the eastern coast of New South Wales and western Tasmania.

Rainfall totals exceeding 15 millimetres are expected across northern tropic of Australia, eastern coast of New South Wales, western Tasmania, and small parts of southern inland of Western Australia. Rainfall totals in excess of 50 millimetres are expected for Kimberly region of Western Australia, northern area of the Northern Territory, Cape York Peninsula of Queensland. Little to no rainfall is forecast for the remaining area of Australia for the next eight days.

Across Australian cropping regions, little to no rainfall is expected in the next 8 days. Little to no rainfall for summer cropping regions in New South Wales and Queensland is expected to further improve access to fields for the crop maintenance activities and allow for the harvest of early sown crops to continue. If realised, continued dry conditions in regions with low levels of soil moisture is likely to lead to further yield reductions for late sown summer crops. The forecast rainfall over much of northern Australia is likely to benefit pasture growth rates and availability.

Total forecast rainfall for the period 23 February to 2 March 2023



 Issued 23/02/2023

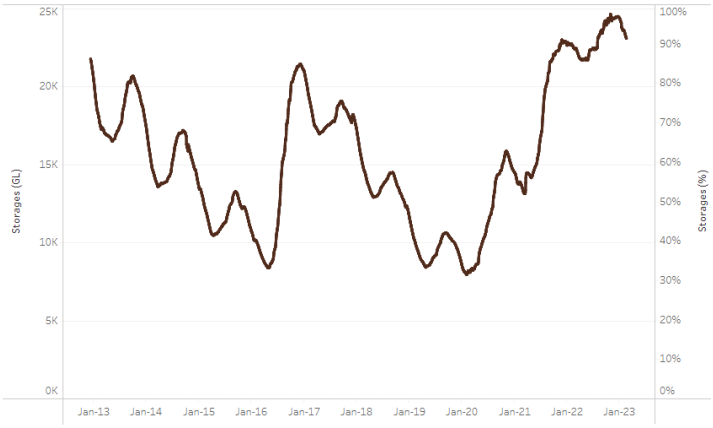
Note: This rainfall forecast is produced from computer models. As the model outputs are not altered by weather forecasters, it is important to check local forecasts and warnings issued by the Bureau of Meteorology.

2. Water

2.1. Water markets – current week

Water storage levels in the Murray-Darling Basin (MDB) decreased between 15 February 2023 and 22 February 2023 by 196 gigalitres (GL). Current volume of water held in storage is 23 059 GL which represents 91 per cent of total capacity. This is 3 percent or 624 GL more than at the same time last year.

Water storages in the Murray-Darling Basin, 2013–2023

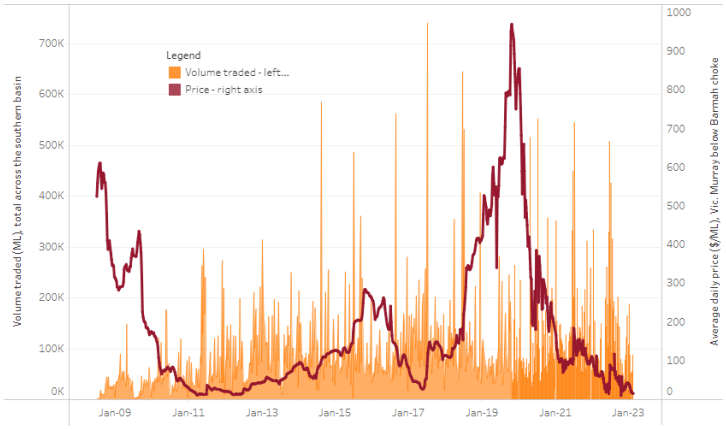


Water storage data is sourced from the Bureau of Meteorology.

Allocation prices in the Victorian Murray below the Barmah Choke remained steady at $15 per ML from 16 February 2023 to 23 February 2023. Prices are lower in the Murrumbidgee due to the binding of the Murrumbidgee export limit and Barmah choke trade constraint.

Region	$/ML
NSW Murray Above	6
NSW Murrumbidgee	9
VIC Goulburn-Broken	15
VIC Murray Below	15

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 on 23 February 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 http://www.agriculture.gov.au/abares/products/weekly_update/weekly-update-160223

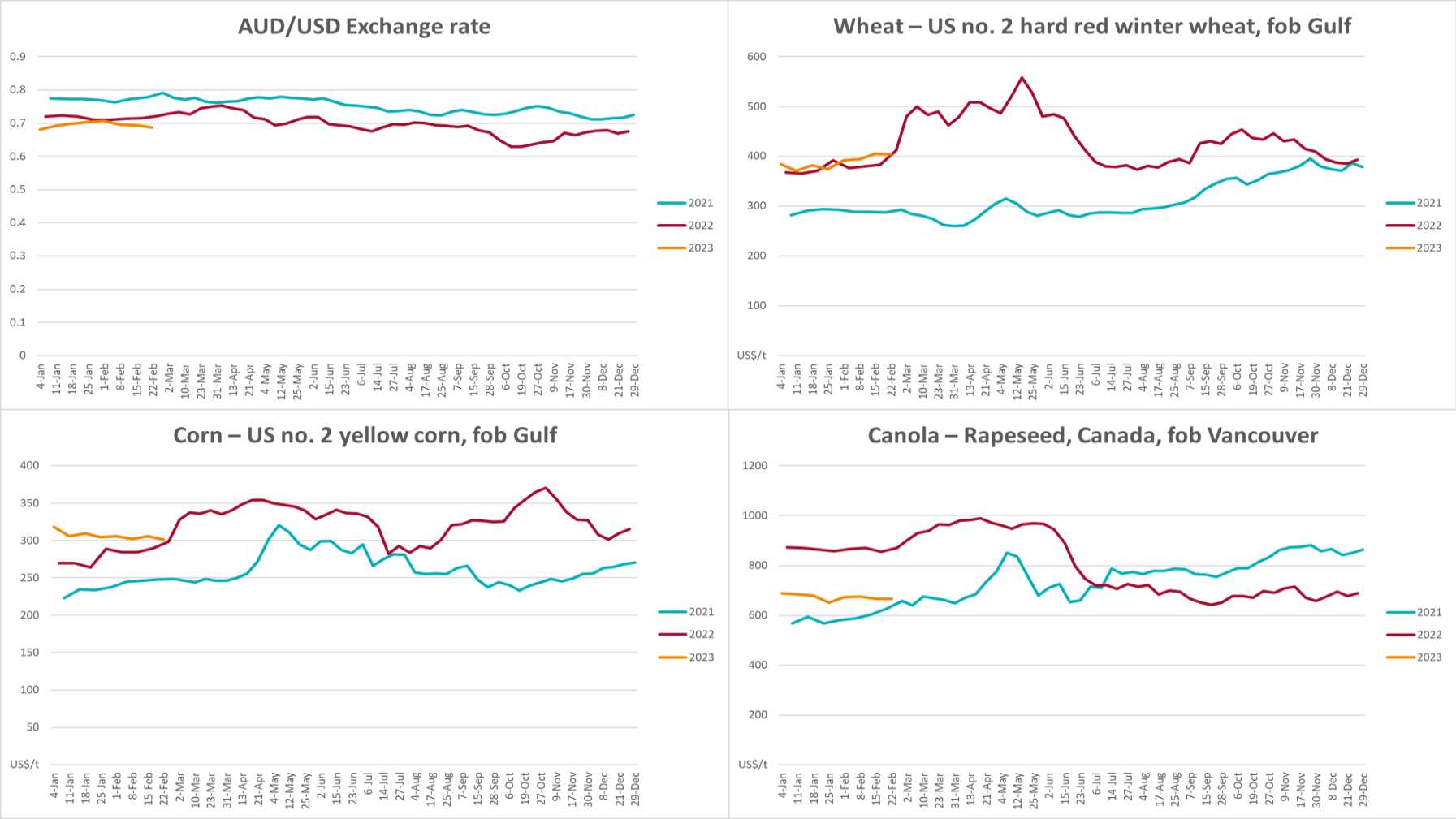
3. Commodities

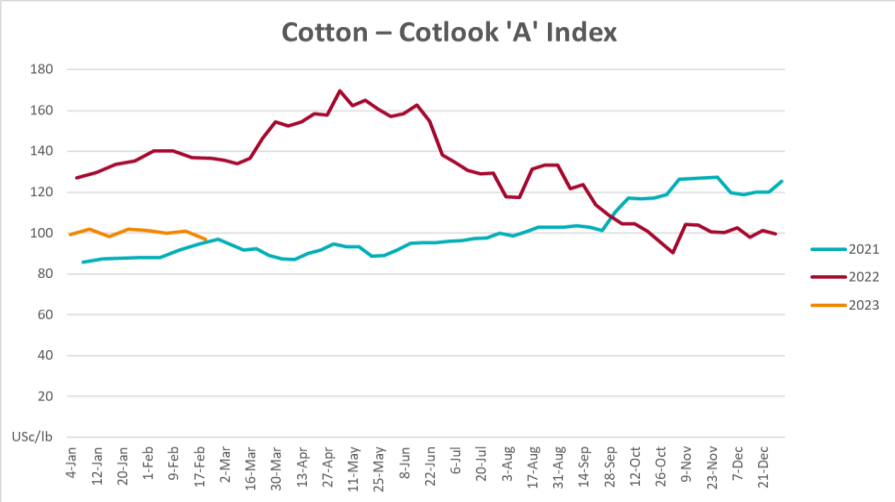
Indicator	Week ended	Unit	Latest Price	Previous Week	Weekly change	Price 12 months ago	Annual change
Selected world indicator prices							
AUD/USD Exchange rate	22-Feb	A$/US$	0.69	0.69	-1%	0.73	-5%
Wheat – US no. 2 hard red winter wheat, fob Gulf	22-Feb	US$/t	404	405	0%	480	-16%
Corn – US no. 2 yellow corn, fob Gulf	22-Feb	US$/t	301	306	-1%	327	-8%
Canola – Rapeseed, Canada, fob Vancouver	22-Feb	US$/t	667	666	0%	900	-26%
Cotton – Cotlook 'A' Index	22-Feb	USc/lb	97	101	-4%	136	-29%
Sugar – Intercontinental Exchange, nearby futures, no.11 contract	22-Feb	USc/lb	19.9	19.8	0%	18	8%
Wool – Eastern Market Indicator	08-Feb	Ac/kg clean	1,374	1,400	-2%	1,346	2%
Wool – Western Market Indicator	08-Feb	Ac/kg clean	1,525	1,570	-3%	1,368	11%
Selected Australian grain export prices							
Milling Wheat – APW, Port Adelaide, SA	22-Feb	A$/t	509	498	2%	512	-1%
Feed Wheat – ASW, Port Adelaide, SA	22-Feb	A$/t	503	471	7%	477	5%
Feed Barley – Port Adelaide, SA	22-Feb	A$/t	414	415	0%	405	2%
Canola – Kwinana, WA	22-Feb	A$/t	1,051	1,064	-1%	1,071	-2%
Grain Sorghum – Brisbane, QLD	22-Feb	A$/t	505	496	2%	370	37%
Selected domestic livestock indicator prices							
Beef – Eastern Young Cattle Indicator	22-Feb	Ac/kg cwt	741	753	-2%	1,123	-34%
Mutton – Mutton indicator (18–24 kg fat score 2–3), Vic	15-Feb	Ac/kg cwt	353	391	-10%	575	-39%
Lamb – Eastern States Trade Lamb Indicator	22-Feb	Ac/kg cwt	736	731	1%	878	-16%
Pig – Eastern Seaboard (60.1–75 kg), average of buyers & sellers	25-Jan	Ac/kg cwt	367	367	0%	357	3%
Goats – Eastern States (12.1–16 kg)	01-Feb	Ac/kg cwt	325	350	-7%	813	-60%
Live cattle – Light steers ex Darwin to Indonesia	17-Aug	Ac/kg lwt	420	480	-13%	320	31%

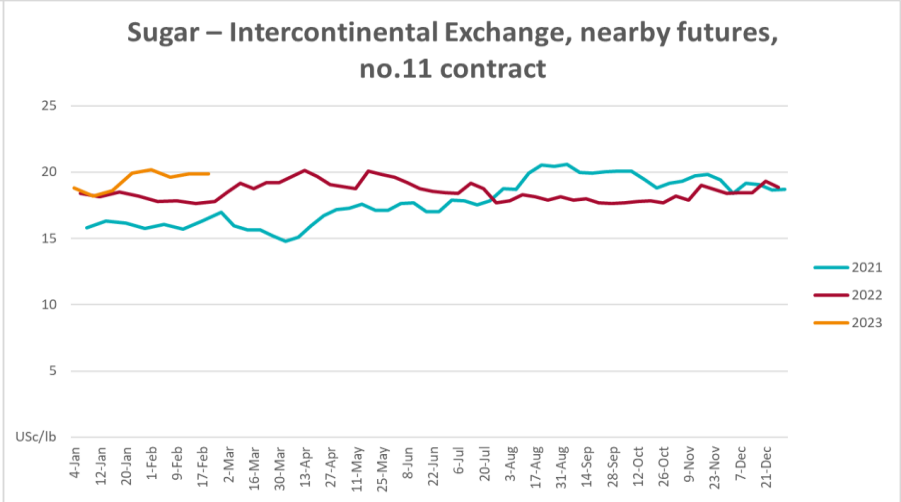
Live sheep – Live wethers (Muchea WA saleyard) to Middle East	14-Sep	$/head	93	113	-18%	114	-18%
Global Dairy Trade (GDT) weighted average prices [a]							
Dairy – Whole milk powder	22-Feb	US$/t	3,264	3,329	-2%	3,458	-6%
Dairy – Skim milk powder	22-Feb	US$/t	2,769	2,829	-2%	3,198	-13%
Dairy – Cheddar cheese	22-Feb	US$/t	5,086	4,980	2%	4,178	22%
Dairy – Anhydrous milk fat	22-Feb	US$/t	5,447	5,586	-2%	5,463	0%

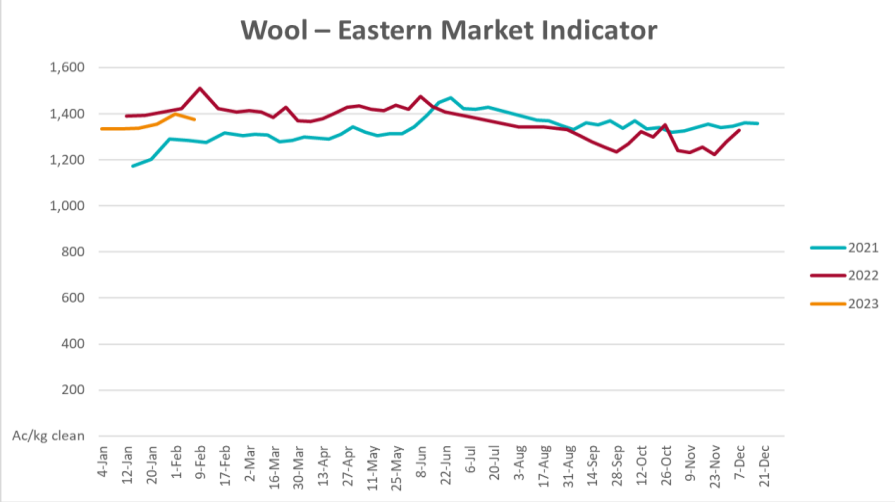
a Global Dairy Trade prices are updated twice monthly on the first and third Tuesday of each month.

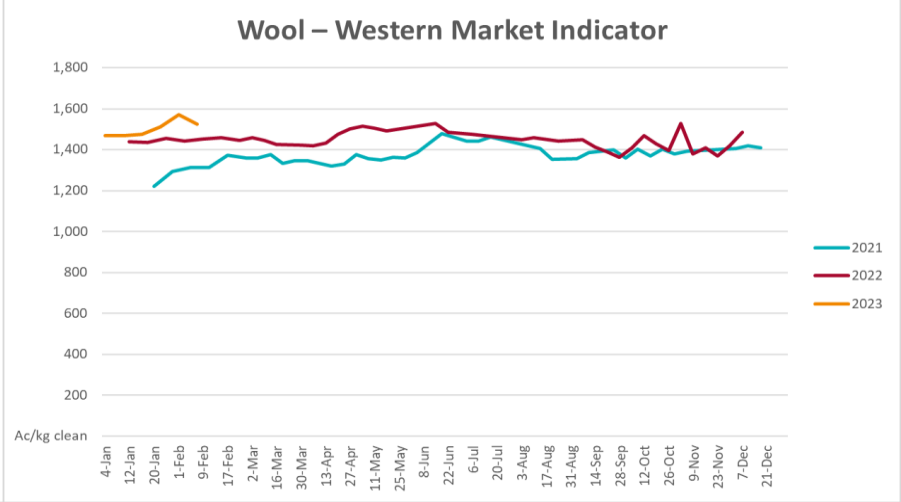
3.1. Selected world indicator prices



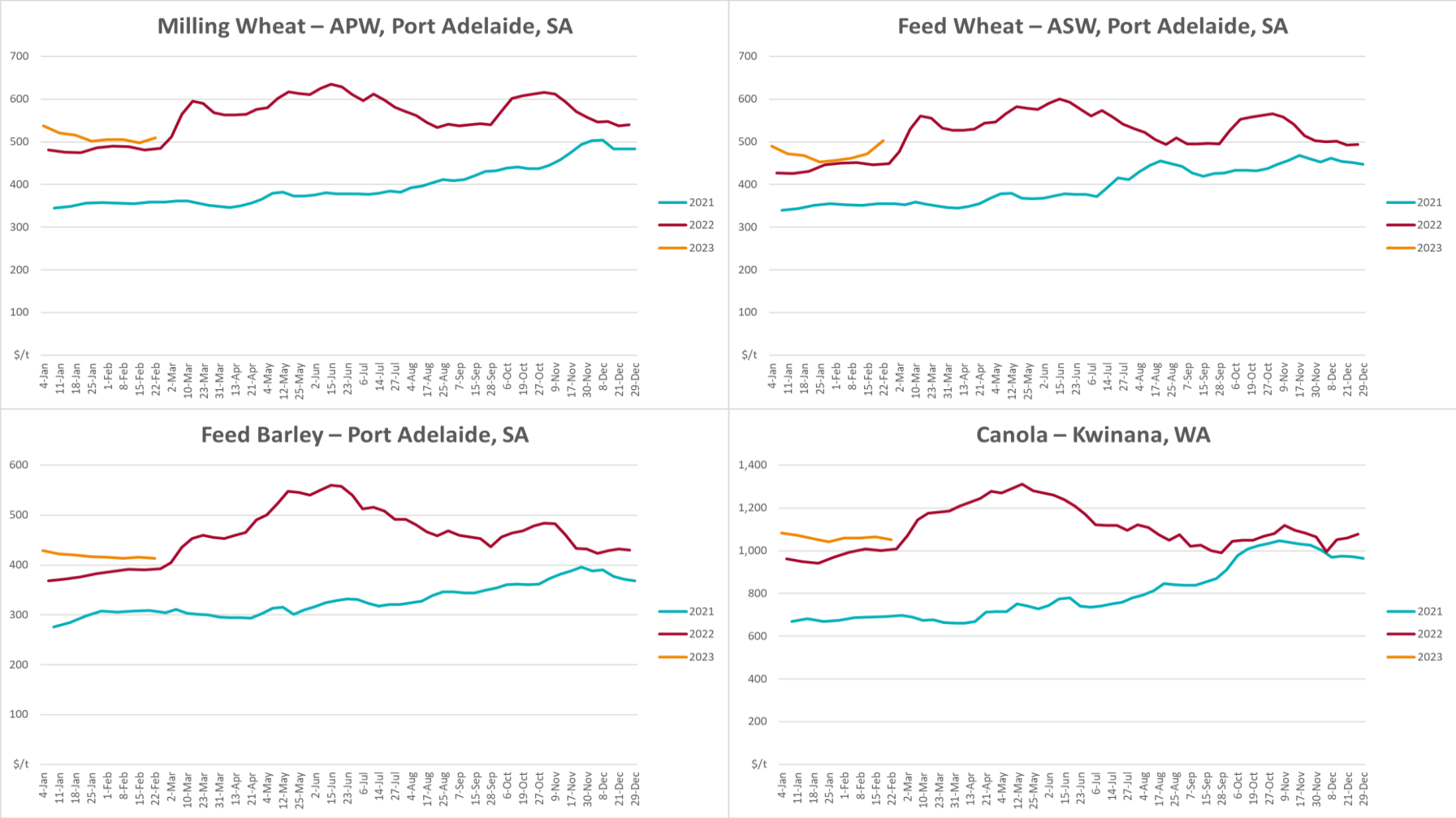

Cotton – Cotlook 'A' Index
180
160
140
120
100
80
60
40
20
USc/lb
4-Jan
12-Jan
20-Jan
1-Feb
9-Feb
17-Feb
2-Mar
16-Mar
30-Mar
13-Apr
27-Apr
11-May
25-May
8-Jun
22-Jun
6-Jul
20-Jul
3-Aug
17-Aug
31-Aug
14-Sep
28-Sep
12-Oct
26-Oct
9-Nov
23-Nov
7-Dec
21-Dec
2021
2022
2023

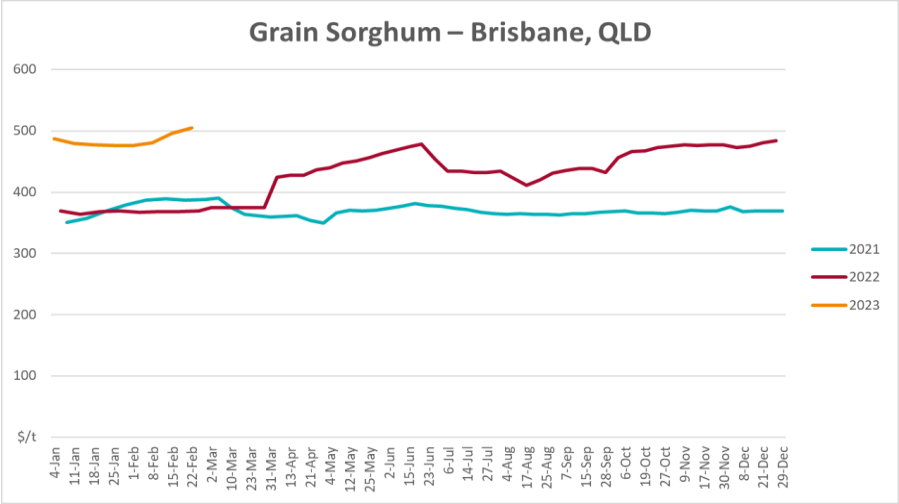

Sugar – Intercontinental Exchange, nearby futures, no.11 contract
25
20
15
10
5
USc/lb
4-Jan
12-Jan
20-Jan
1-Feb
9-Feb
17-Feb
2-Mar
16-Mar
30-Mar
13-Apr
27-Apr
11-May
25-May
8-Jun
22-Jun
6-Jul
20-Jul
3-Aug
17-Aug
31-Aug
14-Sep
28-Sep
12-Oct
26-Oct
9-Nov
23-Nov
7-Dec
21-Dec
2021
2022
2023


Wool – Eastern Market Indicator
1,600
1,400
1,200
1,000
800
600
400
200
Ac/kg clean
4-Jan
12-Jan
20-Jan
1-Feb
9-Feb
17-Feb
2-Mar
16-Mar
30-Mar
13-Apr
27-Apr
11-May
25-May
8-Jun
22-Jun
6-Jul
20-Jul
3-Aug
17-Aug
31-Aug
14-Sep
28-Sep
12-Oct
26-Oct
9-Nov
23-Nov
7-Dec
21-Dec
2021
2022
2023

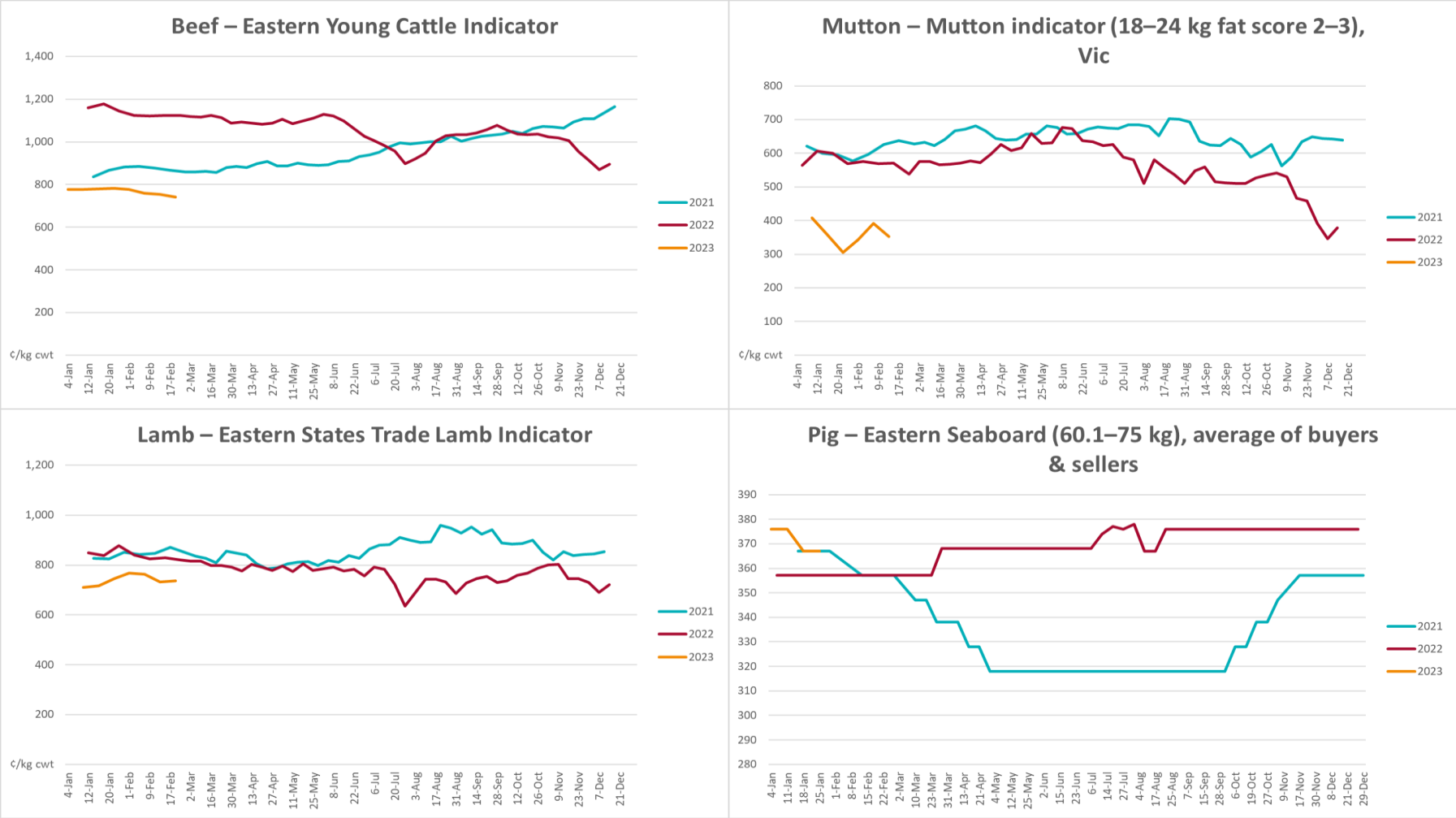

Wool – Western Market Indicator
1,800
1,600
1,400
1,200
1,000
800
600
400
200
Ac/kg clean
4-Jan
12-Jan
20-Jan
1-Feb
9-Feb
17-Feb
2-Mar
16-Mar
30-Mar
13-Apr
27-Apr
11-May
25-May
8-Jun
22-Jun
6-Jul
20-Jul
3-Aug
17-Aug
31-Aug
14-Sep
28-Sep
12-Oct
26-Oct
9-Nov
23-Nov
7-Dec
21-Dec
2021
2022
2023

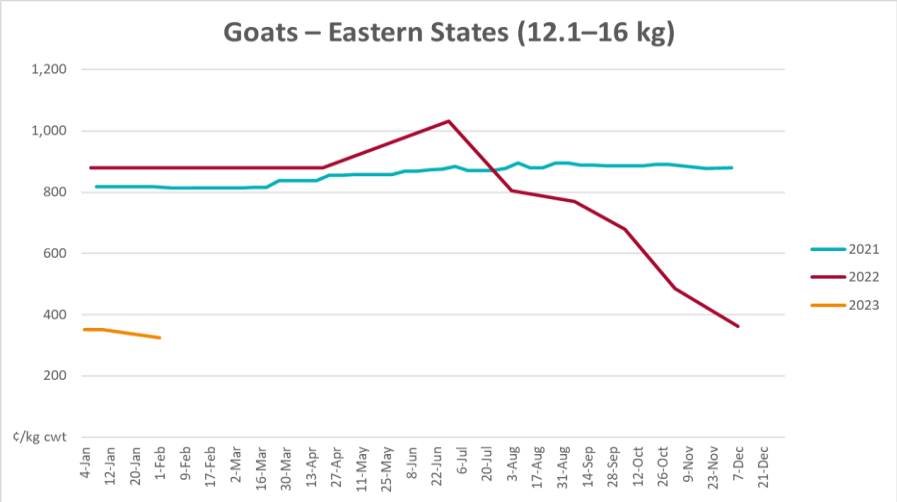
3.2. Selected domestic crop indicator prices

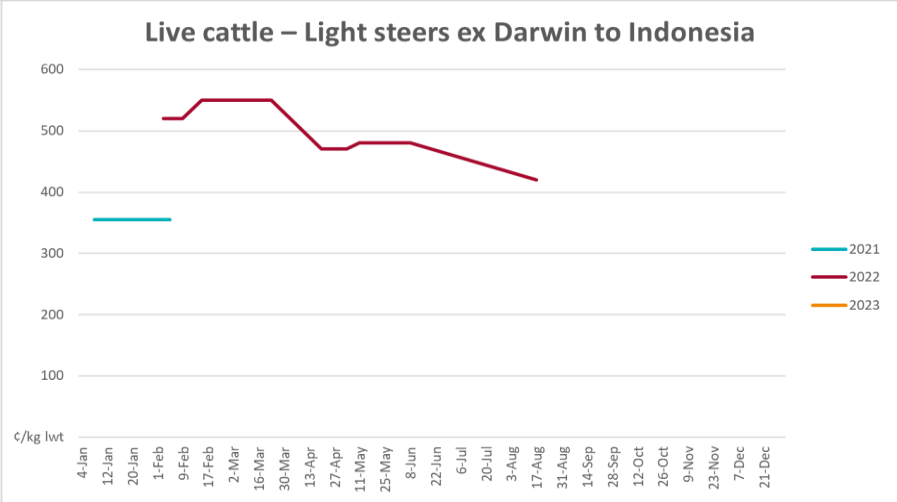


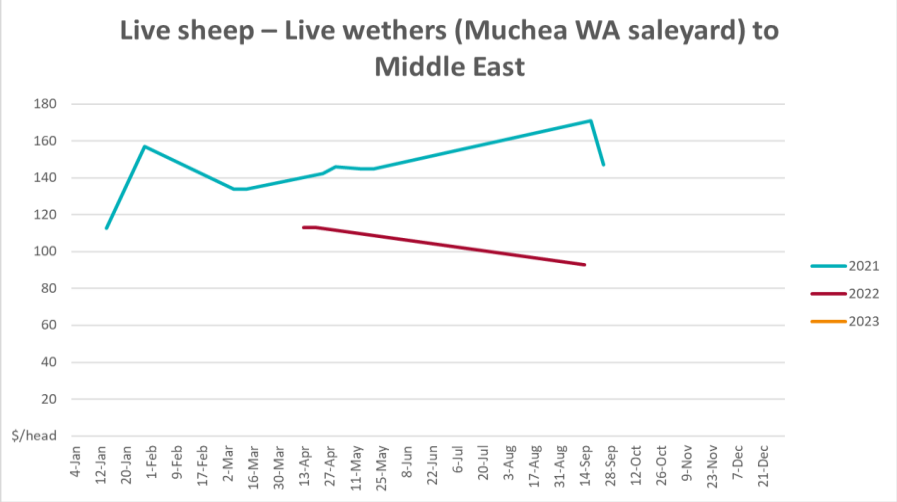

Grain Sorghum – Brisbane, QLD
600
500
400
300
200
100
$/t
4-Jan
11-Jan
18-Jan
25-Jan
1-Feb
8-Feb
15-Feb
22-Feb
2-Mar
10-Mar
23-Mar
31-Mar
13-Apr
21-Apr
4-May
12-May
25-May
2-Jun
15-Jun
23-Jun
6-Jul
14-Jul
27-Jul
4-Aug
17-Aug
25-Aug
7-Sep
15-Sep
28-Sep
6-Oct
19-Oct
27-Oct
9-Nov
17-Nov
30-Nov
8-Dec
21-Dec
29-Dec
2021
2022
2023

3.3. Selected domestic livestock indicator prices

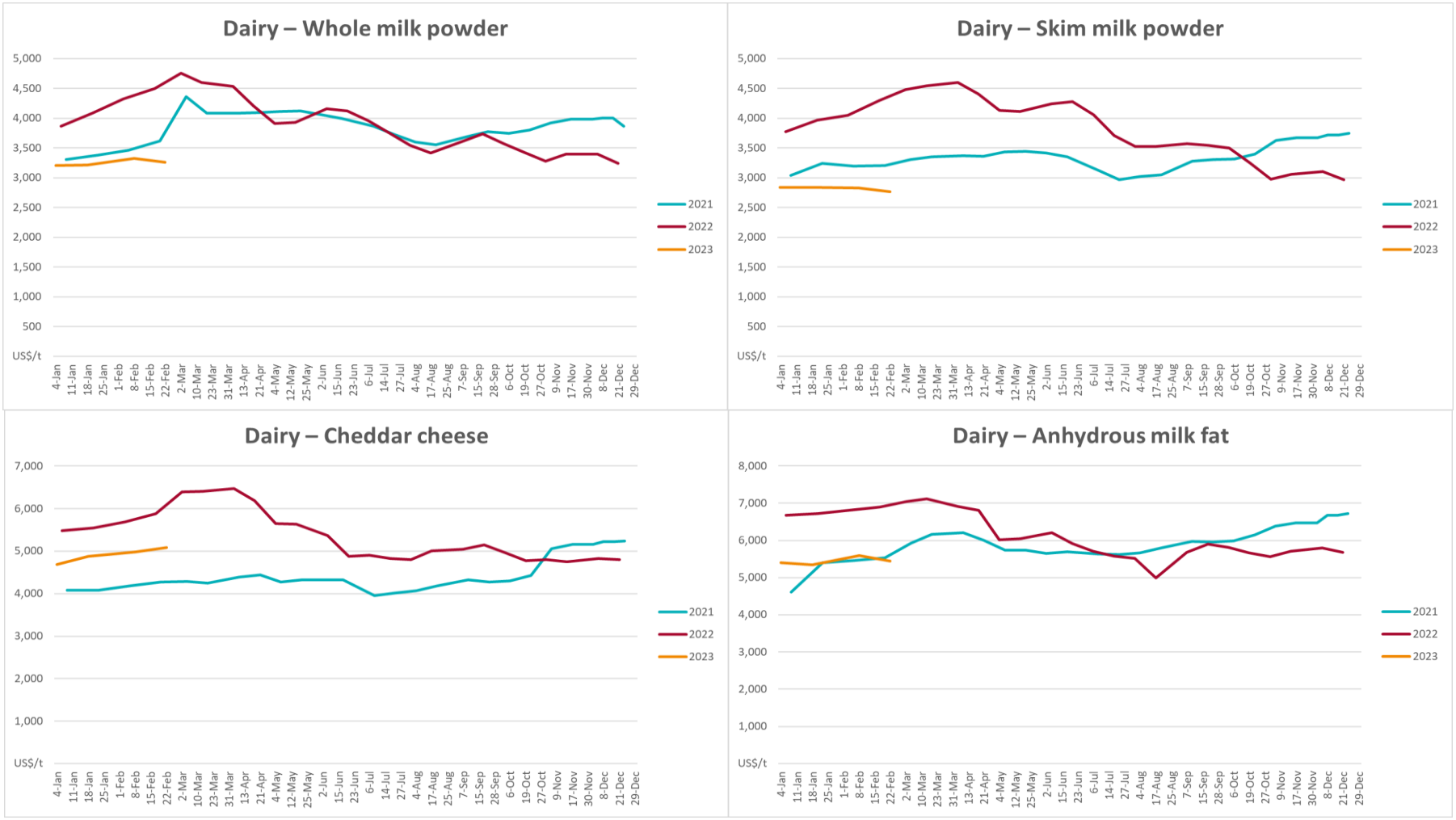



Goats – Eastern States (12.1–16 kg)
1,200
1,000
800
600
400
200
¢/kg cwt
4-Jan
12-Jan
20-Jan
1-Feb
9-Feb
17-Feb
2-Mar
16-Mar
30-Mar
13-Apr
27-Apr
11-May
25-May
8-Jun
22-Jun
6-Jul
20-Jul
3-Aug
17-Aug
31-Aug
14-Sep
28-Sep
12-Oct
26-Oct
9-Nov
23-Nov
7-Dec
21-Dec
2021
2022
2023

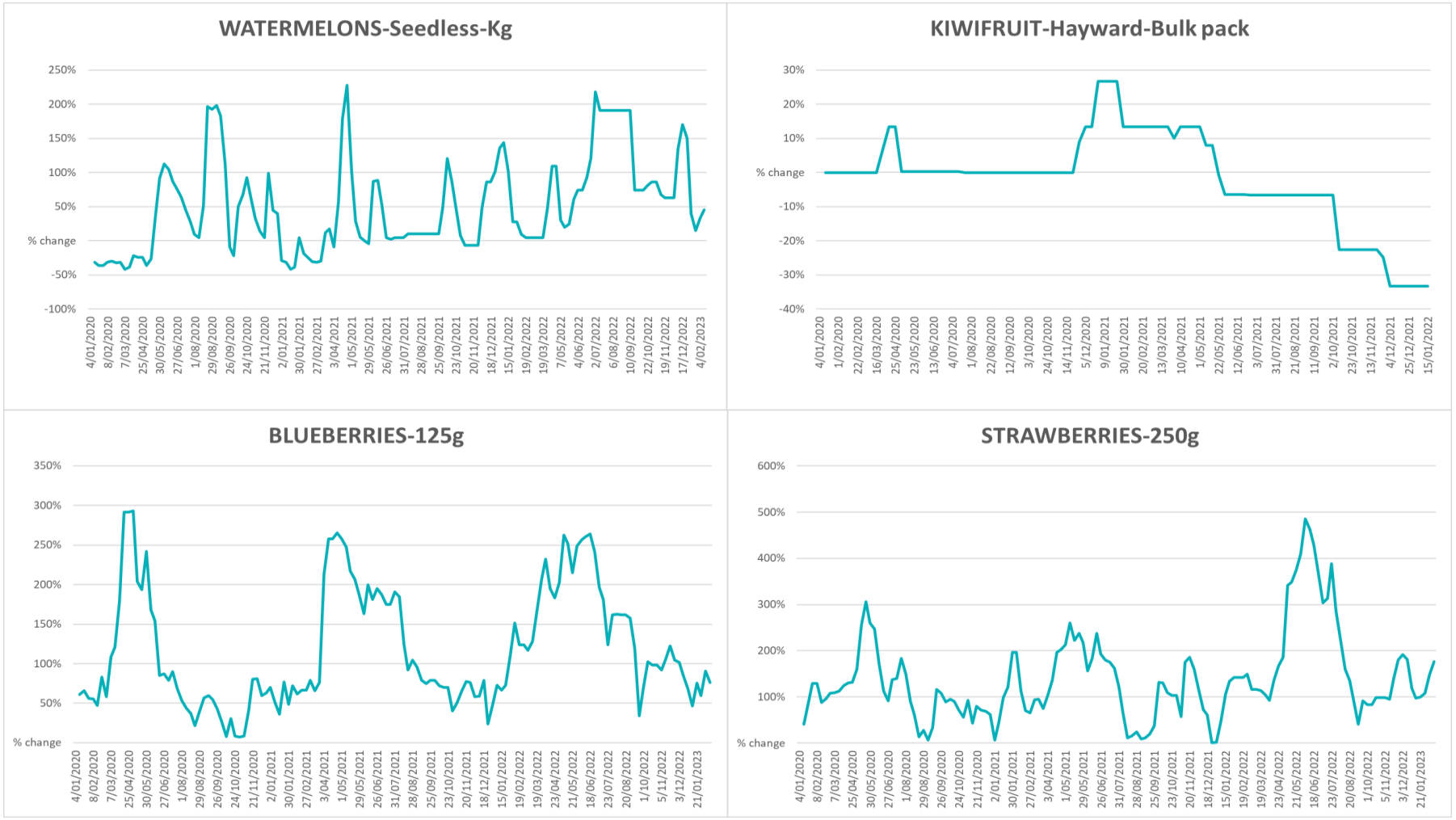

Live cattle – Light steers ex Darwin to Indonesia
600
500
400
300
200
100
¢/kg lwt
4-Jan
12-Jan
20-Jan
1-Feb
9-Feb
17-Feb
2-Mar
16-Mar
30-Mar
13-Apr
27-Apr
11-May
25-May
8-Jun
22-Jun
6-Jul
20-Jul
3-Aug
17-Aug
31-Aug
14-Sep
28-Sep
12-Oct
26-Oct
9-Nov
23-Nov
7-Dec
21-Dec
2021
2022
2023

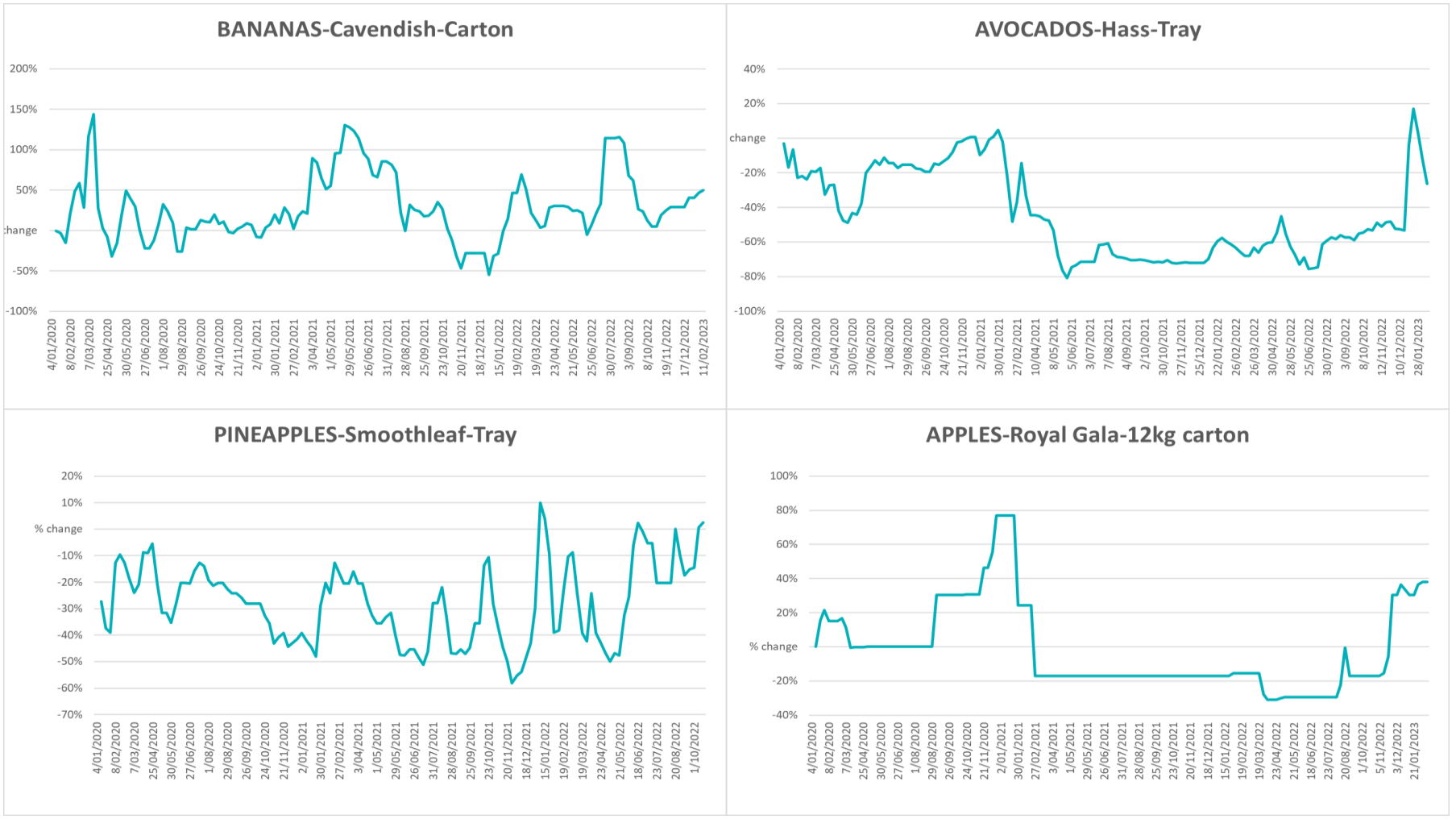

Live sheep – Live wethers (Muchea WA saleyard) to Middle East
180
160
140
120
100
80
60
40
20
$/head
4-Jan
12-Jan
20-Jan
1-Feb
9-Feb
17-Feb
2-Mar
16-Mar
30-Mar
13-Apr
27-Apr
11-May
25-May
8-Jun
22-Jun
6-Jul
20-Jul
3-Aug
17-Aug
31-Aug
14-Sep
28-Sep
12-Oct
26-Oct
9-Nov
23-Nov
7-Dec
21-Dec
2021
2022
2023

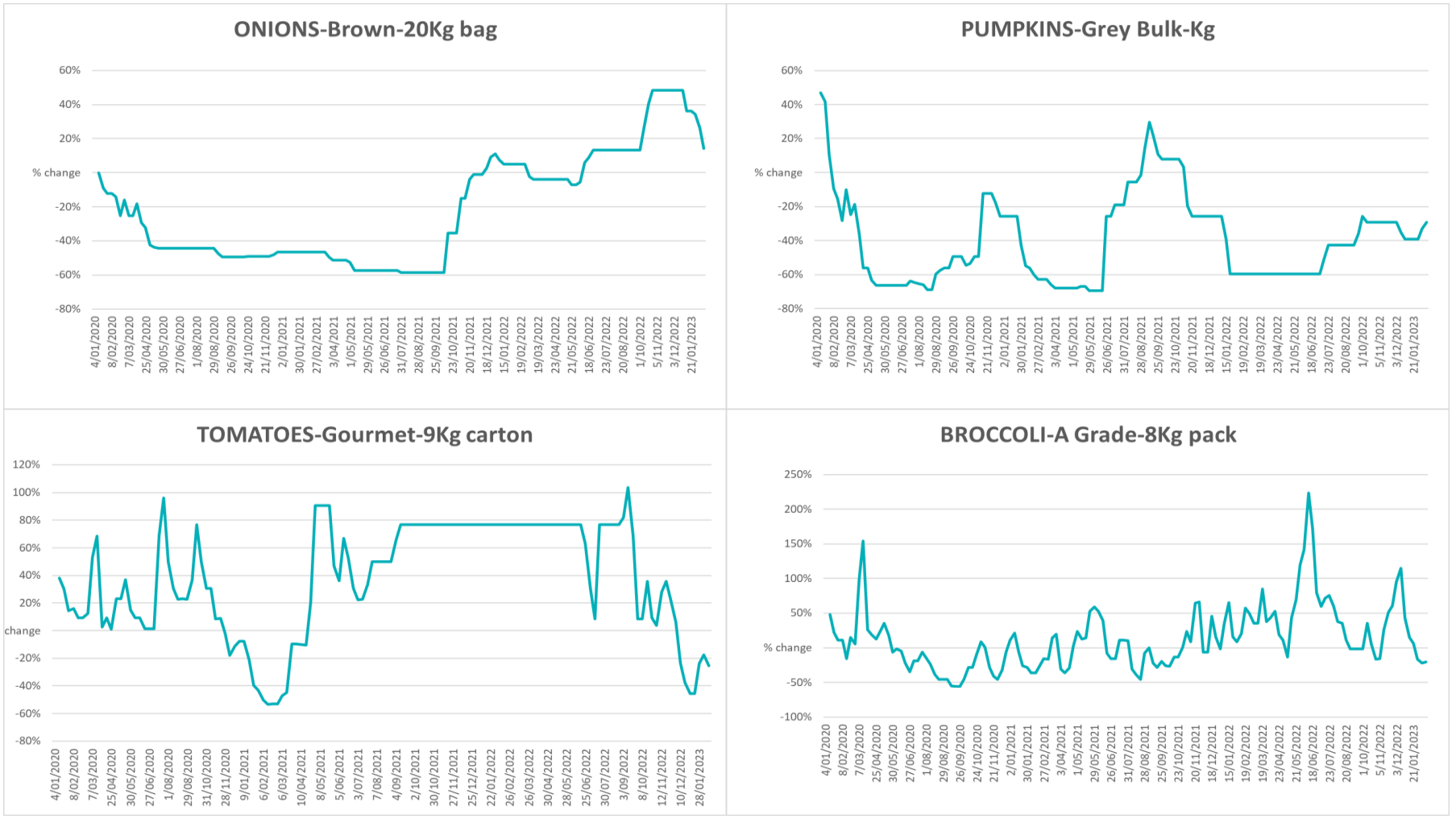
3.4. Global Dairy Trade (GDT) weighted average prices

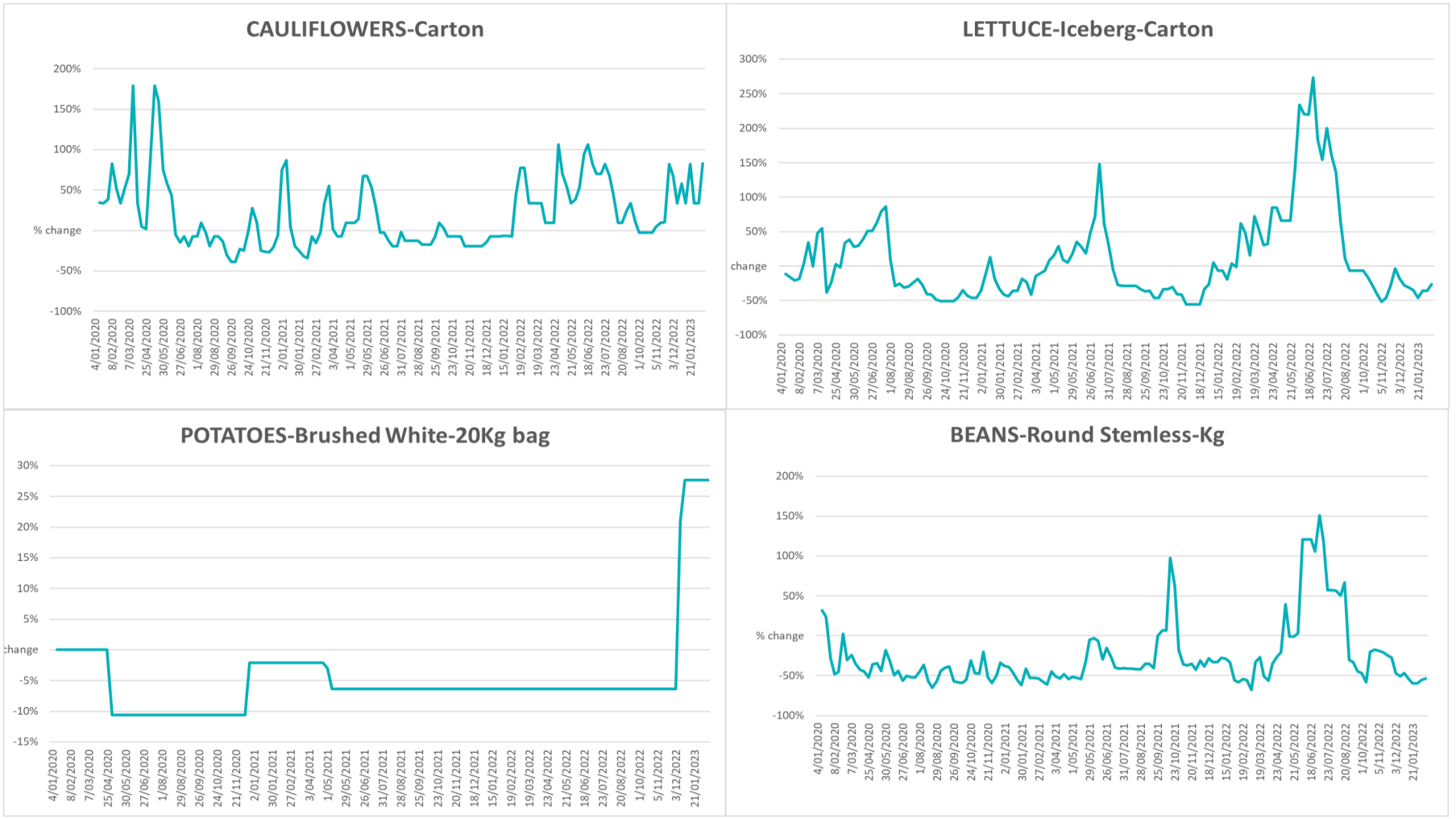


3.5. Selected fruit and vegetable prices

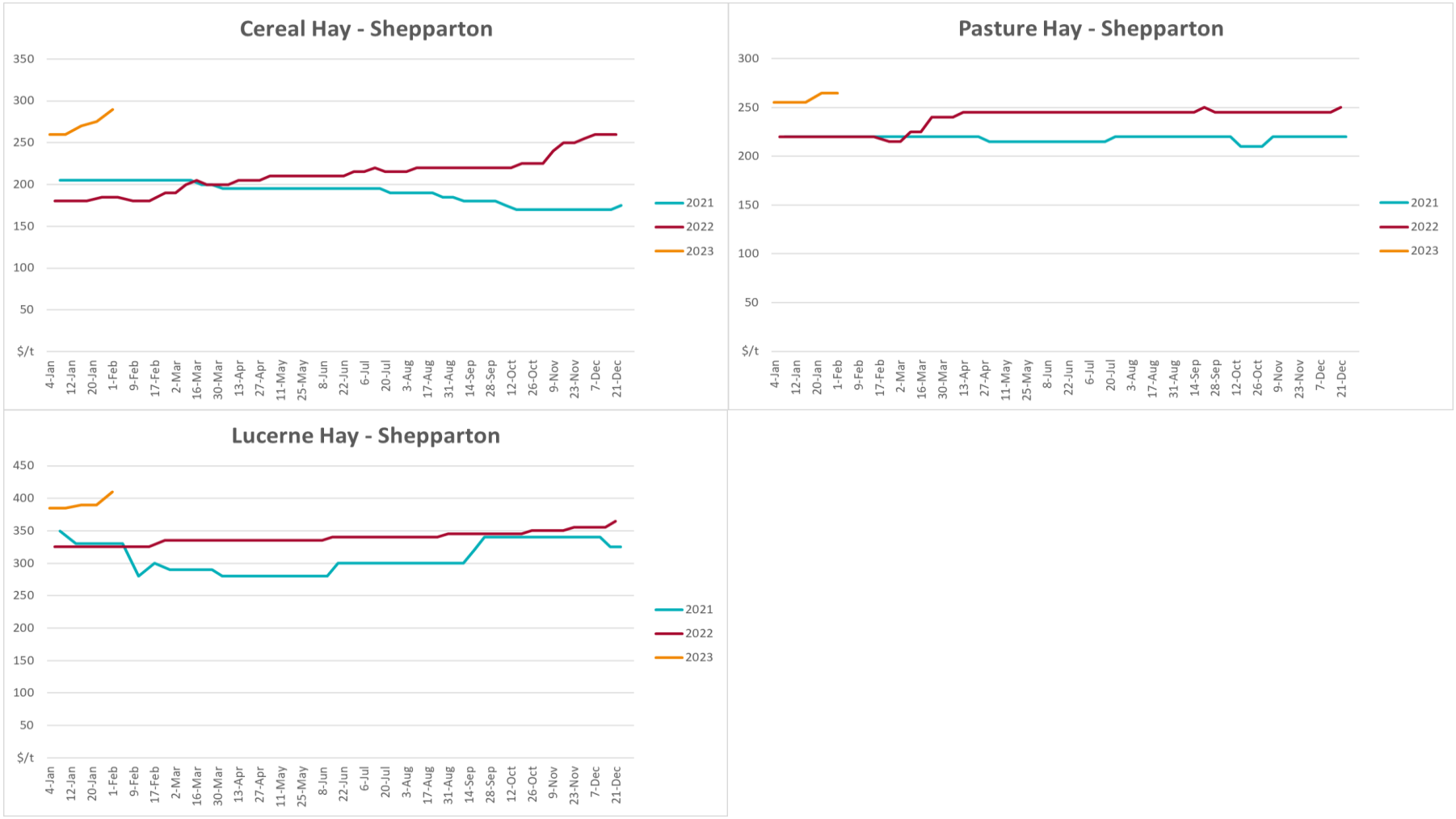



BANANAS-Cavendish-Carton
200%
150%
100%
50%
change
-50%
-100%
4/01/2020
8/02/2020
7/03/2020
25/04/2020
30/05/2020
27/06/2020
1/08/2020
29/08/2020
26/09/2020
24/10/2020
21/11/2020
2/01/2021
30/01/2021
27/02/2021
3/04/2021
1/05/2021
29/05/2021
26/06/2021
31/07/2021
28/08/2021
25/09/2021
23/10/2021
20/11/2021
18/12/2021
15/01/2022
19/02/2022
19/03/2022
23/04/2022
21/05/2022
25/06/2022
30/07/2022
3/09/2022
8/10/2022
19/11/2022
17/12/2022
11/02/2023
AVOCADOS-Hass-Tray
40%
20%
change
-20%
-40%
-60%
-80%
-100%
4/01/2020
8/02/2020
7/03/2020
25/04/2020
30/05/2020
27/06/2020
1/08/2020
29/08/2020
26/09/2020
24/10/2020
21/11/2020
2/01/2021
30/01/2021
27/02/2021
10/04/2021
8/05/2021
5/06/2021
3/07/2021
7/08/2021
4/09/2021
2/10/2021
30/10/2021
27/11/2021
25/12/2021
22/01/2022
26/02/2022
26/03/2022
30/04/2022
28/05/2022
25/06/2022
30/07/2022
3/09/2022
8/10/2022
12/11/2022
10/12/2022
28/01/2023
PINEAPPLES-Smoothleaf-Tray
20%
10%
% change
-10%
-20%
-30%
-40%
-50%
-60%
-70%
4/01/2020
8/02/2020
7/03/2020
25/04/2020
30/05/2020
27/06/2020
1/08/2020
29/08/2020
26/09/2020
24/10/2020
21/11/2020
2/01/2021
30/01/2021
27/02/2021
3/04/2021
1/05/2021
29/05/2021
26/06/2021
31/07/2021
28/08/2021
25/09/2021
23/10/2021
20/11/2021
18/12/2021
15/01/2022
19/02/2022
19/03/2022
23/04/2022
21/05/2022
18/06/2022
23/07/2022
20/08/2022
1/10/2022
APPLES-Royal Gala-12kg carton
100%
80%
60%
40%
20%
% change
-20%
-40%
4/01/2020
8/02/2020
7/03/2020
25/04/2020
30/05/2020
27/06/2020
1/08/2020
29/08/2020
26/09/2020
24/10/2020
21/11/2020
2/01/2021
30/01/2021
27/02/2021
3/04/2021
1/05/2021
29/05/2021
26/06/2021
31/07/2021
28/08/2021
25/09/2021
23/10/2021
20/11/2021
18/12/2021
15/01/2022
19/02/2022
19/03/2022
23/04/2022
21/05/2022
18/06/2022
23/07/2022
20/08/2022
1/10/2022
5/11/2022
3/12/2022
21/01/2023


ONIONS-Brown-20Kg bag
% change
PUMPKINS-Grey Bulk-Kg
% change
TOMATOES-Gourmet-9Kg carton
change
BROCCOLI-A Grade-8Kg pack
% change


CAULIFLOWERS-Carton
200%
150%
100%
50%
% change
-50%
-100%
LETTUCE-Iceberg-Carton
300%
250%
200%
150%
100%
50%
change
-50%
-100%
POTATOES-Brushed White-20Kg bag
30%
25%
20%
15%
10%
5%
change
-5%
-10%
-15%
BEANS-Round Stemless-Kg
200%
150%
100%
50%
% change
-50%
-100%

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.waternsw.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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Department of Agriculture, Fisheries and Forestry

GPO Box 858 Canberra ACT 2601

Telephone 1800 900 090

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