Australian Government
Department of Agriculture, Fisheries and Forestry

ABARES

Weekly Australian Climate, Water and Agricultural Update

No. 36/2023

14 September 2023

Summary of key issues

- For the week ending 13 September 2023, frontal systems brought showers to southern parts of the country and onshore winds resulted in some in showers in northeast coastal Queensland. A high-pressure system kept the remainder of the country largely dry and clear.
- Across cropping regions, rainfall totals of up to 50 millimetres were recorded in central South Australia and in parts of eastern New South Wales. Falls of up to 15 millimetres were recorded in western South Australia and parts of southern Victoria. Remaining cropping areas received minimal rainfall of up to 5 millimetres. Given the lack of rainfall across most cropping regions in New South Wales, Queensland and Western Australia, these regions are continuing to see a gradual decline in soil moisture reserves. This represents an increased risk of declines in crop yields if follow-up rainfall is not received in the next few weeks (see Section 1.1).
- Drier than normal conditions are expected in October for large areas of Australia. Across cropping regions, during October there is a 75% chance of rainfall totals of between 10 and 25 millimetres across eastern margins of New South Wales, eastern Queensland, and southern Western Australia. October rainfall totals are expected to be below 10 millimetres for the remaining cropping regions. Given the lack of rainfall in recent weeks and declining soil moisture levels across large areas of eastern and southern Australia, expected low rainfall totals continues represent a significant downside production risk for both winter and summer crop production as well as pasture growth (see Section 1.3).
- Maximum temperature predictions for the week ending 24 September 2023 indicates warmer than average conditions are expected across much of southern Australia, with the highest maximum temperature anomalies expected across south-eastern parts of the country. Across cropping regions, much of New South Wales and parts of southern Queensland are expected to experience maximum temperature up to 5°C above average for this time of year. With lack of rainfall recently, declining soil moisture levels and a lack of forecast rainfall, these high temperatures will likely contribute to increase moisture stress to the winter crops and spring pastures (see Section 1.4).
- Over the next 8-days, a frontal system is expected to bring isolated showers to southern parts of the country. A trough northwest of Australia will generate warmer conditions across the country (see Section 1.5).
- Across most cropping regions, minimal rainfall totals of up to 5 millimetres are expected in southern Western Australia, Victoria and New South Wales. Following a dry start to September in many regions and given the current well below average levels of soil moisture, crops and pastures in Queensland, northern New South Wales and northern Western Australia will be disposed to heat and moisture stress, negatively affecting production potential (see Section 1.5).
- Water storage levels in the Murray-Darling Basin (MDB) increased between 7 September 2023 and 14 September 2023 by 227 gigalitres (GL). Current volume of water held in storage is 21 043 GL. This is 3 percent or 548 GL less than at the same time last year.
- Allocation prices in the Victorian Murray below the Barmah Choke increased from $173 on 7 September 2023 to $192 on 14 September 2023. Prices are lower in the Goulburn-Broken due to the binding of the Goulburn intervalley trade limit.

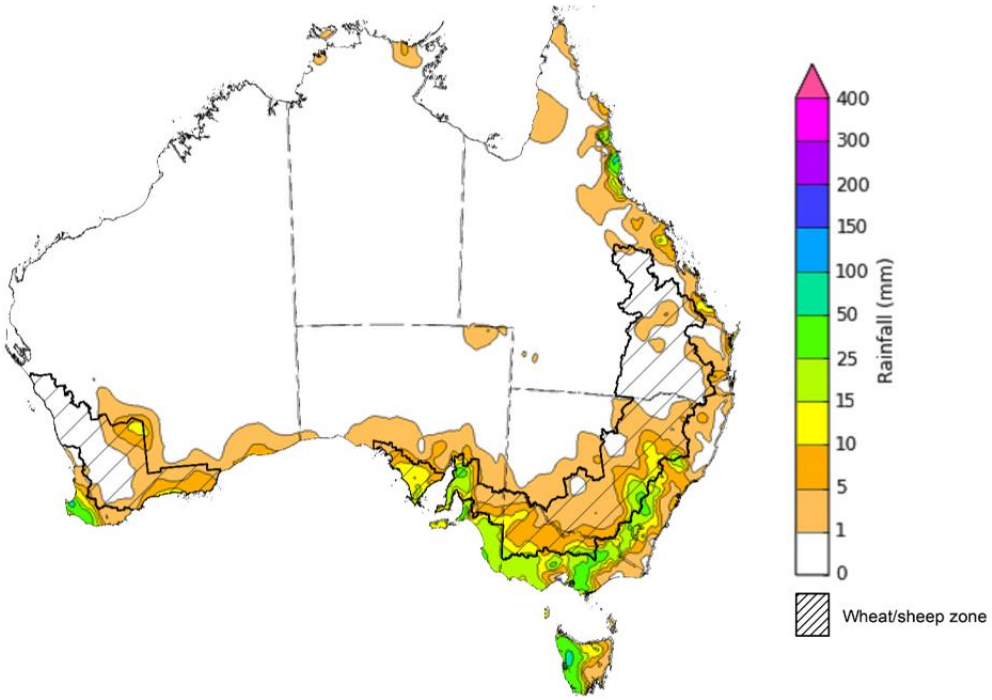
1. Climate

1.1. Rainfall this week

For the week ending 13 September 2023, frontal systems brought showers to southern parts of the country. A high-pressure system kept the remainder of the country largely dry and clear.

Across cropping regions, rainfall totals of up to 50 millimetres were recorded in central South Australia and in parts of eastern New South Wales. Meanwhile falls of up to 15 millimetres were recorded in western South Australia and parts of southern Victoria. Remaining cropping areas received minimal rainfall of up to 5 millimetres. Given the lack of rainfall across most cropping regions in New South Wales, Queensland and Western Australia, these regions are continuing to see a gradual decline in soil moisture reserves. This represents an increased risk of declines in crop yields if follow-up rainfall is not received in the next few weeks.

Rainfall for the week ending 13 September 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/

1.2. Climate Drivers

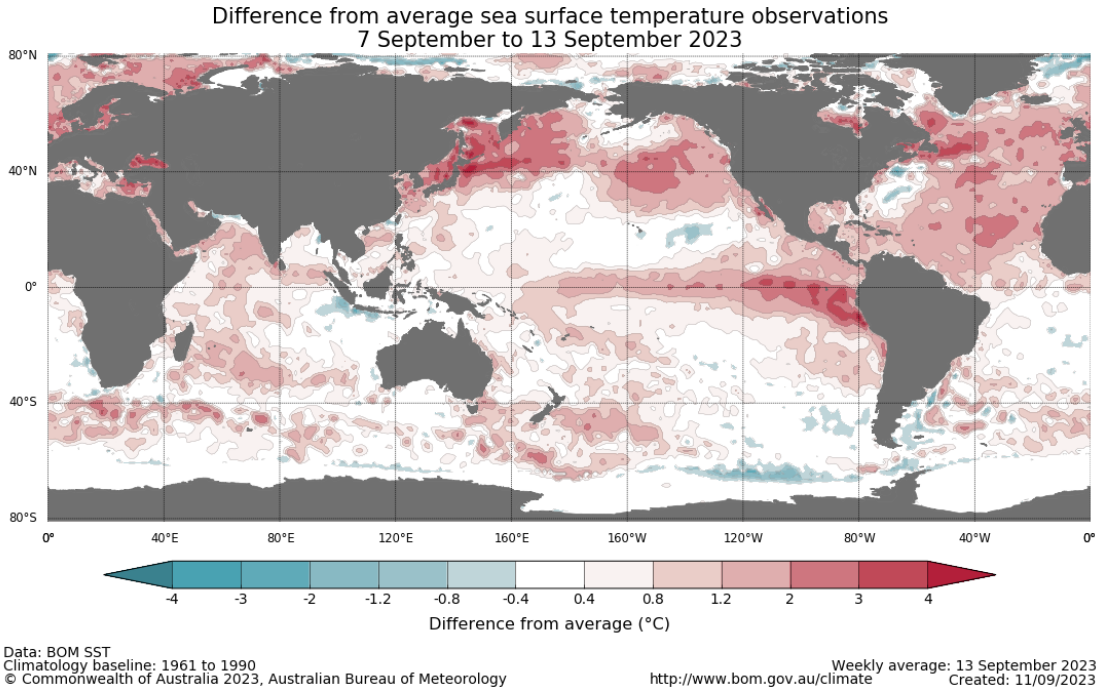
The climate drivers with the largest potential impact on Australia's climate patterns are the El Niño–Southern Oscillation (ENSO), Madden-Julian Oscillation (MJO), Indian Ocean Dipole (IOD) and Southern Annular Mode (SAM). These climate drivers are likely to influence pasture growth across southern Australia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

The Madden–Julian Oscillation (MJO) pulse is currently indiscernible. At this time of the year MJO has little influence on northern Australia rainfall.

The Bureau of Meteorology's ENSO outlook remains at El Niño ALERT. Unlike a number of international meteorological organisations, the Bureau of Meteorology still has not officially declared that an El Niño event is underway. This is largely due to definitional differences, but what both the Bureau of Meteorology and most international meteorological organisations agree on is that warmer and drier conditions are expected across southern and eastern Australia from October to December. The sea surface temperature continues to warm over the tropical Pacific and remains above El Niño thresholds.

The Indian Ocean Dipole (IOD) index has been recorded above the positive phase threshold for the past four weeks. With a recent increase in the index magnitude, a positive IOD is very likely. A positive IOD typically decreases spring rainfall for central and south-east Australia and can increase the drying influence of El Niño.

Weekly sea surface temperature anomaly



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/.

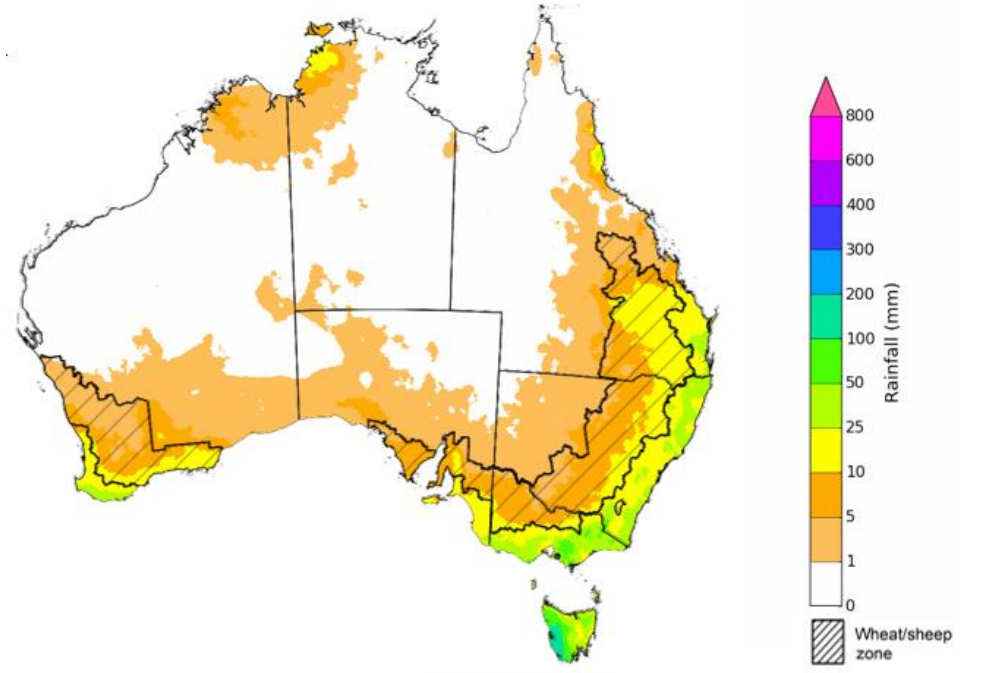
The Bureau of Meteorology's latest rainfall outlook for October 2023 indicates drier than average conditions are expected across large areas of northern, eastern and southern Australia.

The ACCESS-S climate model suggests that for October 2023, there is a 75% chance of rainfall totals between 10 and 50 millimetres across eastern New South Wales, southeast Queensland, southern Victoria and Western Australia, and across Tasmania. Rainfall totals in excess of 100 millimetres are expected across western Tasmania and alpine regions of Victoria.

Across cropping regions, there is a 75% chance of rainfall totals of between 10 and 25 millimetres across eastern margins of New South Wales, eastern Queensland, and southern Western Australia. October rainfall totals are expected to be below 10 millimetres for the remaining cropping regions.

These relatively low expected rainfall totals continue to represent a significant downside production risk for both winter and summer crop production as well as pasture growth, particularly given the lack of rainfall in recent weeks and declining soil moisture levels across large areas of eastern and southern Australia.

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



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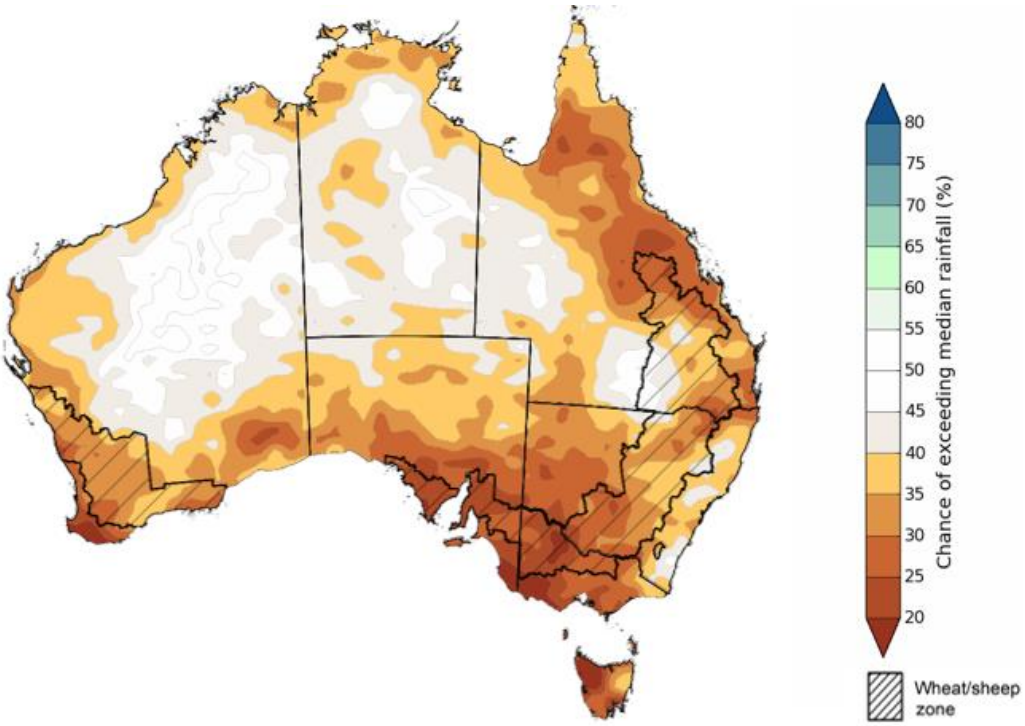
The rainfall outlook for October to December 2023 suggests that there is close to equal chances of above or below median rainfall for the central and northern parts of Western Australia, much of Northern Territory and parts of central Queensland. However, below median rainfall is more likely across much of the remainder of the country.

Across cropping regions, below median rainfall is more likely for most areas through the October to December period.

Chance of exceeding the median rainfall October to December 2023



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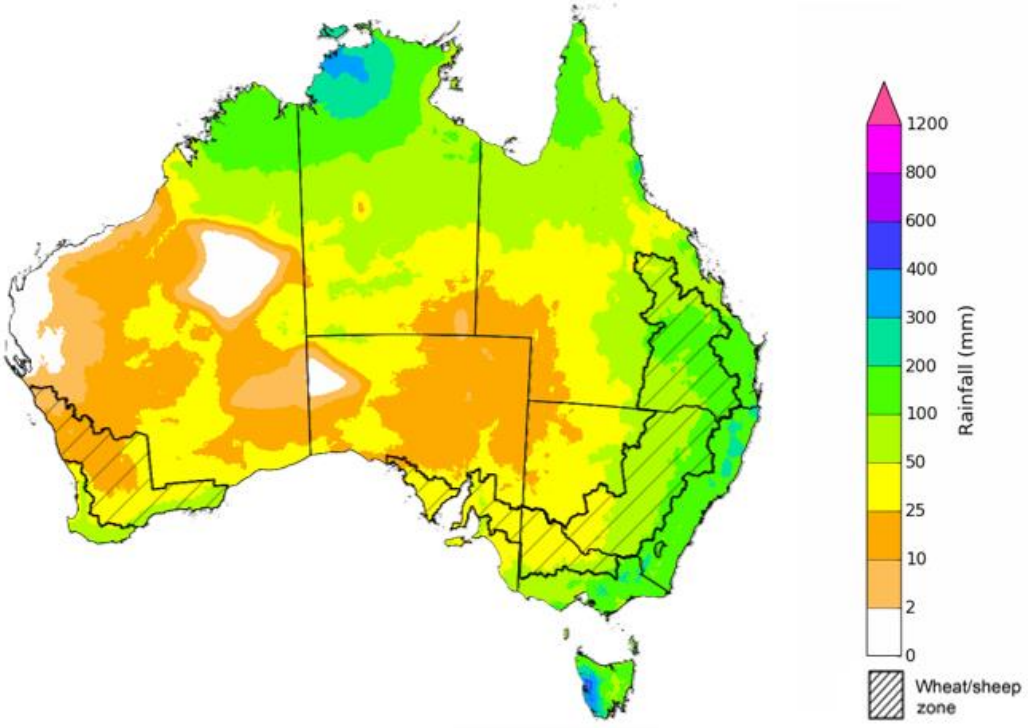
The outlook for October to December 2023 suggests there is a 75% chance of rainfall totals between 25 and 200 millimetres across much of New South Wales, Queensland, Victoria, Tasmania and the Northern Territory, and across parts of South Australia and Western Australia. Rainfall totals in excess of 200 millimetres are forecast for alpine regions of Victoria and New South Wales, western Tasmania and the tropical north of the Northern Territory.

There is a 75% chance of receiving between 25 and 200 millimetres across most winter cropping regions, except for northern and central cropping regions in Western Australia where falls are expected to be below 25 millimetres. If the falls are realised where expected, it may be sufficient to support close to average plant growth, in areas with average or better levels of soil moisture.

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



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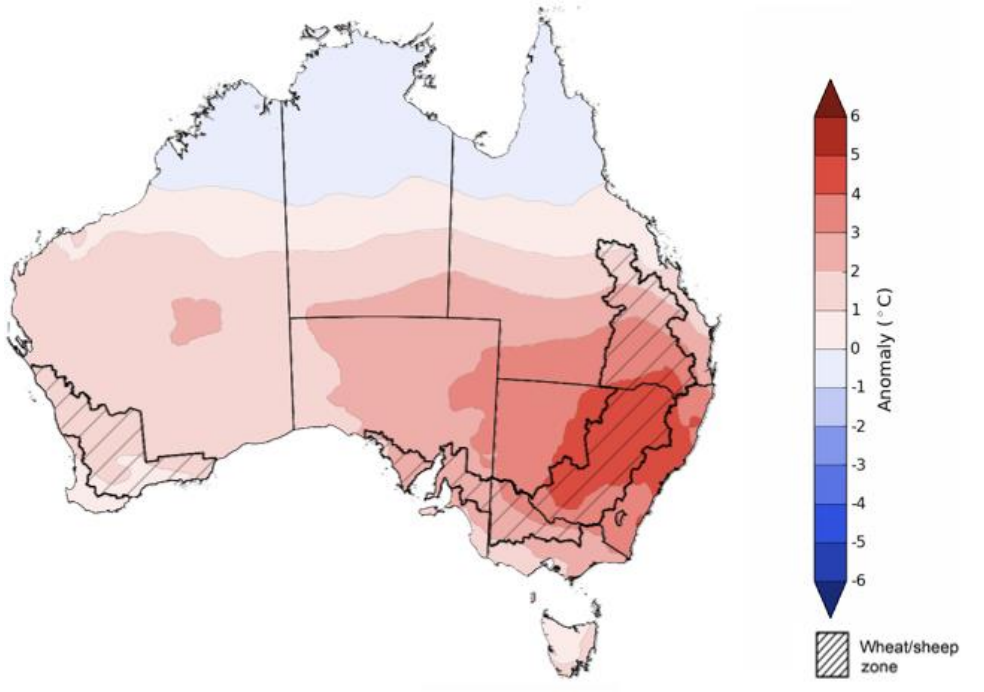
1.4. Weekly predicted temperature anomalies

Maximum temperature predictions for the week ending 24 September 2023 indicates warmer than average conditions are expected across much of southern Australia, with the highest maximum temperature anomalies expected across south-eastern parts of the country. Across cropping regions, much of New South Wales and parts of southern Queensland is expected to experience maximum temperature up to 5°C above average for this time of year.

These well above average predicted temperatures, in addition to the lack of recent rainfall, declining soil moisture levels and a lack of forecast rainfall (see Section 1.5) will likely contribute to increase moisture stress to the winter crops and spring pastures. The combination of reduced crop prospects and strong fodder prices may be providing producers in regions with declining grain yield potentials with a strong incentive to cut some crops that were planted for grain production for hay. In some regions, particularly in Queensland and northern New South Wales, some crops may not have produced sufficient biomass to warrant fodder conservation and may instead be grazed off to allow for economic return to some farmers.

Predicted maximum temperature anomaly for 18 to 24 September 2023



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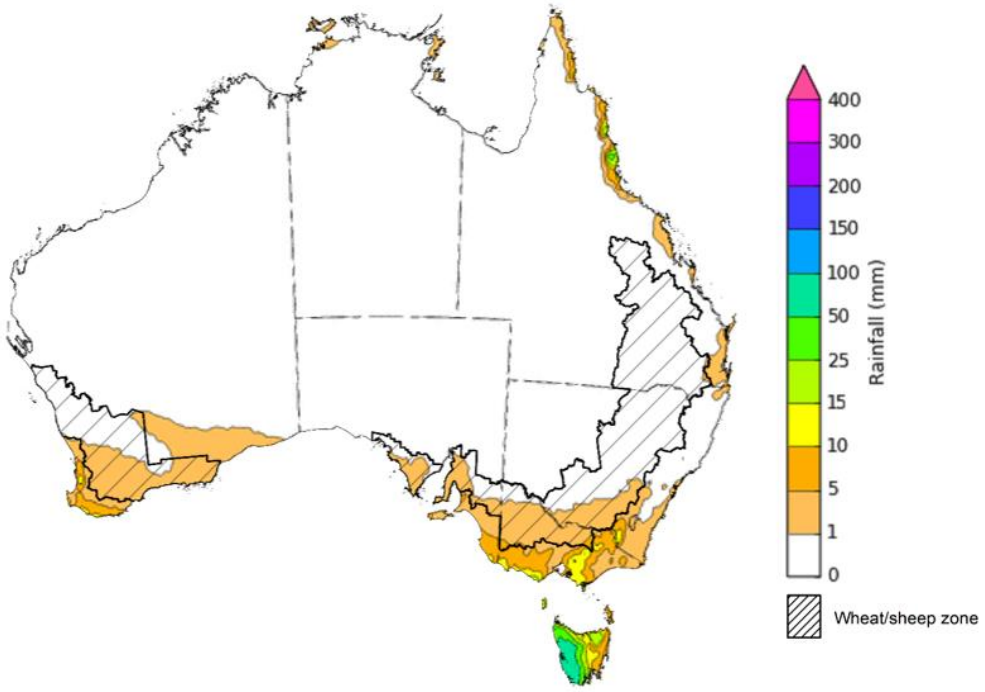
1.5. Rainfall forecast for the next eight days

Over the 8-days to 21 September 2023, a frontal system is expected to bring isolated showers to southern parts of Australia. A high-pressure system is expected to bring mainly dry conditions to the remainder of the country. A trough northwest of Australia will generate warmer conditions across the country.

Across cropping regions, minimal rainfall totals of up to 5 millimetres are expected in southern Western Australia, Victoria and New South Wales. Following a dry start to September in many regions and given the current well below average levels of soil moisture, crops and pastures in Queensland, northern New South Wales and northern Western Australia will be disposed to heat and moisture stress, negatively affecting production potential.

Total forecast rainfall for the period 14 September 2023 to 21 September 2023



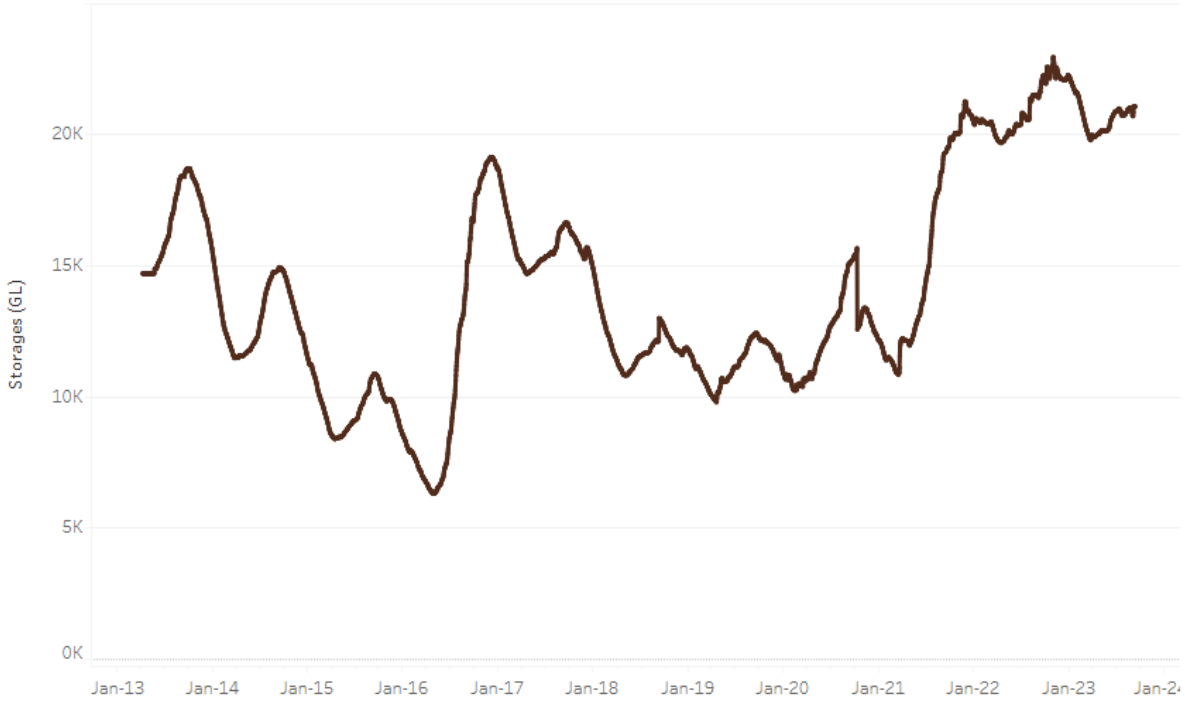
 Issued 14/9/2023
Note: This rainfall forecast is produced from computer models. As the model outputs are not altered by weather forecasters, it is important to check local forecasts and warnings issued by the Bureau of Meteorology.

2. Water

2.1. Water markets – current week

Water storage levels in the Murray-Darling Basin (MDB) increased between 7 September 2023 and 14 September 2023 by 227 gigalitres (GL). Current volume of water held in storage is 21 043 GL. This is 3 percent or 548 GL less than at the same time last year.

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

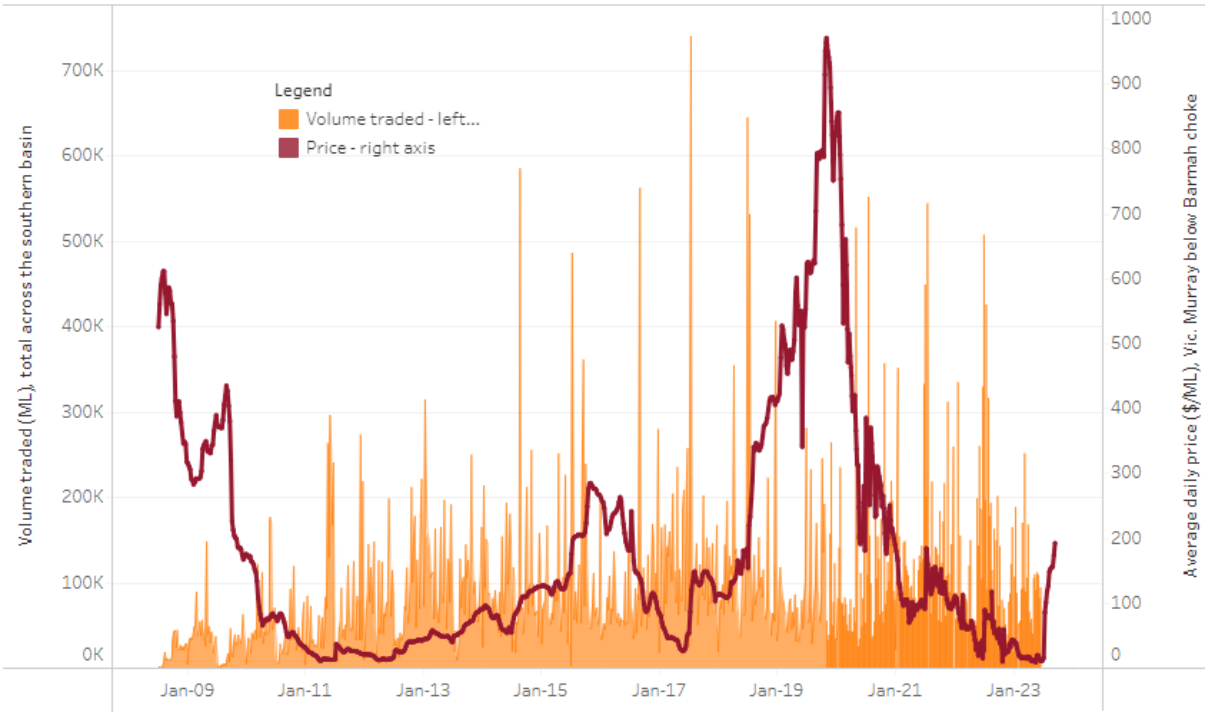


Water storage data is sourced from the Bureau of Meteorology.

Allocation prices in the Victorian Murray below the Barmah Choke increased from $173 on 7 September 2023 to $192 on 14 September 2023. Prices are lower in the Goulburn-Broken due to the binding of the Goulburn intervalley trade limit.

Region	$/ML
NSW Murray Above	90
NSW Murrumbidgee	191
VIC Goulburn-Broken	153
VIC Murray Below	192

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. Only the price data shown is current on 14 September 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/weekly-update-140923

3. Commodities

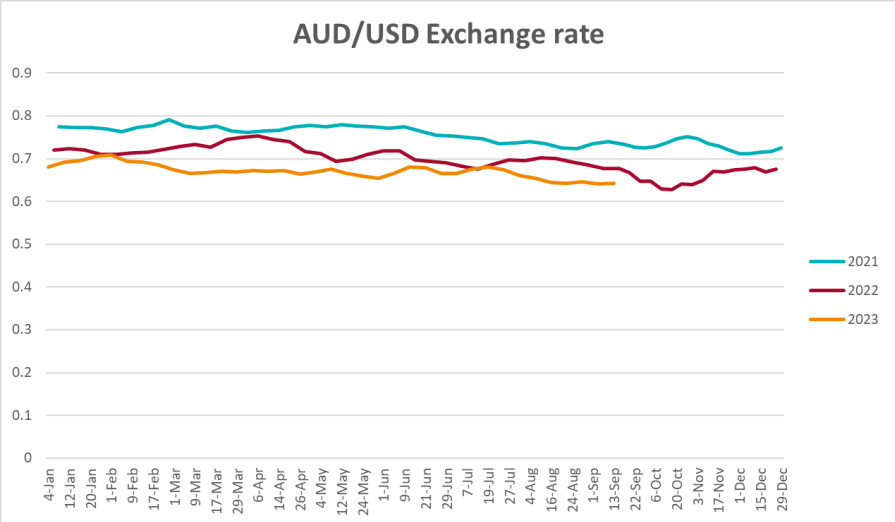
Indicator	Week ended	Unit	Latest Price	Previous Week	Weekly change	Price 12 months ago	Annual change
Selected world indicator prices							
AUD/USD Exchange rate	13-Sep	A$/US$	0.64	0.64	0%	0.67	-4%
Wheat – US no. 2 hard red winter wheat, fob Gulf	13-Sep	US$/t	316	313	1%	433	-27%
Corn – US no. 2 yellow corn, fob Gulf	13-Sep	US$/t	224	224	0%	315	-29%
Canola – Rapeseed, Canada, fob Vancouver	13-Sep	US$/t	594	618	-4%	647	-8%
Cotton – Cotlook 'A' Index	13-Sep	USc/lb	97	98	-1%	114	-15%
Sugar – Intercontinental Exchange, nearby futures, no.11 contract	13-Sep	USc/lb	26.7	26.4	1%	18	51%
Wool – Eastern Market Indicator	06-Sep	Ac/kg clean	1,148	1,127	2%	1,342	-14%
Wool – Western Market Indicator	06-Sep	Ac/kg clean	1,299	1,285	1%	1,515	-14%
Selected Australian grain export prices							
Milling Wheat – APW, Port Adelaide, SA	13-Sep	A$/t	487	481	1%	551	-12%
Feed Wheat – ASW, Port Adelaide, SA	13-Sep	A$/t	465	459	1%	505	-8%
Feed Barley – Port Adelaide, SA	13-Sep	A$/t	397	389	2%	459	-13%
Canola – Kwinana, WA	13-Sep	A$/t	829	853	-3%	1,016	-18%
Grain Sorghum – Brisbane, QLD	13-Sep	A$/t	520	518	1%	445	17%
Selected domestic livestock indicator prices							
Beef – Eastern Young Cattle Indicator	13-Sep	Ac/kg cwt	441	464	-5%	1,029	-57%
Mutton – Mutton indicator (18–24 kg fat score 2–3), Vic	13-Sep	Ac/kg cwt	146	168	-13%	510	-71%
Lamb – Eastern States Trade Lamb Indicator	30-Aug	Ac/kg cwt	419	434	-3%	680	-38%
Pig – Eastern Seaboard (60.1–75 kg), average of buyers & sellers	06-Sep	Ac/kg cwt	343	343	0%	376	-9%
Goats – Eastern States (12.1–16 kg)	06-Sep	Ac/kg cwt	255	303	-16%	887	-71%
Live cattle – Light steers ex Darwin to Indonesia	05-Jul-23	Ac/kg lwt	310	330	-6%	450	-31%
Global Dairy Trade (GDT) weighted average prices [a]							

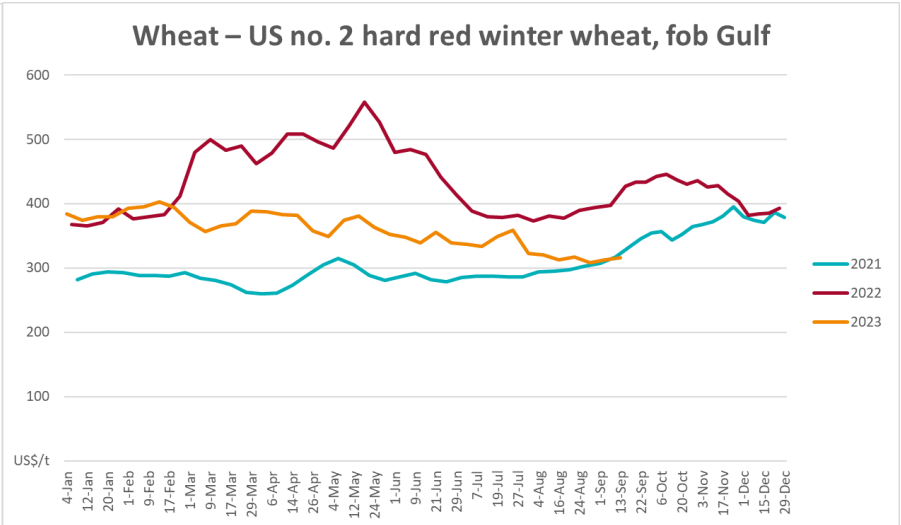
Dairy – Whole milk powder	06-Sep	US$/t	2,702	2,548	6%	3,417	-21%
Dairy – Skim milk powder	06-Sep	US$/t	2,286	2,333	-2%	3,524	-35%
Dairy – Cheddar cheese	06-Sep	US$/t	4,102	4,127	-1%	5,005	-18%
Dairy – Anhydrous milk fat	06-Sep	US$/t	4,561	4,452	2%	4,990	-9%

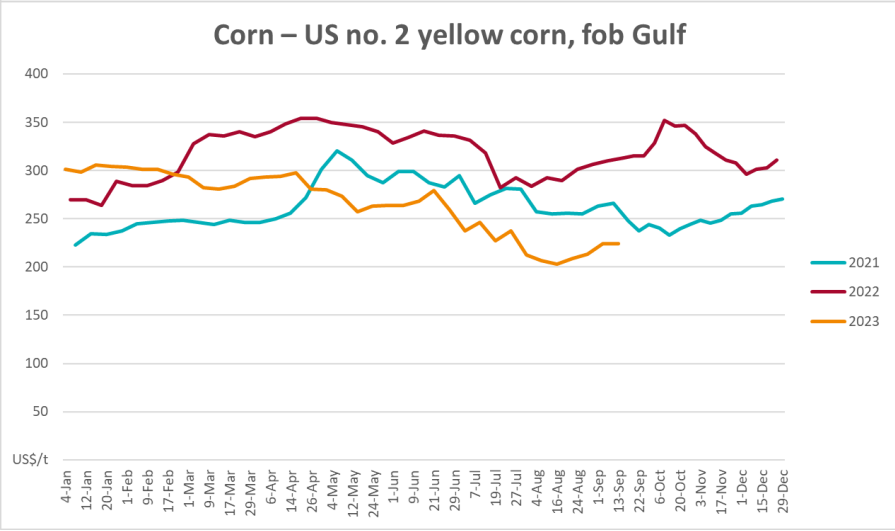
Selected world indicator prices

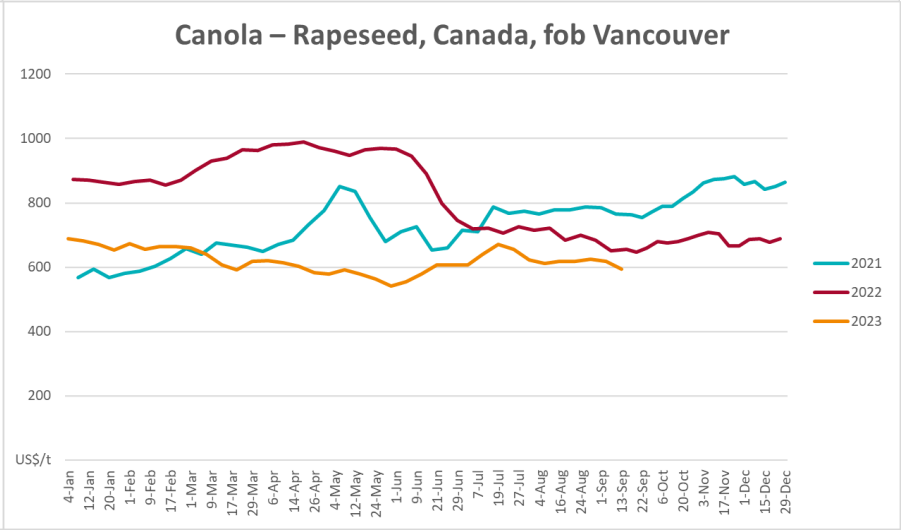
a Global Dairy Trade prices are updated twice monthly on the first and third Tuesday of each month.

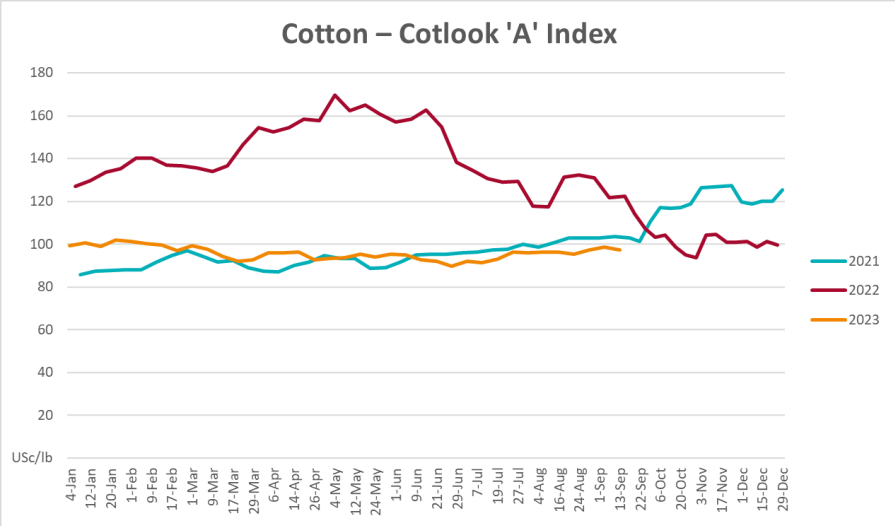
3.1. Selected world indicator prices

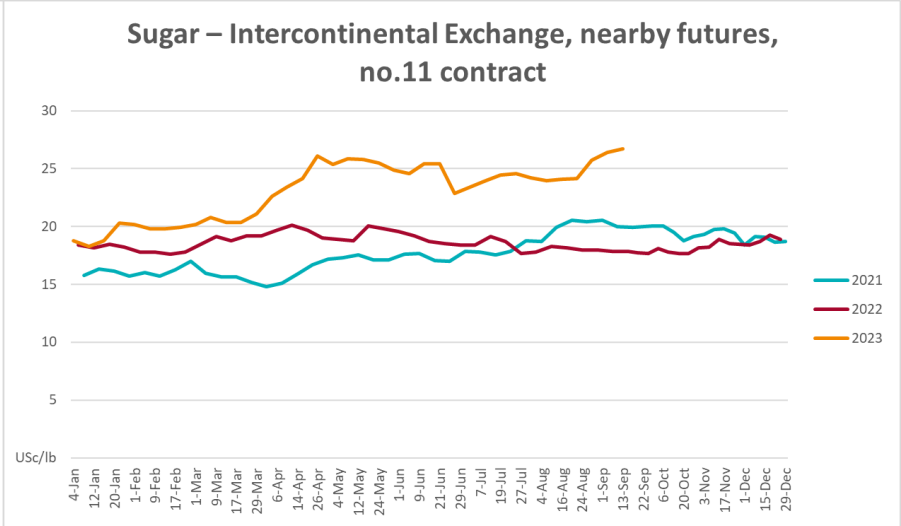









Cotton – Cotlook 'A' Index
180
160
140
120
100
80
60
40
20
USc/lb
4-Jan
12-Jan
20-Jan
1-Feb
9-Feb
17-Feb
1-Mar
9-Mar
17-Mar
29-Mar
6-Apr
14-Apr
26-Apr
4-May
12-May
24-May
1-Jun
9-Jun
21-Jun
29-Jun
7-Jul
19-Jul
27-Jul
4-Aug
16-Aug
24-Aug
1-Sep
13-Sep
22-Sep
6-Oct
20-Oct
3-Nov
17-Nov
1-Dec
15-Dec
29-Dec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


Sugar – Intercontinental Exchange, nearby futures, no.11 contract
30
25
20
15
10
5
USc/lb
4-Jan
12-Jan
20-Jan
1-Feb
9-Feb
17-Feb
1-Mar
9-Mar
17-Mar
29-Mar
6-Apr
14-Apr
26-Apr
4-May
12-May
24-May
1-Jun
9-Jun
21-Jun
29-Jun
7-Jul
19-Jul
27-Jul
4-Aug
16-Aug
24-Aug
1-Sep
13-Sep
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6-Oct
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15-Dec
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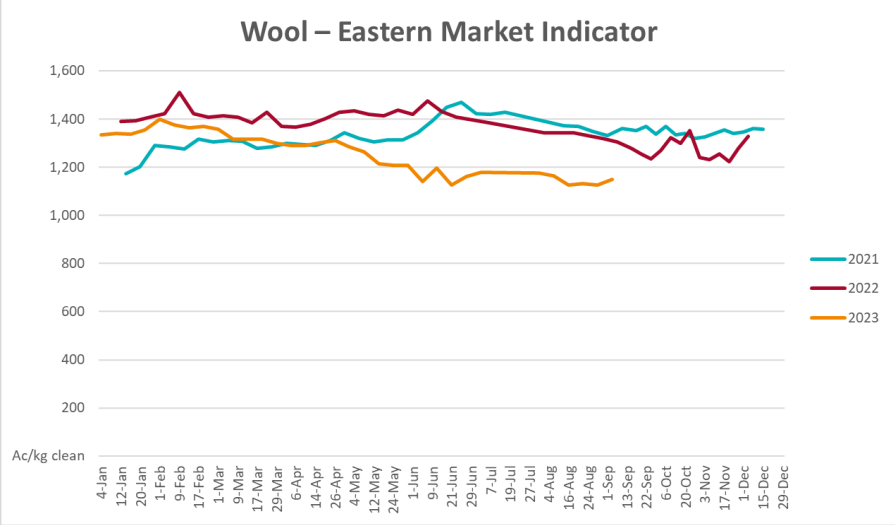
Wool – Eastern Market Indicator
1,600
1,400
1,200
1,000
800
600
400
200
Ac/kg clean
4-Jan
12-Jan
20-Jan
1-Feb
9-Feb
17-Feb
1-Mar
9-Mar
17-Mar
29-Mar
6-Apr
14-Apr
26-Apr
4-May
12-May
24-May
1-Jun
9-Jun
21-Jun
29-Jun
7-Jul
19-Jul
27-Jul
4-Aug
16-Aug
24-Aug
1-Sep
13-Sep
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6-Oct
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3-Nov
17-Nov
1-Dec
15-Dec
29-Dec
2021
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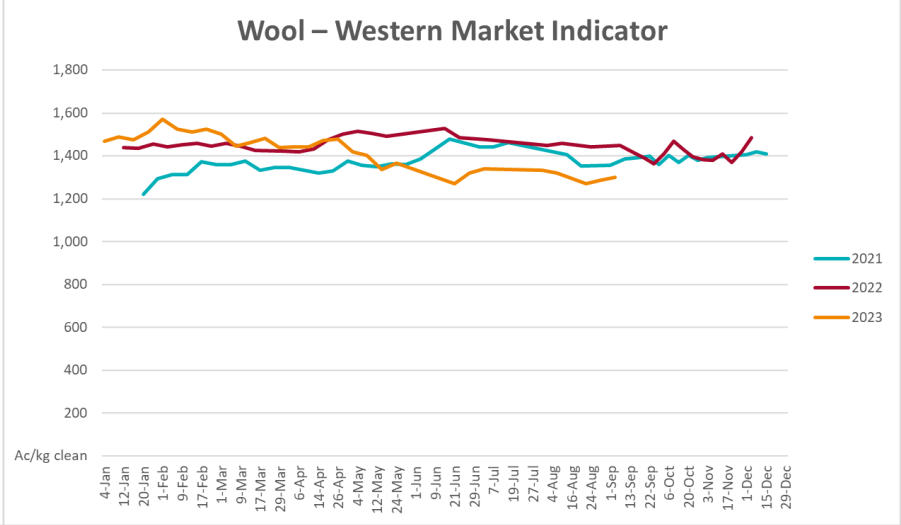
2023


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
1-Mar
9-Mar
17-Mar
29-Mar
6-Apr
14-Apr
26-Apr
4-May
12-May
24-May
1-Jun
9-Jun
21-Jun
29-Jun
7-Jul
19-Jul
27-Jul
4-Aug
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24-Aug
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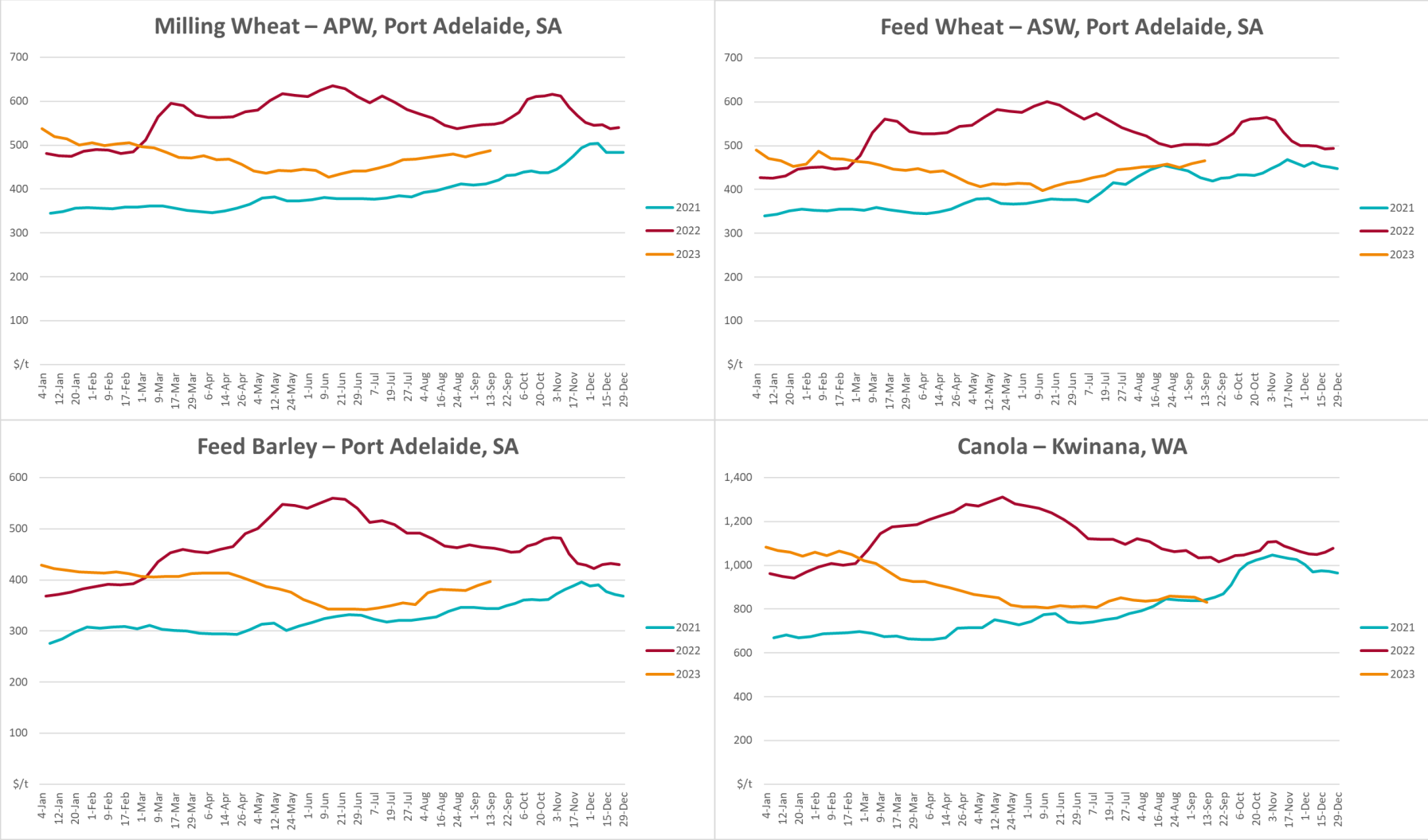
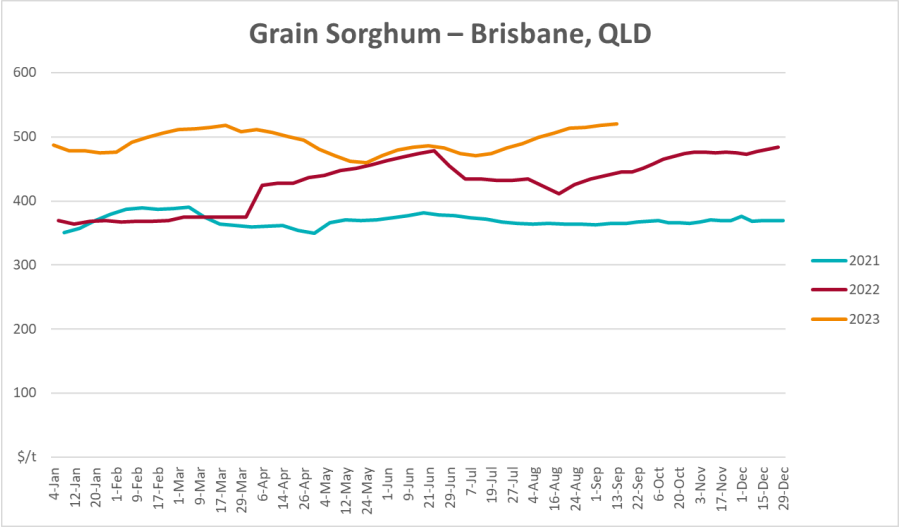
2021
2022
2023

3.2. Selected domestic crop indicator prices




Grain Sorghum – Brisbane, QLD
600
500
400
300
200
100
$/t
4-Jan
12-Jan
20-Jan
1-Feb
9-Feb
17-Feb
1-Mar
9-Mar
17-Mar
29-Mar
6-Apr
14-Apr
26-Apr
4-May
12-May
24-May
1-Jun
9-Jun
21-Jun
29-Jun
7-Jul
19-Jul
27-Jul
4-Aug
16-Aug
24-Aug
1-Sep
13-Sep
22-Sep
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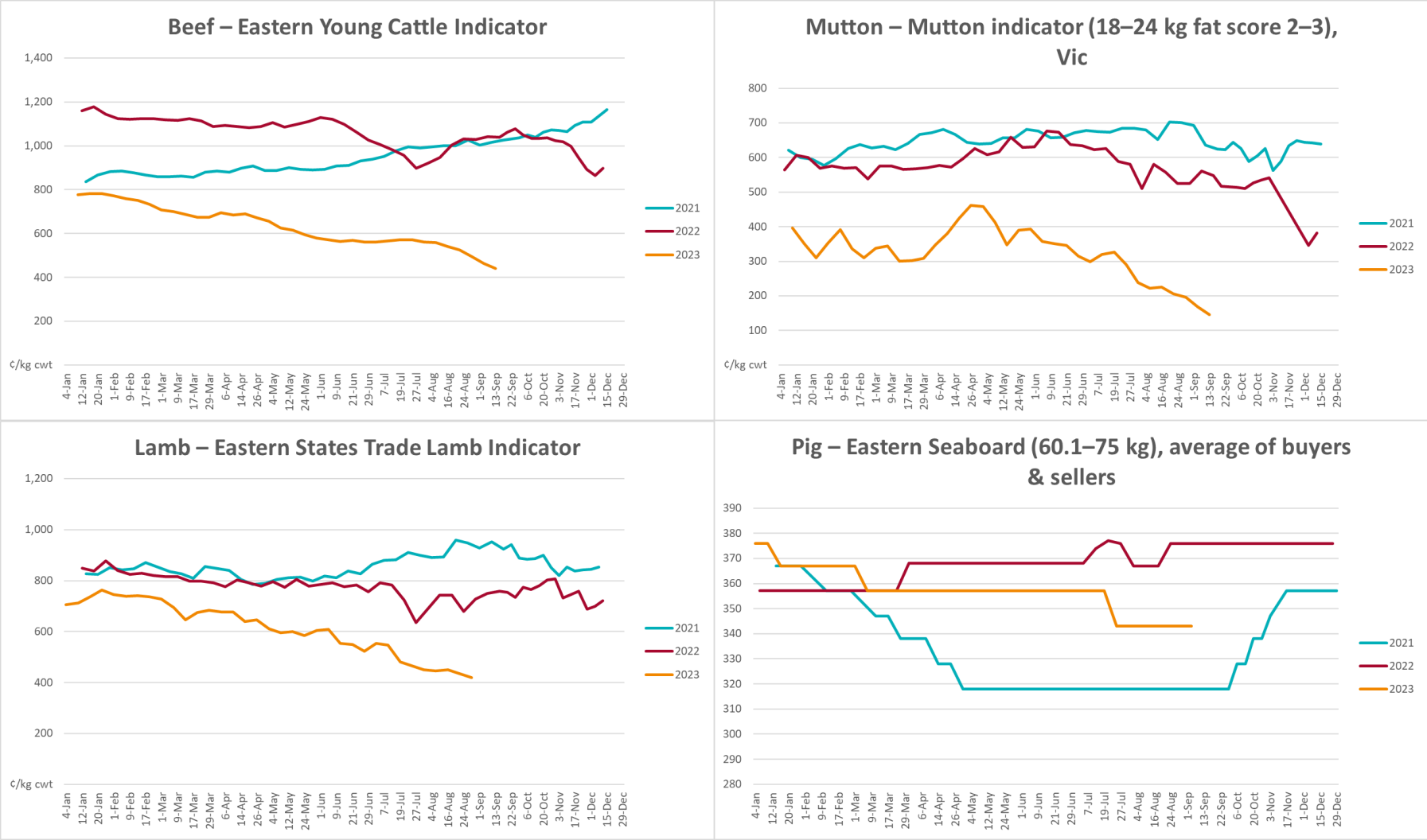
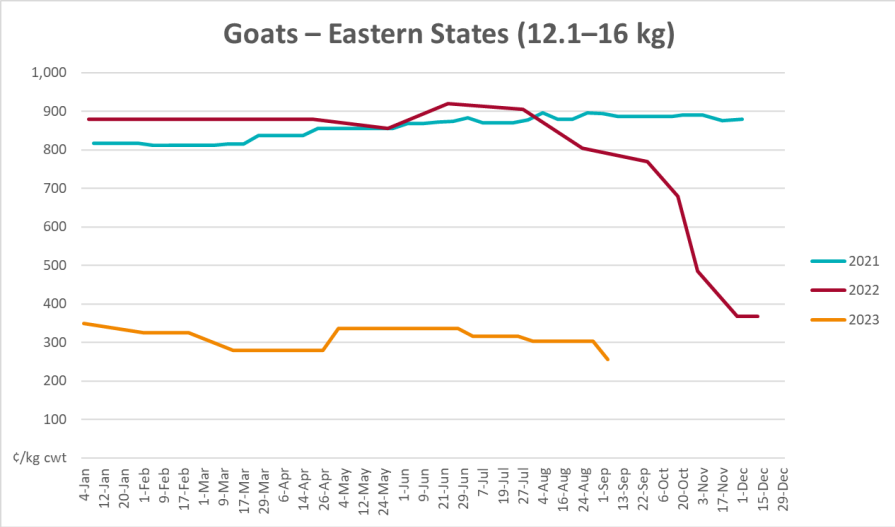
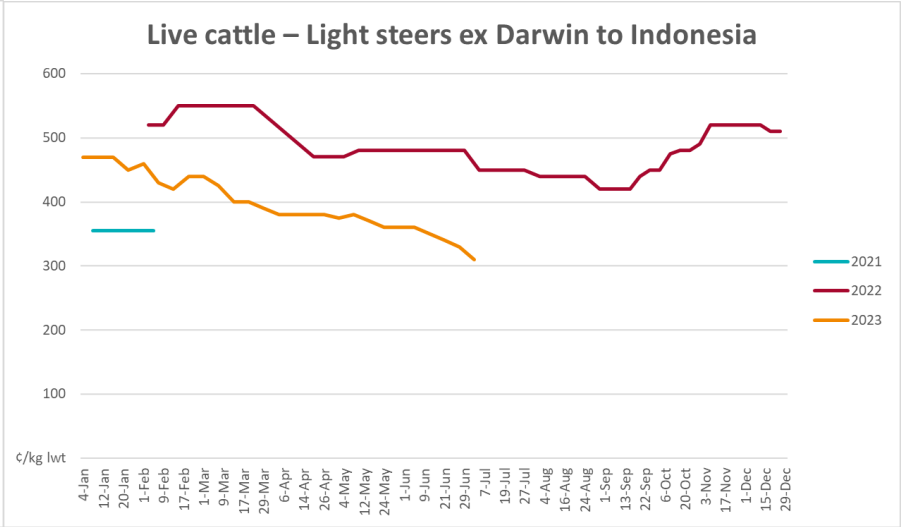
3-Nov
17-Nov
1-Dec
15-Dec
29-Dec
2021
2022
2023

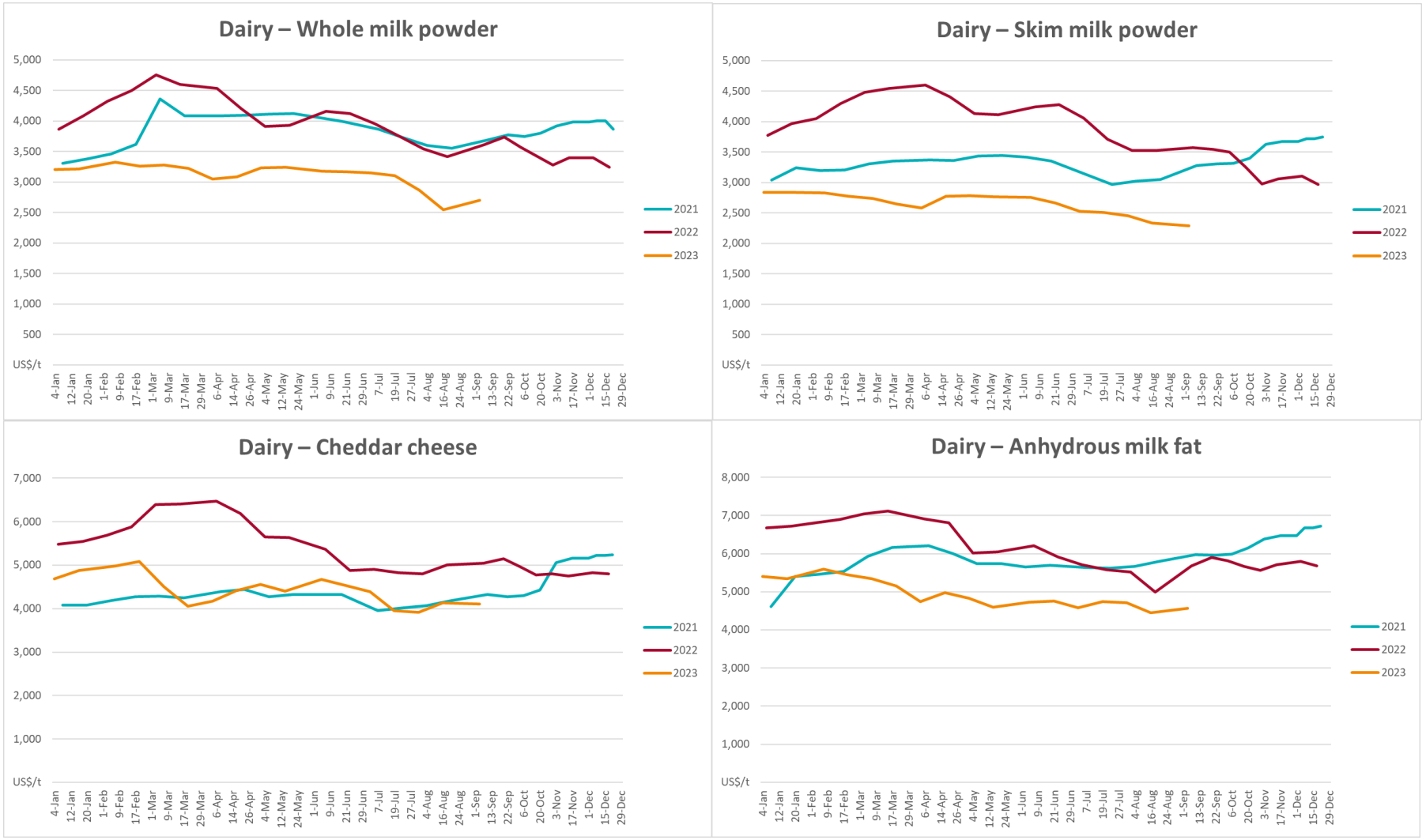
3.3. Selected domestic livestock indicator prices



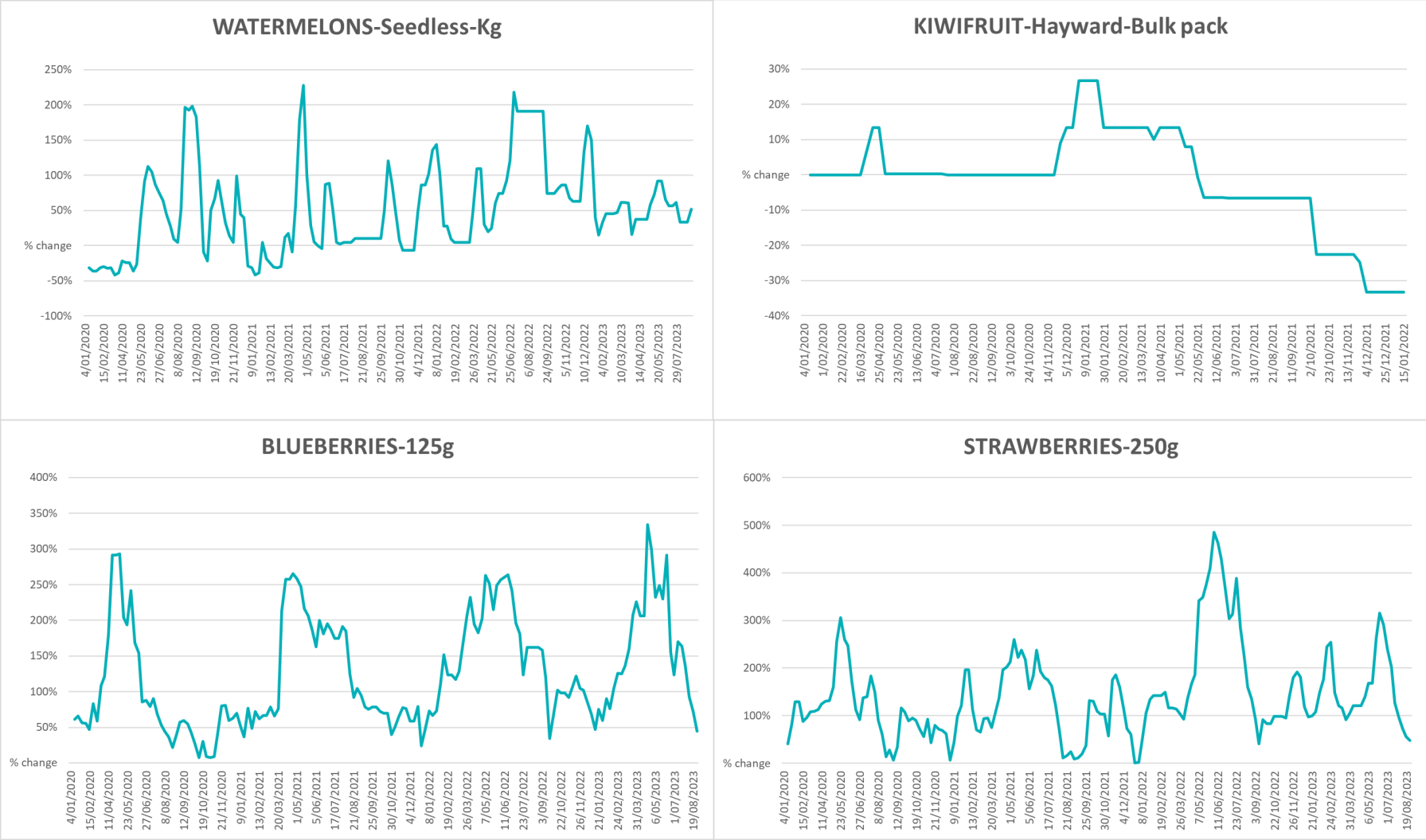

Goats – Eastern States (12.1–16 kg)
1,000
900
800
700
600
500
400
300
200
100
¢/kg cwt
4-Jan
12-Jan
20-Jan
1-Feb
9-Feb
17-Feb
1-Mar
9-Mar
17-Mar
29-Mar
6-Apr
14-Apr
26-Apr
4-May
12-May
24-May
1-Jun
9-Jun
21-Jun
29-Jun
7-Jul
19-Jul
27-Jul
4-Aug
16-Aug
24-Aug
1-Sep
13-Sep
22-Sep
6-Oct
20-Oct
3-Nov
17-Nov
1-Dec
15-Dec
29-Dec
2021
2022
2023

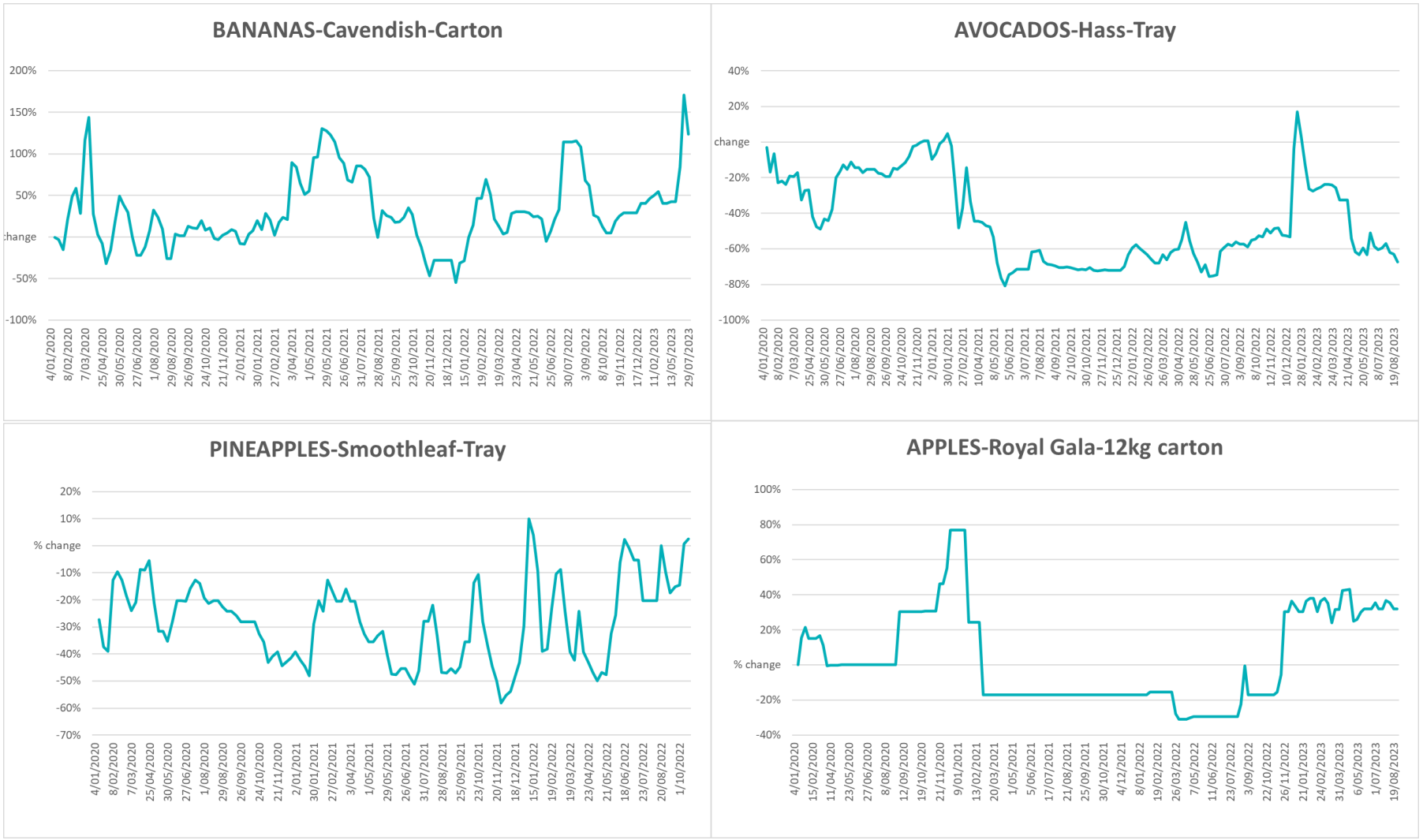

Live cattle – Light steers ex Darwin to Indonesia
600
500
400
300
200
100
¢/kg lwt
4-Jan
12-Jan
20-Jan
1-Feb
9-Feb
17-Feb
1-Mar
9-Mar
17-Mar
29-Mar
6-Apr
14-Apr
26-Apr
4-May
12-May
24-May
1-Jun
9-Jun
21-Jun
29-Jun
7-Jul
19-Jul
27-Jul
4-Aug
16-Aug
24-Aug
1-Sep
13-Sep
22-Sep
6-Oct
20-Oct
3-Nov
17-Nov
1-Dec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

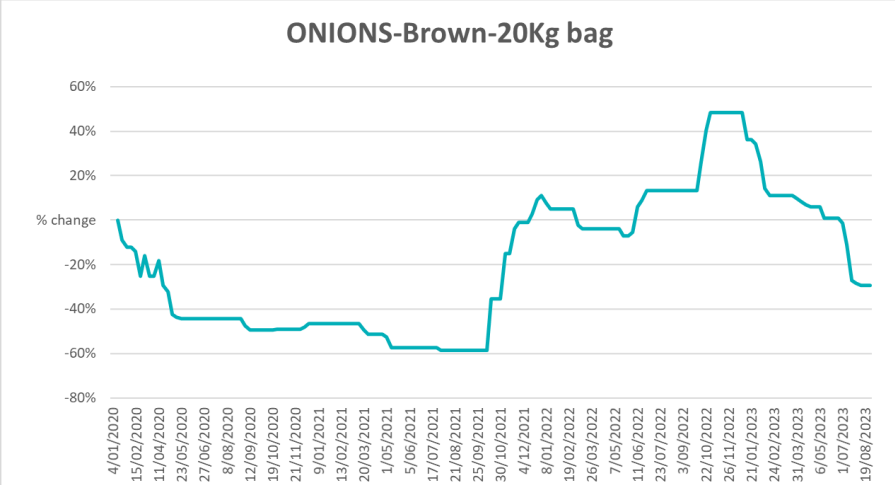
3.4. Global Dairy Trade (GDT) weighted average prices



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
13/05/2023
29/07/2023
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
24/02/2023
24/03/2023
21/04/2023
20/05/2023
8/07/2023
19/08/2023
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
15/02/2020
11/04/2020
23/05/2020
27/06/2020
8/08/2020
12/09/2020
19/10/2020
21/11/2020
9/01/2021
13/02/2021
20/03/2021
1/05/2021
5/06/2021
17/07/2021
21/08/2021
25/09/2021
30/10/2021
4/12/2021
8/01/2022
19/02/2022
26/03/2022
7/05/2022
11/06/2022
23/07/2022
3/09/2022
22/10/2022
26/11/2022
21/01/2023
24/02/2023
31/03/2023
6/05/2023
1/07/2023
19/08/2023


ONIONS-Brown-20Kg bag
60%
40%
20%
% change
-20%
-40%
-60%
-80%
4/01/2020
15/02/2020
11/04/2020
23/05/2020
27/06/2020
8/08/2020
12/09/2020
19/10/2020
21/11/2020
9/01/2021
13/02/2021
20/03/2021
1/05/2021
5/06/2021
17/07/2021
21/08/2021
25/09/2021
30/10/2021
4/12/2021
8/01/2022
19/02/2022
26/03/2022
7/05/2022
11/06/2022
23/07/2022
3/09/2022
22/10/2022
26/11/2022
21/01/2023
24/02/2023
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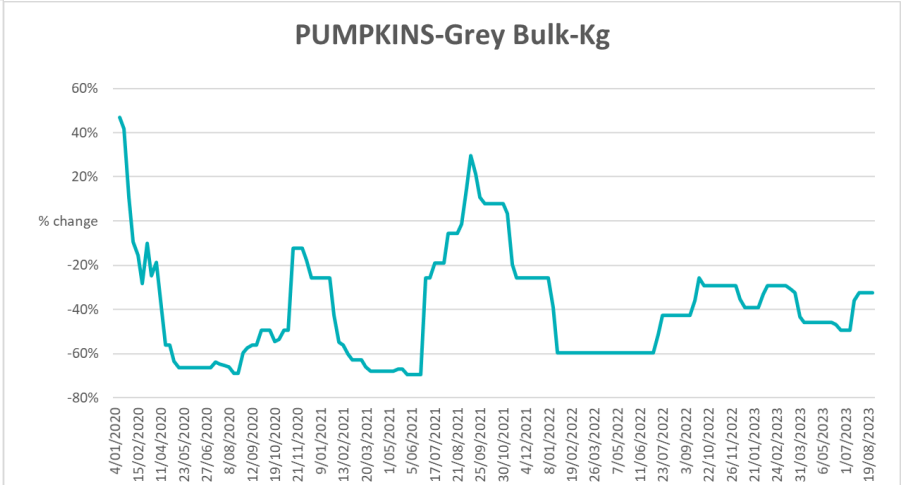
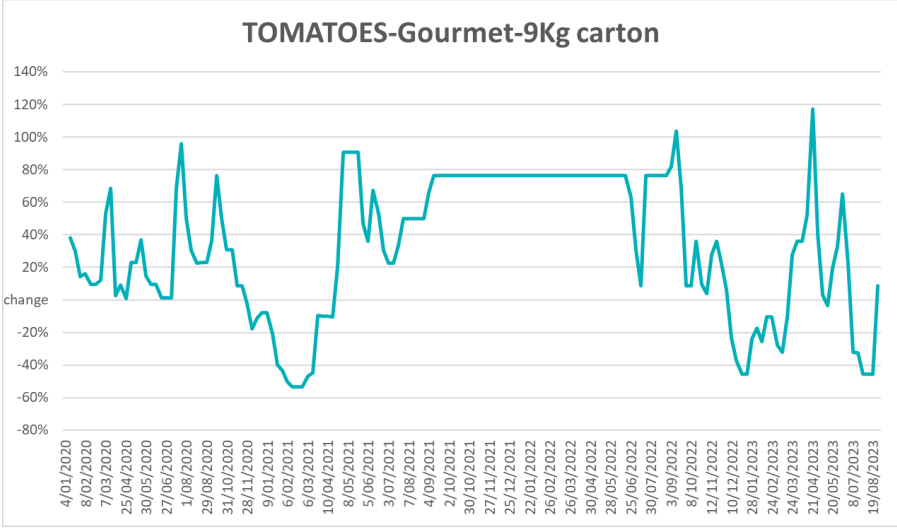
6/05/2023
1/07/2023
19/08/2023


PUMPKINS-Grey Bulk-Kg
60%
40%
20%
% change
-20%
-40%
-60%
-80%
4/01/2020
15/02/2020
11/04/2020
23/05/2020
27/06/2020
8/08/2020
12/09/2020
19/10/2020
21/11/2020
9/01/2021
13/02/2021
20/03/2021
1/05/2021
5/06/2021
17/07/2021
21/08/2021
25/09/2021
30/10/2021
4/12/2021
8/01/2022
19/02/2022
26/03/2022
7/05/2022
11/06/2022
23/07/2022
3/09/2022
22/10/2022
26/11/2022
21/01/2023
24/02/2023
31/03/2023
6/05/2023
1/07/2023
19/08/2023


TOMATOES-Gourmet-9Kg carton
140%
120%
100%
80%
60%
40%
20%
change
-20%
-40%
-60%
-80%
4/01/2020
8/02/2020
7/03/2020
25/04/2020
30/05/2020
27/06/2020
1/08/2020
29/08/2020
31/10/2020
28/11/2020
9/01/2021
6/02/2021
6/03/2021
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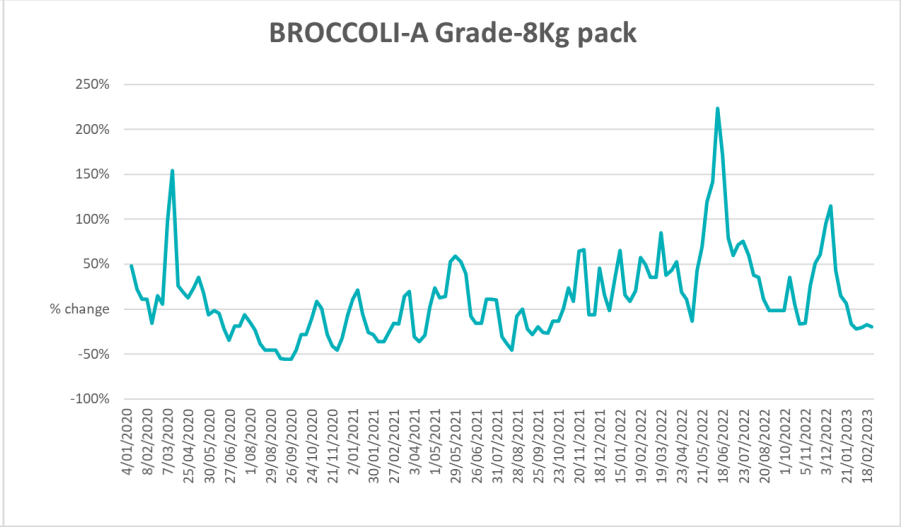
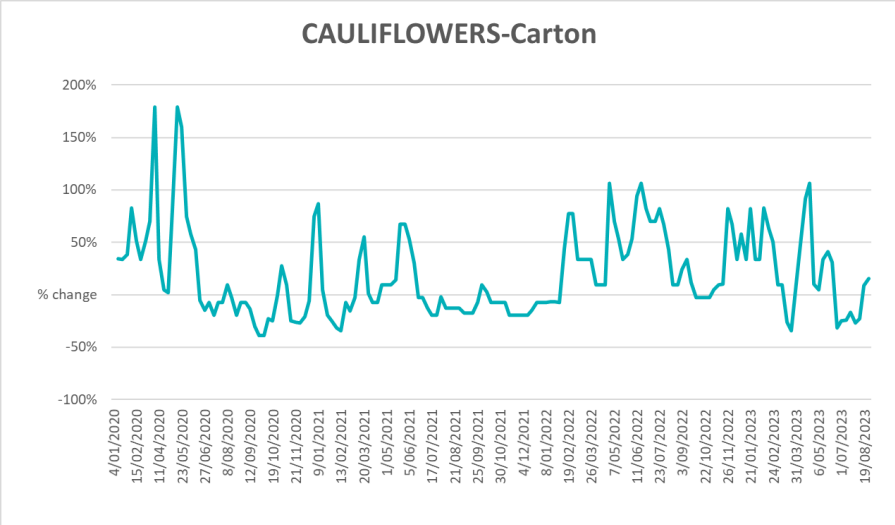
7/08/2021
4/09/2021
2/10/2021
30/10/2021
27/11/2021
25/12/2021
22/01/2022
26/02/2022
26/03/2022
30/04/2022
28/05/2022
25/06/2022
30/07/2022
3/09/2022
8/10/2022
12/11/2022
10/12/2022
28/01/2023
24/02/2023
24/03/2023
21/04/2023
20/05/2023
8/07/2023
19/08/2023


BROCCOLI-A Grade-8Kg pack
250%
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
18/06/2022
23/07/2022
20/08/2022
1/10/2022
5/11/2022
3/12/2022
21/01/2023
18/02/2023


CAULIFLOWERS-Carton
200%
150%
100%
50%
% change
-50%
-100%
4/01/2020
15/02/2020
11/04/2020
23/05/2020
27/06/2020
8/08/2020
12/09/2020
19/10/2020
21/11/2020
9/01/2021
13/02/2021
20/03/2021
1/05/2021
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8/01/2022
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26/03/2022
7/05/2022
11/06/2022
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3/09/2022
22/10/2022
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21/01/2023
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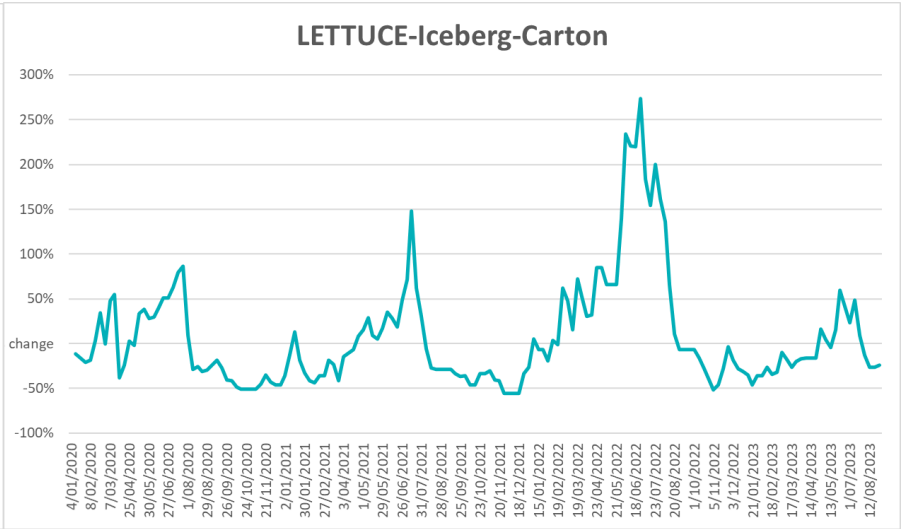
31/03/2023
6/05/2023
1/07/2023
19/08/2023


LETTUCE-Iceberg-Carton
300%
250%
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
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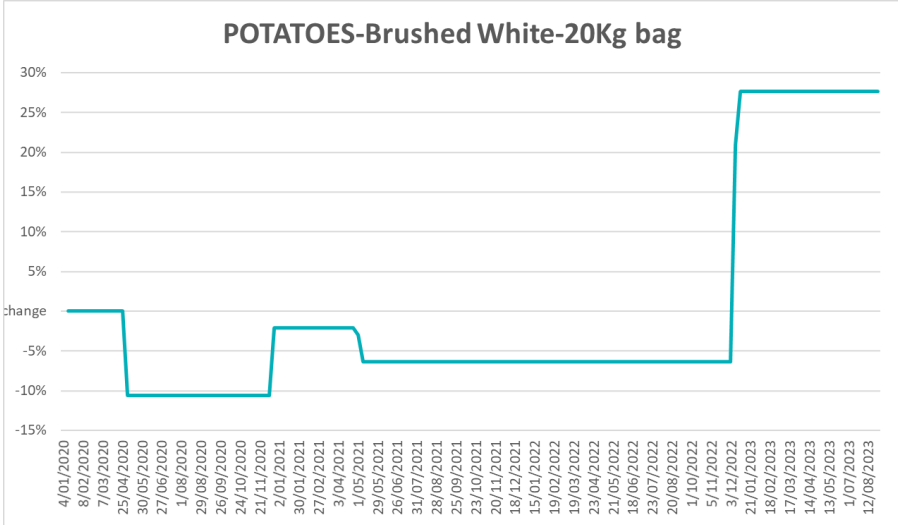
12/08/2023


POTATOES-Brushed White-20Kg bag
30%
25%
20%
15%
10%
5%
change
-5%
-10%
-15%
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
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1/10/2022
5/11/2022
3/12/2022
21/01/2023
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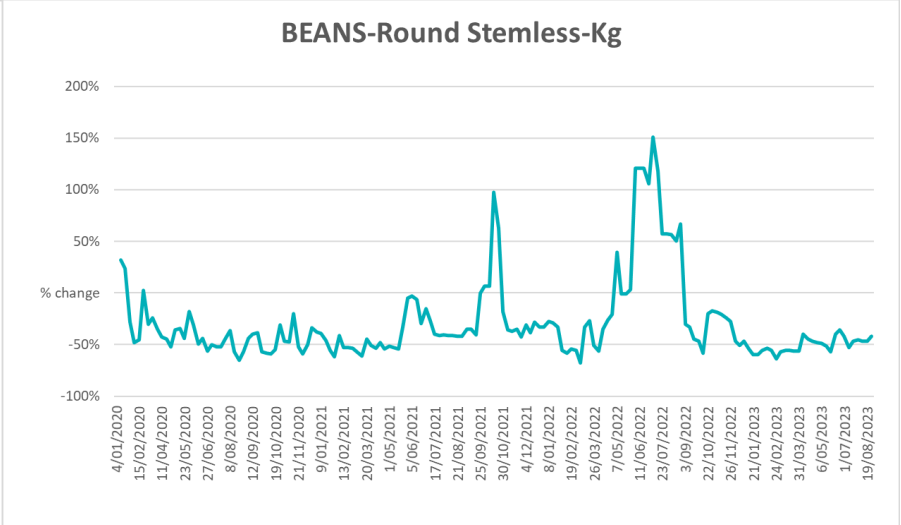
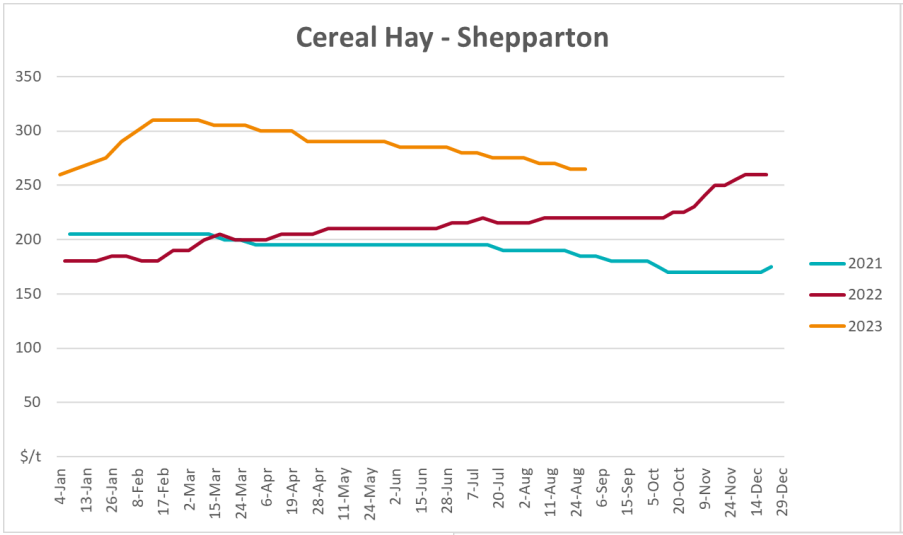
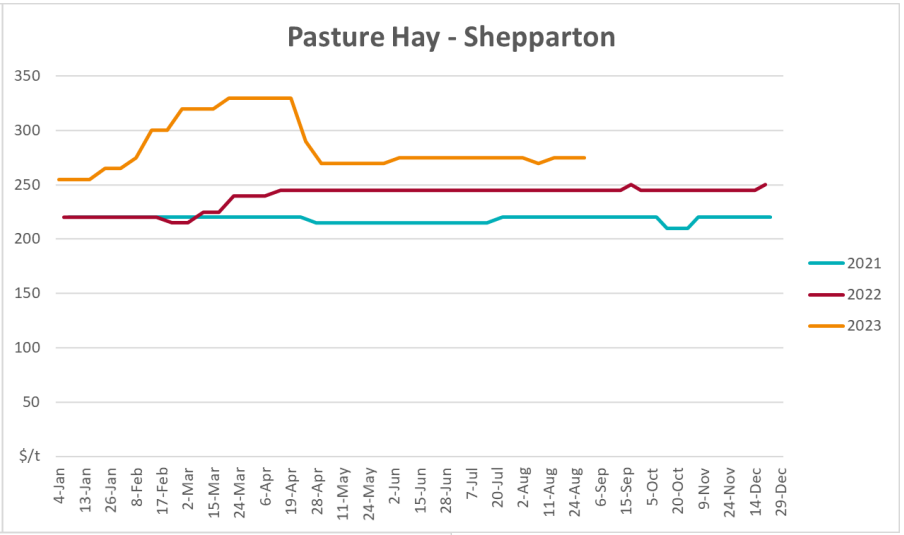
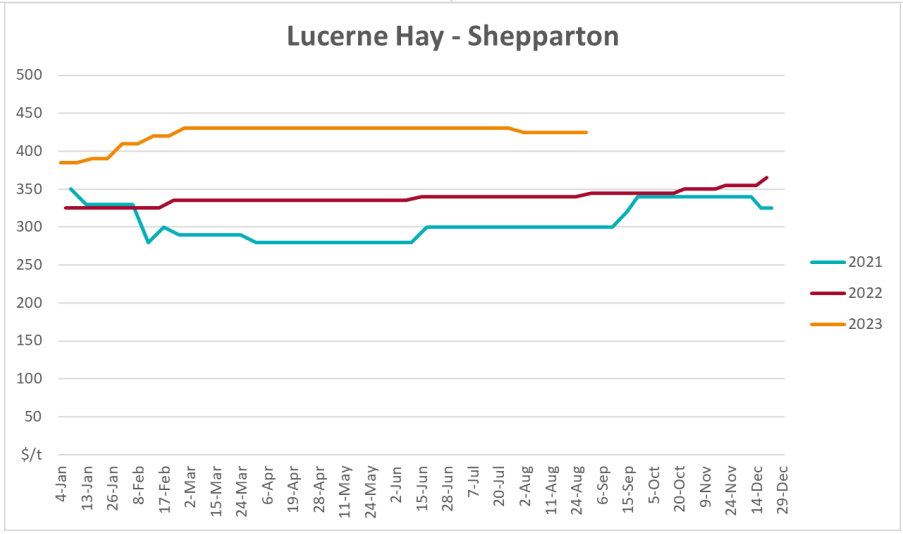
13/05/2023
1/07/2023
12/08/2023


BEANS-Round Stemless-Kg
200%
150%
100%
50%
% change
-50%
-100%
4/01/2020
15/02/2020
11/04/2020
23/05/2020
27/06/2020
8/08/2020
12/09/2020
19/10/2020
21/11/2020
9/01/2021
13/02/2021
20/03/2021
1/05/2021
5/06/2021
17/07/2021
21/08/2021
25/09/2021
30/10/2021
4/12/2021
8/01/2022
19/02/2022
26/03/2022
7/05/2022
11/06/2022
23/07/2022
3/09/2022
22/10/2022
26/11/2022
21/01/2023
24/02/2023
31/03/2023
6/05/2023
1/07/2023
19/08/2023

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

Web agriculture.gov.au/abares

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