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Value of production in 2018–19

Agricultural overview
The value of farm production is forecast to decline by 4% in 2018–19, driven mainly by lower production of grains, oilseeds and pulses.

- At the national level, farm profitability is expected to be lower in 2018–19 compared with the previous two years, but remain comparatively high.
- Assuming seasonal conditions improve, agricultural production is forecast to recover in 2019–20 and then grow slowly over the medium term.
- The volume of farm production in 2023–24 is projected to reach $64 billion, below the 2016–17 peak of $65 billion.
- Risks to export earnings have increased. Trade tensions could lower income growth in Australia's largest export markets, and competition is increasing in many important markets.

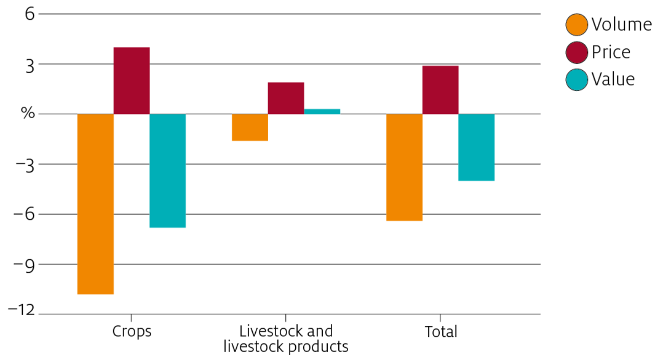
Farm performance in 2018–19

The national agricultural production system is resilient and well attuned to the variable Australian climate. However, the ongoing drought in the eastern states and flooding in northern Queensland have been devastating for those affected.

At a national level, the volume of farm production (in 2018–19 dollars) is expected to have declined by 6%, driven by an 11% reduction in the volume of crop production (see Introduction of chain volume measures of farm production). Drought in the eastern states significantly reduced the 2018–19 winter crop, but one of the largest Western Australian harvests on record has provided a buffer to the national total.

The volume of production for livestock and livestock products is expected to decline by 2% in 2018–19 as a result of several factors. Milk and wool production have been affected by the drought, and a significant decline in live animal exports also contributed to the fall. This is largely because of a cessation in live sheep exports during the northern hemisphere summer months. Floods in Queensland in February 2019 could also reduce live cattle exports. Despite rises in beef and mutton production, growth in total meat production is expected to be constrained by flock and herd rebuilding.

Growth in the value of farm production, by price and volume, 2018–19



Note: Chained Fisher volume and price indexes, reference year 2018–19.
Sources: ABARES; Australian Bureau of Statistics

In 2018–19 the value of farm production is expected to decline by 4% to $58 billion. Improved commodity prices are cushioning this decline. International and domestic prices for crops have been rising from low levels. In 2018–19 grain prices are expected to increase by 11% on average and contribute to a 3% rise in farmgate prices. Strong export demand for wool and sheep meat is contributing to a small overall rise in the prices of livestock and livestock products.

Drought in south-eastern Australia the dominant influence on farm incomes in 2018–19

At the national level, farm profitability is expected to be lower in 2018–19 compared with the previous 2 years. This is due to the effects of drought in south-eastern Australia on production and costs. However, farm incomes are expected to remain comparatively high overall. This is because generally favourable prices received for most commodities and a lower Australian dollar are boosting export returns.

Average to above average production outside drought-affected regions is also supporting farm incomes at the national level. The average farm cash income for all broadacre farms is projected to fall by 18% from $201,300 per farm in 2017–18 to $173,000 per farm in 2018–19. This is still well above the longer-term average of $140,000 per farm in real terms for the 10 years to 2017–18.

In 2018–19 farm cash incomes for around 50% of Australian broadacre farms are expected to be lower than they were in 2017–18. Farm profitability in 2018–19 is expected to be much worse in parts of Queensland, New South Wales, Victoria and South Australia, where the drought is most severe. Lower production from winter crops in eastern Australia is contributing to higher prices for fodder and feed-grains across the country and increased expenditure on purchased feed for livestock in all regions. High prices for irrigation water in the Murray–Darling Basin are also affecting farm profitability in the irrigation sector.

In contrast, some states and regions are benefiting from high prices for feed grains and fodder caused by drought. In states and regions not directly affected by drought, average farm incomes in 2018–19 are expected to be above to well above longer-term average levels. For example, average farm cash incomes on broadacre farms in Western Australia are projected to increase from $368,800 per farm in 2017–18 to $490,000 per farm in 2018–19.

Across Australia, the sheep industry is benefiting from high prices for sheep, lambs and wool. Average farm cash incomes on sheep industry farms are projected to increase from $131,600 per farm in 2017–18 to $142,000 per farm in 2018–19.

Lower farm cash incomes are also expected for around 75% of Australian dairy farms in 2018–19. Average farm cash incomes are projected to decline in every state except Tasmania, as a result of lower milk production and higher expenditure on purchased feed and, in some regions, irrigation water. At the national level, the average farm cash income for dairy farms is projected to decrease from $160,900 per farm in 2017–18 to $93,000 per farm in 2018–19.

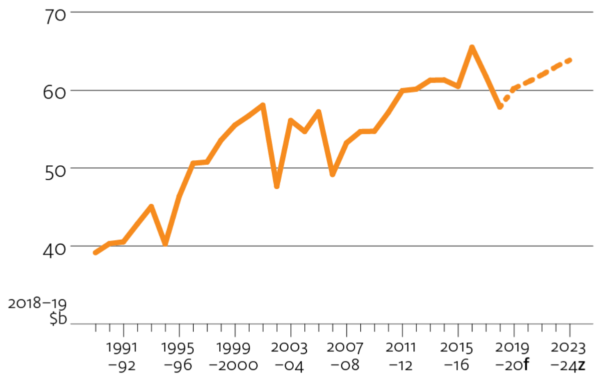
For more detail on the performance of broadacre and dairy farms see the article on Farm performance.

Volume of farm production to remain below 2016–17 peak

The volume of farm production is forecast to increase over the outlook period to $64 billion by 2023–24 (in 2018–19 dollars). This is lower than the record $65 billion achieved in 2016–17 following the record winter crop harvest.

In 2019–20 the volume of farm production is forecast to increase by 4% to $60 billion. The forecast assumes a return to average seasonal conditions across Australia and an associated increase in crop production. This is forecast to be slightly offset by a decline in livestock slaughter because improved pasture availability and relatively high livestock prices will encourage herd and flock rebuilding. From 2020–21 to 2023–24 the volume of farm production is forecast to increase by 1.5% per year, in line with the historical average rate of agricultural productivity growth.

Volume of farm production, 1989–90 to 2023–24



f ABARES forecast. **z** ABARES projection.
Note: Chained Fisher volume index, reference year 2018–19.
Sources: ABARES; Australian Bureau of Statistics

There is significant uncertainty around the 2019–20 forecast for production. Relative soil moisture levels are extremely low to below average across most of Australia for this time of year, following an extended period of hot and dry conditions. Winter crop plantings, which typically begin in April and represent 25% of the total volume of farm production, require sufficient and timely rainfall. The Bureau of Meteorology's mid-month climate outlook for March to May 2019 indicates an equal chance of above average or below average rainfall across Australia's cropping regions.

Parts of northern Australia have had record-breaking rainfall and flooding, but others have been very dry. Cattle herd and sheep flock rebuilding is forecast, but this will depend on pasture growth. A run of good growing seasons could result in the cattle herd increasing to 30 million head by 2023–24, but a run of poor seasons could result in a herd of less than 25 million head.

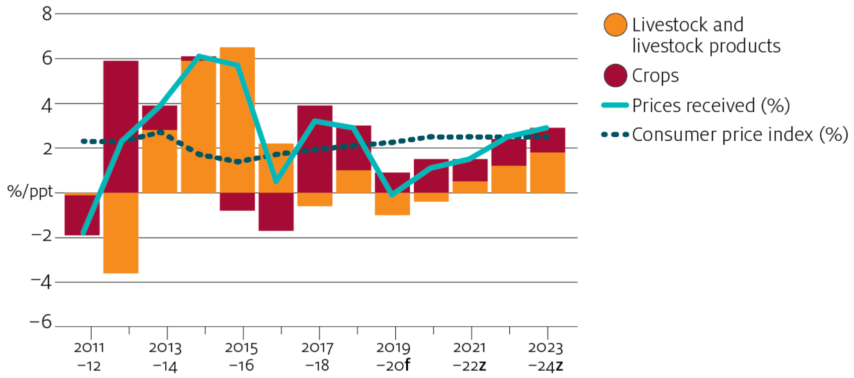
Slower growth in farmgate prices over the outlook period

In 2019–20 farmgate prices are forecast to be virtually unchanged overall, with increases in average prices for crops offsetting a decline in average prices for livestock and livestock products. Prices for cattle, lamb and wool are forecast to decline but to remain historically high after increasing significantly over recent years.

Between 2020–21 and 2023–24 farmgate prices are forecast to rise, supported by an increase in the unit values of livestock and livestock products. Growth in crop prices are assumed to remain constrained over the outlook period due to strong growth in global corn, oilseeds and wheat production over the same period.

The outlook for farmgate prices is subject to considerable uncertainty around unforeseen supply shocks in Australia and globally. These include variable climate, natural disasters, disease outbreaks and major policy shifts. The balance of risks is to the upside for prices, especially crop prices. However, Australia has a more variable climate than many major competitors, so a greater focus on costs that can be controlled at the enterprise level will be critical to maintaining farm incomes over the outlook period.

Growth in prices received by sector and inflation, 2011–12 to 2023–24



f ABARES forecast. **z** ABARES projection.
Note: Prices received is a chained Fisher price index, reference year 2018–19 = 100.
Sources: ABARES; Australian Bureau of Statistics

Downside risks cloud the outlook for agricultural export earnings

Export earnings are forecast to decline to $45 billion in 2019–20, following an expected 6% decline in 2018–19. Over the outlook period, export earnings are projected to increase by 0.8% per year to reach $47 billion by 2023–24 (in 2018–19 dollars).

The forecast gradual rise in export earnings is underpinned by assumed strong population and income growth in Australia's major export markets over the outlook period. However, the rise in downside risks to global economic growth over 2018 have increased the uncertainty for Australian agricultural export earnings. In particular, trade tensions between China and the United States (our largest and third-largest export markets, respectively) could affect global income growth and reduce import demand from not only the United States and China but also from across Asia.

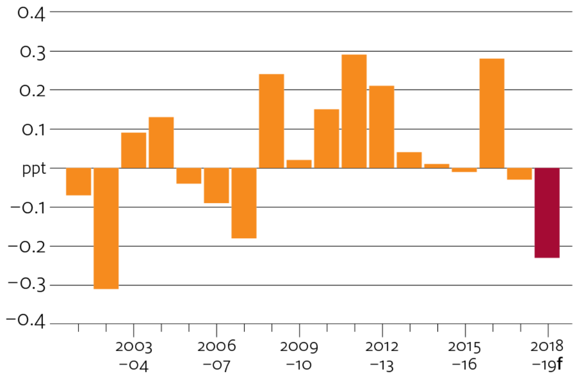
Increasing competition from major exporters in grains and livestock markets is also expected to weigh on export earnings. Increasing global supplies are reducing demand for Australian agricultural goods in some key export markets and are projected to exert downward pressure on export prices over the medium term. For example, increased US beef supply is forecast to reduce demand for Australian beef in the United States and Japan in 2019–20 and 2020–21. Low-cost wheat exporters, such as Argentina and the Russian Federation, are expected to compete strongly with Australia in price-conscious Asian grain markets. New trade agreements between agricultural exporters and Australia's key trading partners, such as the EU–Japan Economic Partnership Agreement, are also increasing competition.

Lower export volumes to detract from Australian economic growth in 2018–19

Australian agricultural production and exports are expected to decline in 2018–19 as a result of dry seasonal conditions in the eastern states. ABARES estimates that lower farm production could subtract 0.2 percentage points from real GDP growth in 2018–19.

Exports of rural goods represent about 14% of the total volume of goods and services exported annually. Lower farm production could subtract 0.9 percentage points from goods and services exports growth in 2018–19.

Contribution of rural goods exports to real GDP growth, 2001–02 to 2018–19



f ABARES forecast.
Note: Laspeyres chain-volume measures, reference year 2015–16.
Sources: ABARES; Australian Bureau of Statistics

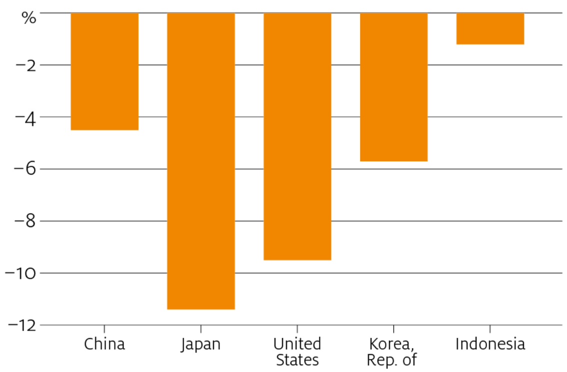
The forecast fall in export volumes in 2018–19 will be partially offset by export prices, which are expected to increase by 4%. This will contribute positively to Australia's terms of trade and support agricultural incomes.

Favourable prices and lower Australian dollar assisting export earnings in 2018–19

Rising grain prices, high livestock prices and a lower Australian dollar will help support earnings in the face of much lower production and higher input costs, including feed and water.

The lower Australian dollar has provided a boost to Australian agricultural export earnings. Over 2018 the Australian dollar depreciated by 10% against the US dollar and 6% on a trade-weighted basis. This includes an 11% decline against the Japanese yen and a 6% decline against the Korean won.

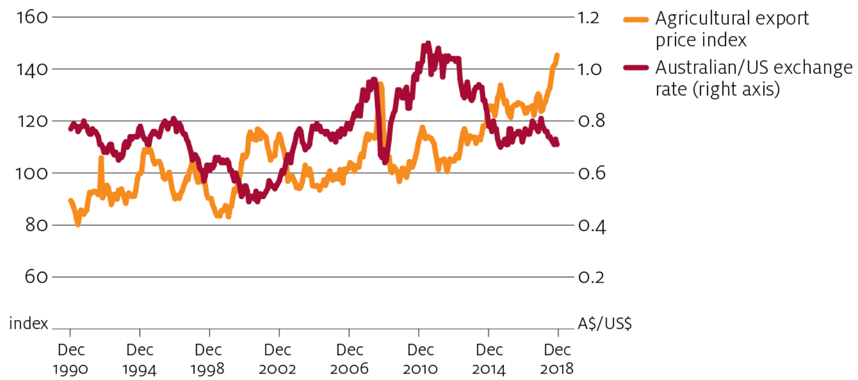
Change in Australian dollar exchange rates, major export markets, 2018



Note: Countries organised in descending order of value of Australian agricultural exports.
Source: Reserve Bank of Australia

The recent decline in the Australian dollar has helped Australian agricultural goods compete. This includes Australian beef, for which Japan and Korea are major importers. The lower Australian dollar has also increased the average unit return on goods exported in US dollars, helping to raise Australian agricultural export prices through 2018. ABARES monthly agricultural export price index increased by 12% year-on-year in December 2018.

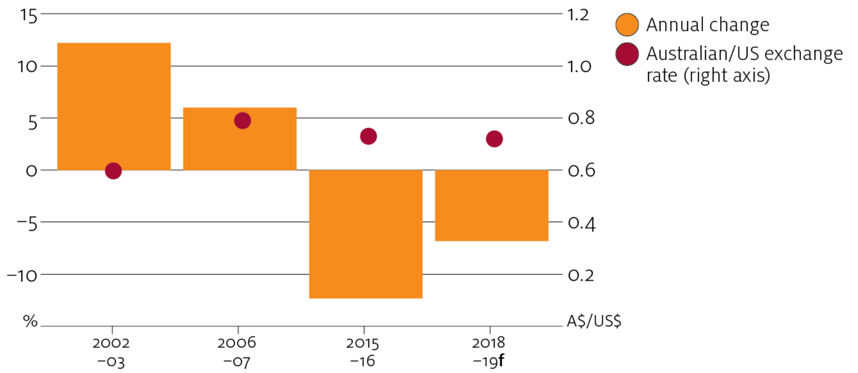
Agricultural export price and the Australian dollar, December 1990 to December 2018



Note: Chained Fisher price index, reference year 1990 = 100.
Sources: ABARES; Australian Bureau of Statistics; Reserve Bank of Australia

During the drought years of 2002–03 and 2006–07, the Australian dollar appreciated. In contrast, the Australian dollar has depreciated during the 2018–19 drought. The Australian dollar was much lower in 2002–03, but its 12% appreciation against the US dollar meant that farmers and exporters were not able to fully benefit from rising commodity prices, which are typically expressed in US dollars.

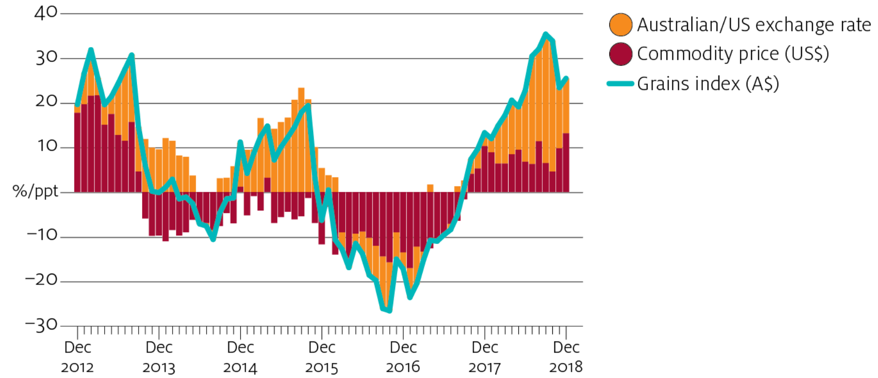
Australian exchange rate against US dollar, drought years, 2002–03 to 2018–19



f ABARES forecast.
Sources: ABARES; Reserve Bank of Australia

During the 2015–16 drought, the depreciation of the Australian dollar was beneficial for Australian export earnings and farm incomes because it largely offset a sharp decline in the international price for grain. The higher price received for Australian grain exports since September 2017 has also benefited from a depreciation in the Australian dollar.

Contribution to growth of grains export unit value index, December 2012 to December 2018



Note: Monthly Fisher export price index, reference year 1989–90 = 100.
Sources: ABARES; Australian Bureau of Statistics; Reserve Bank of Australia

Two-thirds of agricultural exports shipped to Asia in 2017–18

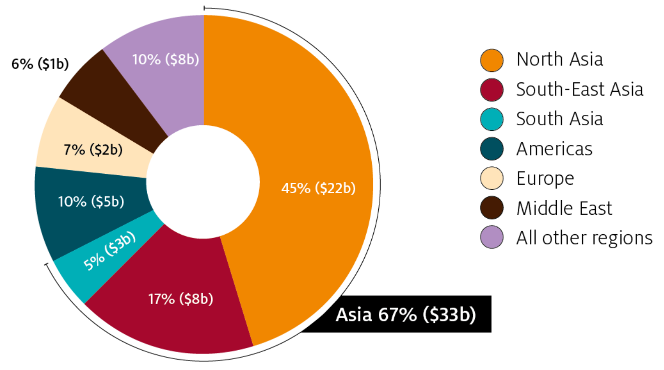
In 2017–18 Australia's largest agricultural export market was China, with trade valued at $11.8 billion. This was followed by Japan ($4.9 billion), the United States ($3.9 billion) and the Republic of Korea ($2.9 billion).

Regionally, Asia is Australia's largest market for agricultural goods, accounting for approximately 67% of all Australian agricultural exports in 2017–18. The second-largest regional market is the Americas—dominated by trade to the United States. Agricultural exports to the Americas accounts for about 10% of Australia's total agricultural exports. Europe and the Middle East represent 7% and 6% of Australia's agricultural exports, respectively.

North Asia, which includes most of Australia's largest markets (China, Hong Kong, Japan, the Republic of Korea and Taiwan), accounts for two-thirds of all Australian goods destined for Asia. Approximately 26% of exports to Asia are destined for markets in South-East Asia and 8% is exported to Southern Asia, to countries such as Bangladesh, India and Pakistan.

The significant proportion of Australian agricultural exports to Asia has been determined by Australia's geographic proximity relative to other major exporters, and the pace of income and population growth in Asia compared with other regions. The disparity between Australian exports to North Asia and South-East Asia compared with Southern Asia can be partially explained by the differing stages of economic development in these regions and by differing domestic agricultural policies. Countries in North Asia and South-East Asia have relatively open economies. They also have higher per person average incomes, enabling them to import high-quality agricultural products from countries such as Australia.

Value share of Australian agricultural exports, by region, 2017–18



Note: Components may not total 100 due to rounding.
Source: ABARES; Australian Bureau of Statistics

Little change in 2018 US farm bill

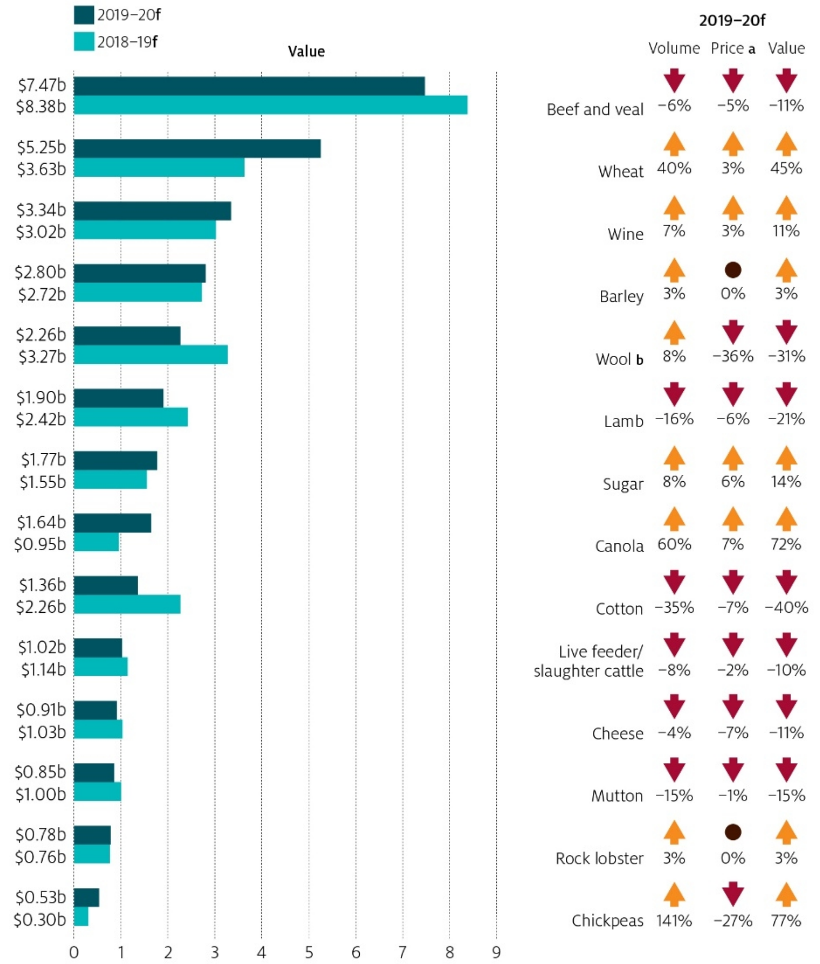
The Agriculture Improvement Act of 2018 (2018 farm bill) provides funding for programs to support US agricultural producers, the food stamp program and the administration of crop insurance. A new farm bill is passed every 5 to 6 years.

The 2018 farm bill is touted as a policy evolution rather than revolution. The bill includes a new Priority Trade Promotion, Development, and Assistance program that will consolidate and supplement existing trade and export programs. Other significant changes include replacement of the Dairy Margin Protection Program with the Dairy Margin Coverage program. This new program is intended to support smaller producers by modifying coverage levels and premiums and will apply to all dairy farmers. A new Animal Disease Prevention and Management program aims at reducing the risk of foot-and-mouth disease, bolstering testing capacity at borders and focusing on overall food security. The 2018 farm bill also includes industrial hemp farmers for the first time, allowing those producers to qualify for crop insurance. Other aspects of the crop insurance program remain unchanged.

The commencement of a new farm bill also gives farmers the opportunity to choose either Agricultural Risk Coverage or Price Loss Coverage programs for the 2019 to 2023 crop years. These programs provide grain farmers with support payments if prices fall below certain thresholds. The Agricultural Risk Coverage program is based on revenue per acre of crop based on a reference year. The Price Loss Coverage program provides farmers with payments based on the gap between the reference price and market price of the crop.

The 2018 farm bill remains separate from the farm support package announced in mid 2018 in response to China's introduction of tariffs on US agricultural products.

Major Australian agricultural commodity exports



a All commodity prices are expressed as export unit returns in A$. **b** Greasy wool. Export unit returns are obtained by dividing the value and quantity of the commodity exported. **f** ABARES forecast.

Introduction of chain volume measures of farm production

As of *Agricultural commodities: March quarter 2019*, ABARES is using chain volume measures (CVMs) to provide an estimate of Australian farm production that is free of the direct effect of price changes. This follows the introduction of CVMs for agricultural exports in March 2018.

CVMs allow the aggregation of different types of commodities into broad groupings, such as total farm production, crop production, and livestock and livestock products production. This is otherwise impossible because different commodities have different physical measurements.

Aggregation across commodities allows a top-down view of economic activity, informs users of the performance of different commodity groups and shows the extent to which changes in quantities and prices drive the nominal value of growth in farm production.

Major indicators of Australia's agriculture and natural resource based sectors

		2016–17	2017–18 s	2018–19 f	2019–20 f	2020–21 z	2021–22 z	2022–23 z	2023–24 z
Exchange rate	US$/A$	0.75	0.78	0.72	0.73	0.74	0.74	0.74	0.74
Australian export unit returns a									
Agriculture	index	100.0	102.7	107.1	104.1	104.7	106.7	109.3	110.3
real **b**	index	100.0	100.7	102.9	97.8	96.0	95.4	95.3	93.9
Value of exports									
Agriculture	A$m	48,941	48,753	46,792	46,408	48,548	50,213	52,394	53,554
real **b**	A$m	50,932	49,776	46,792	45,387	46,321	46,742	47,582	47,449
Crops	A$m	27,939	24,818	22,921	25,624	27,196	28,349	29,262	29,032
real **b**	A$m	29,076	25,338	22,921	25,060	25,949	26,389	26,575	25,723
Livestock	A$m	21,002	23,935	23,871	20,784	21,352	21,864	23,132	24,522
real **b**	A$m	21,856	24,437	23,871	20,326	20,373	20,353	21,008	21,727
Fisheries products	A$m	1,435	1,575	1,562	1,648	1,713	1,765	1,827	1,893
real **b**	A$m	1,494	1,608	1,562	1,611	1,635	1,643	1,659	1,677
Gross value of production c									
Farm	A$m	61,614	59,994	57,828	60,074	61,587	63,419	66,062	68,883
real **b**	A$m	64,120	61,252	57,828	58,752	58,763	59,035	59,996	61,031
Crops	A$m	33,515	30,853	28,616	32,396	33,479	34,520	35,551	36,560
real **b**	A$m	34,878	31,500	28,616	31,683	31,943	32,133	32,286	32,393
Livestock	A$m	28,099	29,141	29,212	27,678	28,108	28,899	30,511	32,322
real **b**	A$m	29,242	29,752	29,212	27,069	26,819	26,901	27,709	28,638
Fisheries products	A$m	3,058	3,148	3,163	3,299	3,394	3,492	3,620	3,751
real **b**	A$m	3,182	3,214	3,163	3,227	3,238	3,251	3,288	3,323
Forestry products	A$m	2,571	2,553	2,575	2,620	2,626	2,635	2,632	2,649
real **b**	A$m	2,676	2,607	2,575	2,562	2,505	2,453	2,390	2,347
Volume of production d									
Farm	index	131.3	123.5	115.4	120.6	122.3	124.1	126.2	128.0
Crops	index	164.5	138.9	123.0	138.6	139.3	141.2	142.2	143.3
Livestock	index	103.7	109.1	107.3	103.9	106.5	108.2	111.3	113.6
Forestry	index	156.7	155.5	153.7	153.5	151.5	149.6	146.7	145.0
Production area and livestock numbers									
Crop area									
grains, oilseeds and pulses	’000 ha	24,373	23,436	19,232	22,655	22,741	22,873	22,863	22,854
Sheep	million	72.1	68.8	66.1	68.5	70.8	73.0	73.7	74.2
Cattle	million	26.2	25.8	25.5	25.5	25.7	26.0	26.4	26.9
Farm sector									
Net cash income e	A$m	27,408	26,360	21,254	22,284	22,248	22,606	23,567	24,843
real **b**	A$m	28,522	26,913	21,254	21,793	21,228	21,043	21,403	22,012
Net value of farm production g	A$m	21,786	20,630	15,404	16,302	16,117	16,321	17,125	18,241
real **b**	A$m	22,672	21,063	15,404	15,944	15,378	15,193	15,553	16,162
Farmers’ terms of trade h	index	109.5	109.9	105.0	104.2	102.7	101.8	101.5	102.2

a Base: 2016–17 = 100. **b** In 2018–19 Australian dollars. **c** For a definition of the gross value of farm production see Table 13. **d** Chain-weighted basis using Fisher’s ideal index with a reference year of 1997–98 = 100. **e** Gross value of farm production less total cash costs. **f** ABARES forecast. **g** Gross value of farm production less total farm costs. **h** Ratio of index of prices received by farmers and index of prices paid by farmers, with a reference year of 1997–98 = 100. **s** ABARES estimate. **z** ABARES projection.

Sources: ABARES; Australian Bureau of Statistics; Reserve Bank of Australia

Economic overview

Kirk Zammit and Matthew Howden

- Strong income and population growth in emerging Asia are expected to support demand for Australian agricultural exports to 2023–24.
- Risks to growth in the short term are weighted to the downside and pose a significant threat to Australia's largest agricultural export markets.
- The Australian dollar is assumed to gradually strengthen against the US dollar over the medium term in the absence of negative shocks to global growth.

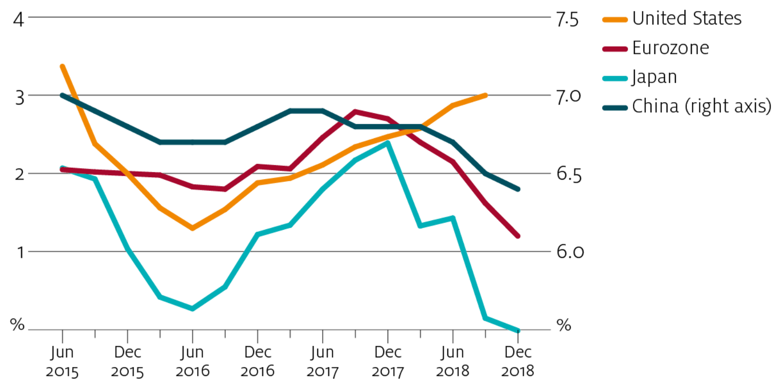
Global growth momentum faded in 2018

The global economic expansion that began in the second half of 2016 faded in 2018.

Economic growth in some large advanced economies, including the eurozone and Japan, weakened in the second half of 2018 because of softer growth in exports and declining consumer and business confidence. Economic growth also slowed in emerging and developing economies for a number of reasons. An escalation in trade tensions dampened activity in China and across Asia. Growth was also curbed by increases in interest rates in the United States and other advanced economies. Growing concerns over a slowing global economy and heightened policy uncertainty exacerbated net capital outflows from emerging markets and tightened financial conditions further. This sparked financial crises in Turkey and Argentina and affected India and Indonesia, which both have large current account deficits.

Growth was also hampered by heightened geopolitical tensions in the Middle East, including renewed US sanctions on Iran and political unrest in Latin America.

Economic growth, June quarter 2015 to December quarter 2018



Source: Organisation for Economic Co-operation and Development

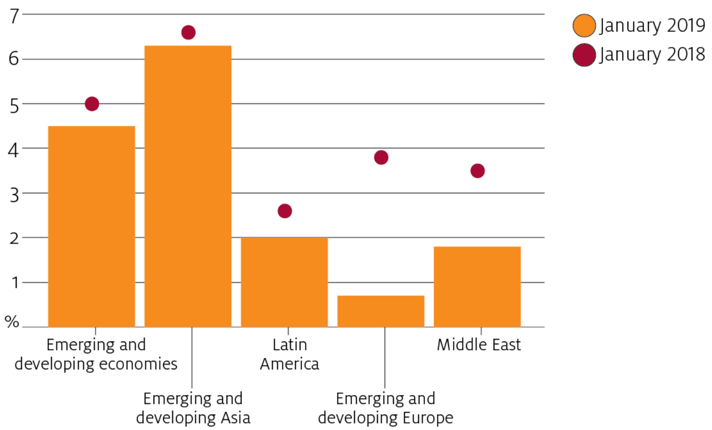
Economic activity to slow in 2019 and 2020

In preparing the agricultural commodity forecasts, global economic growth is assumed to decline from 3.7% in 2018 to 3.5% in 2019 and 3.6% in 2020.

Economic growth in major advanced economies is assumed to slow in 2019 and 2020 after a period of expansion at above-potential rates. In the United States, growth is assumed to have peaked in 2018 following a recovery from low growth in 2016. Fading fiscal stimulus and US–China trade tensions are expected to limit growth in the short term. The Japanese and eurozone economies began to slow in 2018, driven partly by softer external demand. In the eurozone, weak consumer and business confidence are expected to result in a decline in consumption and investment growth in 2019.

Economic growth assumptions for emerging and developing economies (representing 60% of the global economy) are lower than they were a year ago. This is due largely to more difficult than expected external conditions weighing on growth. In 2019 and 2020 oil prices are assumed to remain lower than in 2018 and are likely to provide some respite for net oil importing countries, including those in South-East Asia.

IMF revisions to growth forecasts, emerging and developing economies, 2019



Note: Forecasts are from the IMF World Economic Outlook Update
Source: International Monetary Fund

Monetary policy normalisation in the major advanced economies is assumed to continue, although more slowly than in 2018. This is largely because of weaker global demand. Stronger than expected interest rate rises are a risk to the economic outlook. This could spark asset price volatility similar to that of 2018 and dampen economic growth in emerging and developing economies that have large foreign debt liabilities.

A sharp slowdown in economic growth in China is another risk to global economic growth that would have significant implications for the Republic of Korea, Singapore and South-East Asia. These economies are highly integrated into global value chains. Despite recent negotiations, any escalation in US–China trade tensions could further disrupt regional production networks and investment.

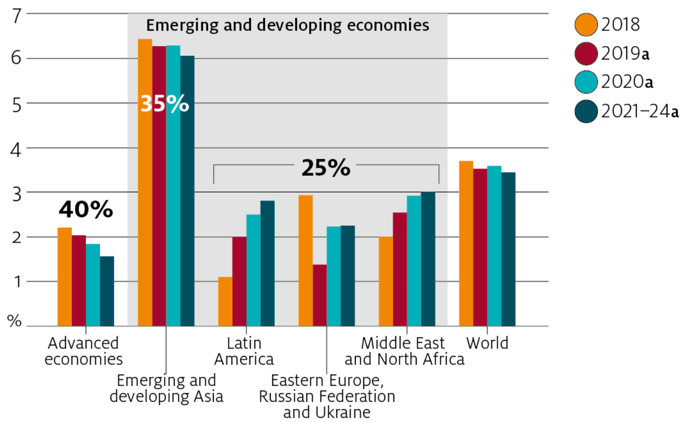
Other risks to global economic growth in the short term include the possibility of heightened geopolitical tensions and armed conflict, particularly in the Middle East.

Medium-term global growth prospects constrained

Between 2021 and 2024 global economic growth is assumed to slow to average 3.4%. The slowdown is partly driven by advanced economies (representing 40% of the global economy). The United States, Japan and the eurozone are all assumed to return to their potential rates of growth after a few years of expansion above capacity.

Economic growth is also assumed to ease in emerging Asia over the outlook period. This is largely driven by an assumed decline in Chinese gross domestic product (GDP) growth from 6.6% in 2018 to 5.4% in 2024. This is in contrast to strong growth in India, which is benefiting from recent reforms and a young population. Economic growth in South-East Asia is expected to remain stable at around 5.2% over the outlook period.

Regional economic growth and shares of world GDP, 2018 to 2024



a ABARES assumption.
Note: Percentages represent share of global economy, measured in purchasing power parity.
Sources: ABARES; International Monetary Fund

Growth in the other emerging and developing economies (representing the remaining 25% of the global economy) is assumed to be relatively low over the medium term compared with historical averages. A range of ongoing issues in these regions are weighing on their growth potential. Political uncertainty and financial crises in several Latin American countries are assumed to restrict growth in the region. In Eastern Europe, economic growth in Turkey is assumed to recover only gradually, and potential growth in the Russian Federation is expected to remain low in the absence of structural reform. Growth projections for the Middle East and North Africa are also fairly low because of ongoing armed conflict.

Strong income and population growth in Australia's export markets

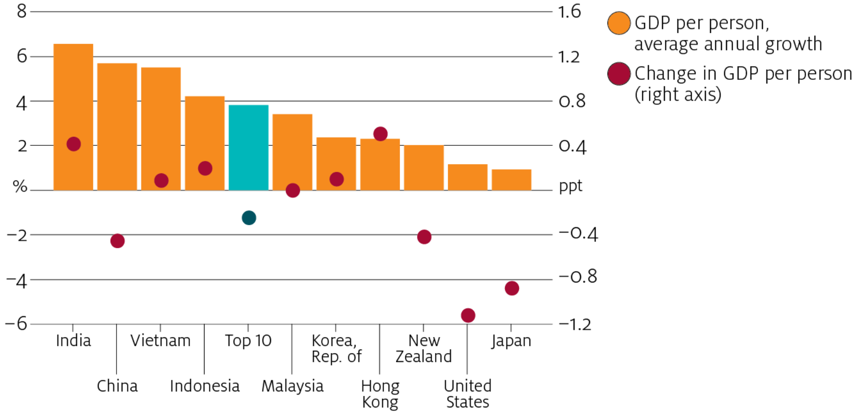
World income growth, measured by GDP per person, is assumed to average 2.5% over the outlook period. Income growth in advanced economies is assumed to decelerate from 1.7% in 2019 to 1.2% in 2024. This is in line with economic growth returning to potential in these economies.

In emerging and developing economies, income growth is assumed to increase from 3.5% in 2019 to 3.7% in 2020 and remain at that rate over the projection period. This is because of an assumed acceleration in income growth in India, resilient income growth in South-East Asia and gradual recoveries in Latin America, the Middle East and Turkey.

Incomes in Australia's main export markets are assumed to increase by an average of 3.8% per year to 2023–24. This strong growth relative to the world average reflects the strength of the economies that import Australian agricultural products (for more details see the Australian agricultural overview).

Of Australia's largest agricultural export markets, average annual income growth is assumed to be strongest in China, India, Indonesia and Vietnam. Income growth is expected to accelerate in India and Indonesia over the outlook period and remain relatively constant in Malaysia and Vietnam. Income growth in China is expected to decelerate by 0.5 percentage points over the same period.

Income growth in Australia's export markets, 2019 to 2024



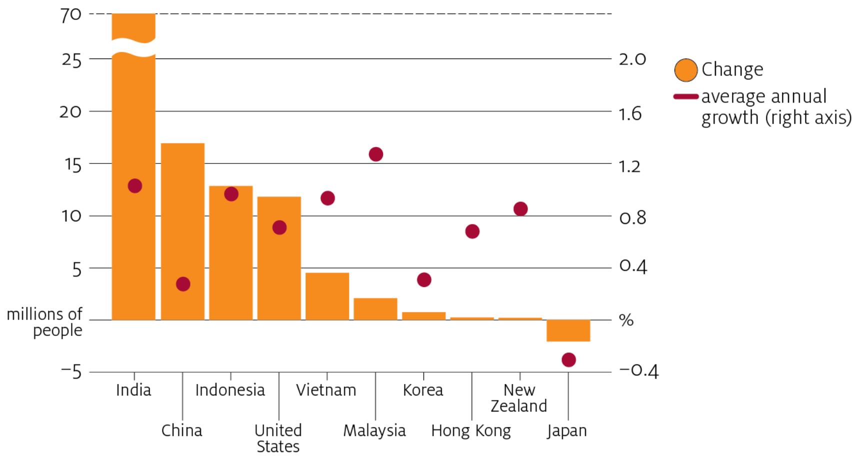
a ABARES assumption.
Sources: ABARES; International Monetary Fund; UN Population Division

Another important indicator of import demand, particularly for agricultural products, is population growth. Of Australia's 10 largest export markets, Malaysia is assumed to have the strongest annual average rate of population growth over the projection period. Its population is assumed to increase by 1.2% per year. This is followed by India, Indonesia and Vietnam.

These indicators suggest that growth in import demand for agricultural goods in these markets could remain strong and possibly increase amid a general slowing of global economic activity in other regions.

China is by far Australia's largest market for agricultural exports, but assumed strong growth in income and population in India and South-East Asia suggests potential for further export growth is weighted towards these regions.

Population growth in Australia's export markets, 2019 to 2024



a ABARES assumption.
Sources: ABARES; International Monetary Fund; UN Population Division

Australian agricultural export markets

China

Economic growth in China is assumed to increase by 6.2% in 2019 and 2020. Trade tensions with the United States and ongoing structural adjustment within the Chinese economy are assumed to weigh on economic activity.

In 2018 the economy grew by 6.6%, down from 6.9% in 2017. Growth in the industrial sector began to decelerate in the second half of 2018. The manufacturing Purchasing Managers' Index fell below 50 in December 2018 for the first time in 2 years, indicating that the manufacturing sector is contracting. Tighter financial conditions and increased uncertainty around economic conditions are likely to have contributed to lower growth in the services sector in 2018.

Chinese authorities have increased public spending via a range of targeted measures designed to stimulate growth and offset the impact of US trade measures on the economy. The Central Bank also lowered the required reserve ratio during 2018 and into 2019, allowing banks to lend more.

Growth is assumed to decline to 5.4% by 2024. This slowdown represents China's continuing transition to a consumption and services-driven economy from one that was reliant on exports and heavy industry.

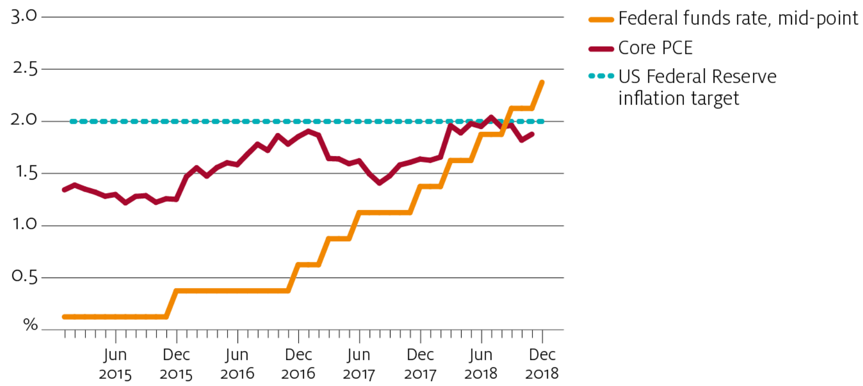
United States

The US economy increased by 3% year-on-year in the September quarter 2018, the fastest rate of growth since 2015. Economic growth is assumed to slow to 2.5% in 2019 and 2% in 2020.

The US economy has performed very strongly in recent years. In 2018 household consumption was supported by tight labour market conditions. The unemployment rate fell to 3.7% in September, its lowest rate in decades, and wage growth accelerated noticeably in the second half of the year. Increased government spending and corporate tax cuts implemented at the beginning of 2018 also stimulated economic activity. The US Federal Reserve responded to these strong economic conditions by increasing interest rates 4 times in 2018.

In 2019 and 2020 economic growth is assumed to weaken as fiscal stimulus fades and trade tensions with China continue. Interest rates are also assumed to increase further in 2019 but at a more gradual pace. The government shutdown is expected to temporarily affect economic activity in the March quarter 2019.

Core inflation and federal funds rate mid-point, United States, January 2015 to December 2018



Source: US Bureau of Economic Analysis; US Federal Reserve
Note: Core inflation is the price index for personal consumption expenditure excluding food and energy.

Over the medium term, economic growth in the United States is assumed to gradually decline to 1.7%, in line with estimates of the US potential growth rate.

Japan and the Republic of Korea

The Japanese economy grew by 0.9% in 2018. In 2019 growth is assumed to accelerate to 1% and then slow to 0.8% in 2020.

In 2019 Japanese economic growth is assumed to be supported by increased private consumption as consumers bring forward purchases of durable goods ahead of a scheduled increase to consumption taxes in October. In 2020 the tax increase will temporarily reduce demand, but the 2020 Olympic Games in Tokyo will support economic activity. In addition, the Bank of Japan has indicated that it will keep interest rates low.

Between 2021 and 2024 economic growth is assumed to average 0.5% per year, despite improvements in labour force participation in recent years. This mainly reflects an ageing population and shrinking workforce.

Growth in the Republic of Korea slowed in 2018 to 2.8% because of a decline in private investment. It is assumed to remain low in 2019 at 2.6%, reflecting weaker demand globally, before lifting to 2.8% in 2020 and 2021, as domestic conditions improve. Between 2022 and 2024 economic growth is assumed to average 2.6% as a decline in the working-age population detracts from growth.

The economies of Japan and Korea face risks associated with current trade tensions between the United States and China. Both economies have highly trade-exposed economies, with manufacturing sectors that are integrated into global supply chains.

Eurozone and the United Kingdom

In 2018 the eurozone grew by 1.8%. In 2019 economic growth is assumed to slow to 1.6% before recovering moderately in 2020 to 1.7%.

Economic growth in 2019 is assumed to be lower because of a broad-based reduction in private consumption, slowing industrial production and weaker export demand. Growth in some countries will be further inhibited by idiosyncratic factors such as the introduction of new automotive standards in Germany, civil unrest in France and financial stress in Italy. Growth in 2020 is assumed to accelerate modestly as the effects of these disruptions wane and economies stabilise.

In 2018 the UK economy grew by 1.4% and is assumed to increase to 1.5% in 2019 and 1.6% in 2020. The United Kingdom's departure from the European Union is scheduled for 29 March 2019. It is unclear what form the relationship between the parties will take after that date. If no agreement is in place by this deadline, growth in the United Kingdom is expected to be lower.

From 2021 to 2024 annual economic growth in the eurozone is assumed to average 1.5%. Low productivity growth and unfavourable population demographics are assumed to limit growth.

South-East Asia and India

Economic growth in South-East Asia is assumed to increase by 5.3% in 2019 and 5.2% in 2020. Economic growth is assumed to be stable at around 5.2% per year over the outlook period.

Strong growth in domestic demand, including government-led infrastructure investment and government policy reforms, is assumed to support economic activity across the region in 2019 and 2020.

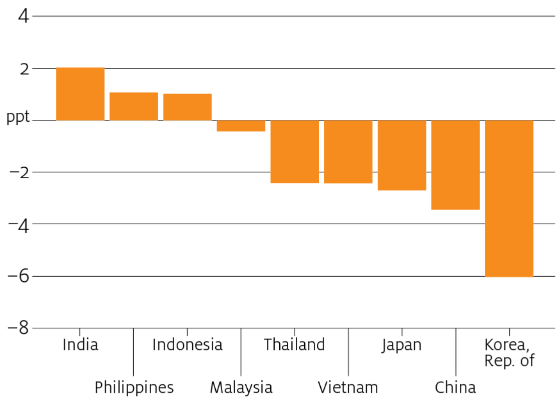
However, the external environment is complicating the outlook. Risks to the outlook over the short term include higher US interest rates, an increase in trade tensions and softer global export demand. These events already tested the resilience of the region in 2018 and highlighted the region's ability to withstand negative external shocks and contagion in financial markets from other emerging and developing economies.

Economic growth in India is assumed to accelerate over the outlook period from an estimated 7.5% in 2018 to 8.2% by 2023. India faces similar external pressures to South-East Asia. However, the decline in oil prices since November 2018 is likely to provide some respite in the short term.

Strong growth for South-East Asia and India during the outlook period is due in part to the relatively young population in this region. India, Indonesia and the Philippines have a particularly high proportion of young people. Working-age populations (15 to 64 years) in these countries will increase substantially in coming decades.

Recent productivity-enhancing reforms in India have improved business conditions and are expected to benefit growth over the medium term.

Change in working-age population share of total population, 2015 to 2025



Note: Working-age population includes people of 15 to 64 years.
Source: UN Population Division

Australian economy

Economic growth is estimated to be 2.8% in 2018–19 and to accelerate to 3% in 2019–20. Growth is assumed to be supported by increasing household and government consumption as well as business investment. Between 2019–20 and 2023–24 the Australian economy is assumed to grow by 3% per year, 0.25 percentage points higher than its potential growth.

Risks to the outlook for the Australian economy stem from both domestic and external drivers. Persistently low wage growth and high levels of household debt could lead to slower than expected household consumption growth. Property values could also stifle household consumption if they fall sharply. Business investment faces the risk of slower growth if business conditions deteriorate. External risks include the possibility of a faster than expected economic slowdown in China, which would reduce demand for Australian exports.

Australian dollar assumed to appreciate gradually over the medium term

The Australian dollar is assumed to average US72 cents in 2018–19 and have a trade-weighted value of 62. In 2019–20 it is assumed to increase to US73 cents, but the trade-weighted value will remain at 62. Over the outlook period, the dollar is assumed to average US74 cents and have a trade-weighted value of 61.

These exchange rate assumptions are based on the relationship between the Australian dollar, Australian terms of trade and the interest rates of major economies, particularly the United States. In 2018–19 an assumed appreciation of the terms of trade, driven by strong commodity prices, will offer some support to the Australian dollar. This may be offset by an assumed increase in US interest rates and risk aversion in financial markets.

Australian Government
Department of Agriculture and Water Resources
ABARES

Key macroeconomic assumptions for Australia

	unit	2016–17	2017–18	2018–19 a	2019–20 a	2020–21 a	2021–22 a	2022–23 a	2023–24 a
Economic growth	%	2.3	2.8	2.8	3.0	3.0	3.0	3.0	3.0
Inflation	%	1.7	1.9	2.1	2.3	2.5	2.5	2.5	2.5
Interest rates **b**	% pa	3.7	3.7	3.9	4.2	4.5	4.7	5.1	5.1
Nominal exchange rates									
A$/US$	US$	0.75	0.78	0.72	0.73	0.74	0.74	0.74	0.74
Trade-weighted index									
for A$ **c**	index	64.8	64.5	62.1	62.1	61.7	61.2	60.8	60.4

a ABARES assumption. **b** Large business weighted-average variable rate on credit outstanding. **c** Base: May 1970 = 100.
Sources: ABARES; Australian Bureau of Statistics; Reserve Bank of Australia

Key world macroeconomic assumptions

	unit	2017	2018 a	2019 a	2020 a	2021 a	2022 a	2023 a	2024 a
Economic growth									
World b	%	3.7	3.7	3.5	3.6	3.5	3.4	3.4	3.4
Advanced economies	%	2.3	2.2	2.0	1.8	1.7	1.5	1.5	1.6
United States	%	2.2	2.8	2.5	2.0	1.7	1.5	1.6	1.7
Japan	%	1.9	0.9	1.0	0.8	0.7	0.5	0.5	0.5
Eurozone	%	2.4	1.8	1.6	1.7	1.6	1.5	1.4	1.4
Germany	%	2.5	1.5	1.3	1.6	1.5	1.3	1.2	1.2
France	%	2.3	1.5	1.5	1.6	1.6	1.6	1.6	1.6
Italy	%	1.6	1.0	0.6	0.9	0.8	0.7	0.7	0.7
United Kingdom	%	1.8	1.4	1.5	1.6	1.6	1.6	1.6	1.6
Korea, Rep. of	%	3.1	2.8	2.6	2.8	2.8	2.7	2.6	2.6
New Zealand	%	3.0	3.1	3.0	3.1	3.1	2.6	2.5	2.5
Singapore	%	3.6	2.9	2.5	2.7	2.7	2.7	2.6	2.6
Taiwan	%	2.9	2.7	2.4	2.3	1.9	1.9	1.9	1.9
Emerging and developing economies	%	4.6	4.6	4.5	4.7	4.7	4.7	4.7	4.6
Emerging Asia	%	6.3	6.4	6.3	6.3	6.2	6.1	6.0	5.9
South-East Asia **c**	%	5.3	5.3	5.3	5.2	5.2	5.2	5.3	5.3
China **d**	%	6.9	6.6	6.2	6.2	6.0	5.8	5.6	5.4
India	%	6.2	7.5	7.8	7.9	8.1	8.1	8.2	8.2
Latin America	%	1.3	1.1	2.0	2.5	2.7	2.8	2.9	2.9
Middle East and North Africa	%	1.8	2.0	2.5	2.9	3.0	3.0	3.0	3.0
Eastern Europe	%	6.0	3.8	0.7	2.4	2.5	2.6	2.7	2.7
Russian Federation	%	1.5	1.7	1.6	1.7	1.6	1.3	1.2	1.2
Ukraine	%	2.5	3.5	2.7	3.0	3.2	3.3	3.4	3.4
GDP per person e									
Advanced economies	%	1.9	1.9	1.7	1.3	1.3	1.2	1.2	1.2
Emerging and developing economies	%	3.4	3.5	3.5	3.7	3.7	3.7	3.7	3.7
Emerging Asia	%	5.5	5.5	5.5	5.4	5.4	5.3	5.3	5.3
South-East Asia **c**	%	4.2	4.2	4.1	4.1	4.2	4.3	4.3	4.2
Inflation									
United States	%	2.1	2.5	2.2	2.3	2.2	2.2	2.0	2.0
Interest rates									
US prime rate **g**	% pa	4.1	4.9	5.6	6.1	6.1	6.1	6.1	6.1

a ABARES assumption. **b** Weighted using 2017 purchasing power parity (PPP) valuation of country gross domestic product by the International Monetary Fund. **c** Indonesia, Malaysia, the Philippines, Thailand and Vietnam. **d** Excludes Hong Kong. **e** Expressed in purchasing power parity. **g** Commercial bank prime lending rates in the United States.

Sources: ABARES; Indian Ministry of Statistics and Programme Implementation; International Monetary Fund; United Nations Population Division; US Bureau of Labor Statistics; US Federal Reserve

Seasonal conditions

Emma Pearce and Matthew Miller

Seasonal conditions

Global production conditions generally favourable. Unfavourable autumn rainfall outlook for northern Australia.

Climatic conditions in major crop-producing countries

As at 28 January, global production conditions were generally favourable (Figure 1).

Grains

In the southern hemisphere, winter wheat harvest conditions were generally favourable, except in eastern Australia. In the northern hemisphere, dormancy of winter wheat is continuing under favourable conditions.

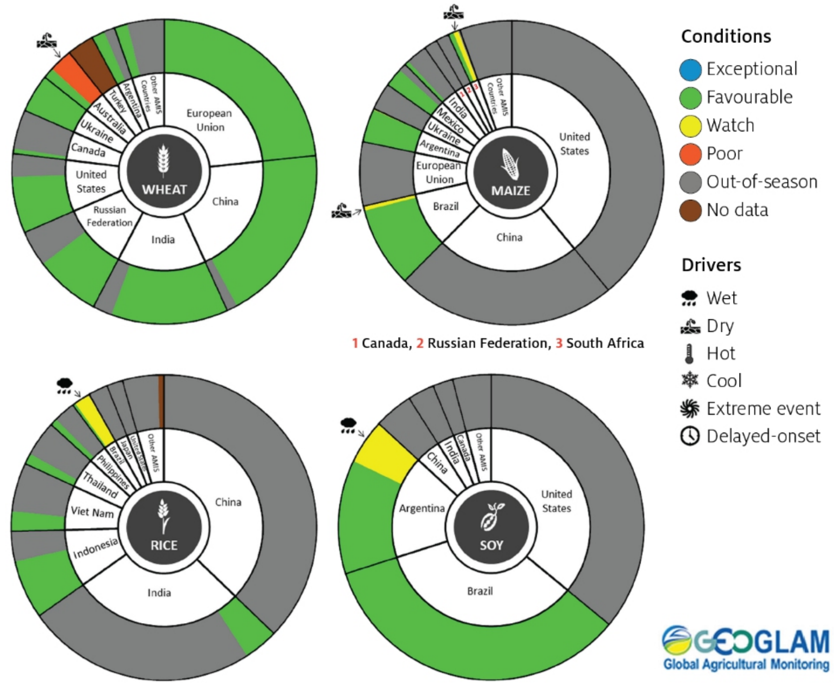
Growing conditions for maize are generally favourable in Brazil and Argentina, but conditions are mixed in South Africa.

Growing conditions are favourable for dry-season rice in South-East Asia and wet-season rice in Indonesia. Excessive rainfall and cloud cover in Brazil are likely to affect the rice crop.

Oilseeds

Growing conditions for soybeans are generally favourable in the southern hemisphere, but some parts of Argentina have been affected by flooding.

Figure 1 Crop conditions, AMIS countries, 28 January 2019



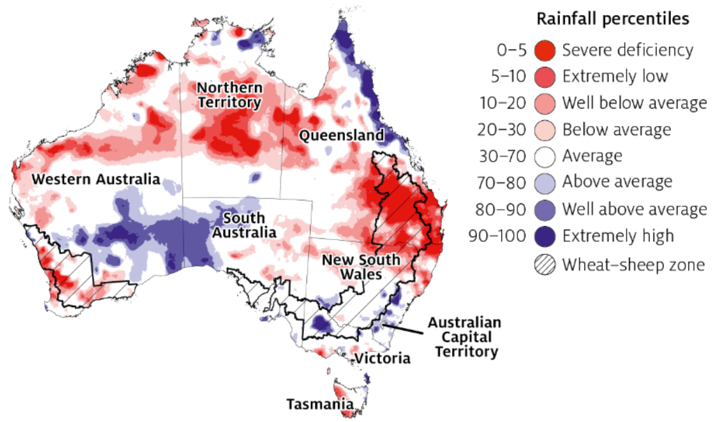
AMIS Agricultural Market Information System.
Source: AMIS

Climate outlook for Australia

Below average rainfall decreases summer crop production

The first 9 months of 2018 were exceptionally dry over the south-east of mainland Australia. This follows a series of dry years in parts of Queensland, and drier than average conditions in much of southern Australia in 2017. Since October 2018 close to average rainfall across large areas of southern Australia (Map 1) has somewhat eased rainfall deficiencies.

Map 1 Rainfall percentiles, Australia, 1 November 2018 to 31 January 2019



Note: Rainfall for November 2018 to January 2018 relative to the long-term record and ranked in percentiles. This analysis ranks rainfall for the selected period compared with the historical average (1900 to present) recorded for that period.
Source: Bureau of Meteorology

However, for south-eastern Australia much of this rain has come after the main agricultural production period. This has reduced rainfall deficiencies, but has not significantly reduced the impact of earlier dry conditions. Late season rainfall in southern Australia is also of little benefit to water storage inflows, which remain at lower than average levels for this time of year.

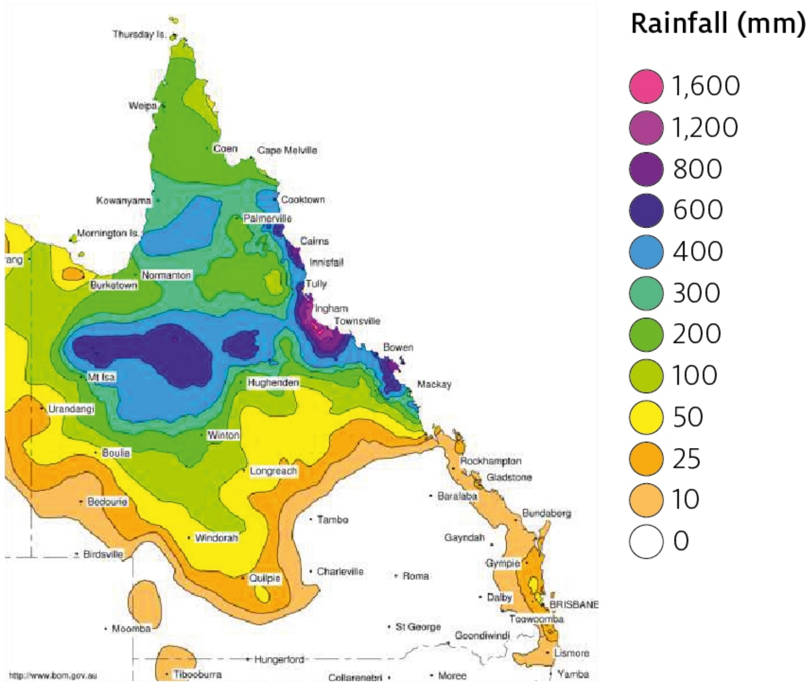
There has been a delayed onset of the Australian monsoon this summer. This has resulted in below average rainfall for much of northern Australia. In contrast, above average rainfall has been recorded for Queensland's tropical and central coast and the north-eastern Top End.

Summer crop planting in Queensland and northern New South Wales increased following favourable late spring rainfall. However, widespread hot and dry conditions in December 2018 and January 2019 are expected to have had a negative impact on summer crop production. These unfavourable conditions curtailed dryland planting in the latter part of the planting window, lowered soil moisture levels and reduced yield prospects for dryland crops. These crops will require sufficient and timely rainfall over the remainder of the season.

Late onset monsoon brings extreme flooding to Queensland

From late January into early February 2019, an active monsoon trough and a slow-moving low pressure system produced extremely heavy rainfall in tropical Queensland (Map 2). Large areas in north-west Queensland experienced rainfall of more than 400 millimetres during the event. During the first week of February, areas on the coast near Townsville and Mount Isa had more than 4 times their average February rainfall.

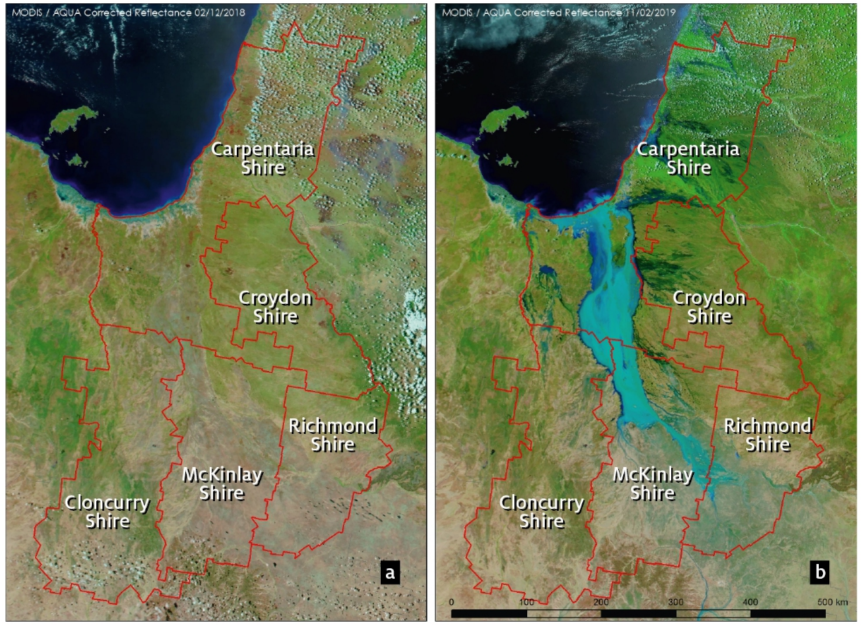
Map 2 Rainfall, Queensland, 26 January to 7 February 2019



Source: Bureau of Meteorology

Extensive flooding (Map 3) following heavy rainfall in the Gulf Country and north-western Queensland caused severe damage to farm and transport infrastructure in the region and significant cattle losses.

Map 3 Satellite images, north-western Queensland, 2 December 2018 and 11 February 2019



Note: MODIS/Aqua false colour composite satellite images of northern Queensland taken on a) 2 December 2018, before the flood, and b) 11 February 2019, following extensive flooding across the Carpentaria, Cloncurry, Croydon, McKinlay and Richmond shires.
Source: National Aeronautics and Space Administration

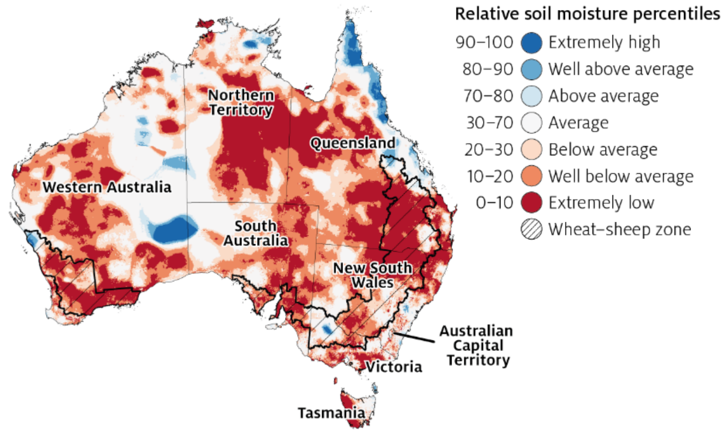
Decreased rainfall leads to decline in soil moisture

Below average rainfall and well above average temperatures during December 2018 and January 2019 resulted in a decline in soil moisture. In summer cropping regions, root zone soil moisture was average to below average in December 2018. By January 2019 soil moisture in these regions was generally well below average and in some areas was the lowest on record. The decline in soil moisture levels has contributed to poorer summer crop prospects and reduced pasture growth.

In January 2019 relative root zone soil moisture was extremely low to below average across most of Australia for this time of year (Map 4). It was well below average to extremely low across south-eastern Queensland, north-eastern New South Wales, southern Western Australia and central Northern Territory.

Root zone soil moisture in northern Queensland was extremely low to well below average in January 2019, after the late onset monsoon. However, these estimates were developed before the heavy rainfall event in February that has resulted in a significant increase in soil moisture.

Map 4 Modelled root zone soil moisture, Australia, 1 to 31 January 2019

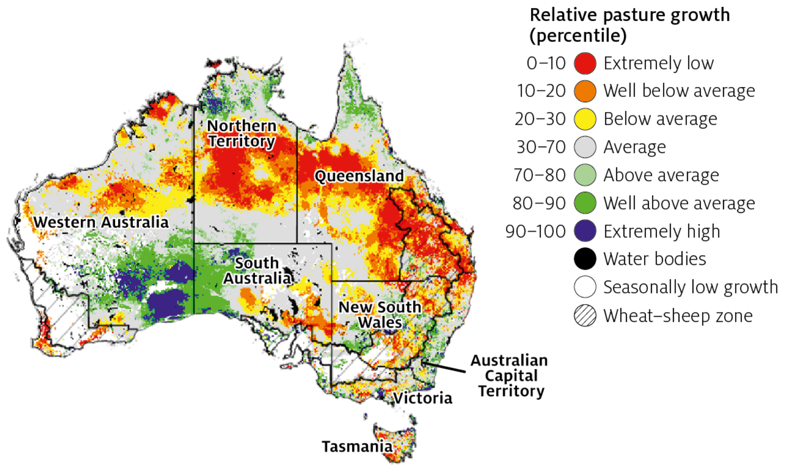


Note: Soil moisture estimates are relative to the long-term record and ranked in percentiles. Estimates are used to compare root zone soil moisture during January 2019 and ranked by percentiles for each January in the 1911–2015 historical reference period. Root zone soil moisture is defined as the soil surface to 1 metres in depth.
Source: Bureau of Meteorology

Pasture growth below average in tropical Australia

For the 3 months to January 2019, modelled pasture growth was well below average to extremely low across large areas of north-western and south-eastern Queensland, central Northern Territory and parts of northern Western Australia and eastern South Australia (Map 5).

Map 5 Relative pasture growth, Australia, 1 November 2018 to 31 January 2019



Note: AussieGRASS pasture growth estimates are relative to the long-term record and shown in percentiles. Percentiles rank data on a scale of zero to 100. This analysis ranks pasture growth for the selected period against average pasture growth for the long-term record (1957 to 2016). Pasture growth is modelled at 5km² grid cells.
Source: Queensland Department of Science, Information Technology and Innovation

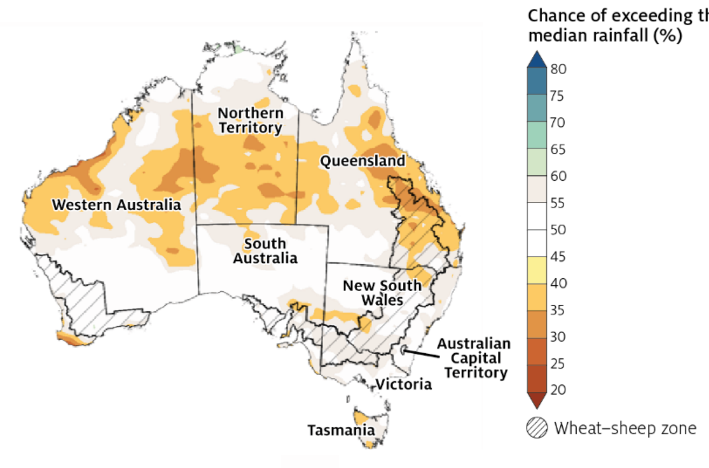
A return to average rainfall levels during late spring to midsummer benefited pasture production in parts of central and eastern New South Wales, northern Queensland, western South Australia, south-eastern Western Australia and the north of the Northern Territory.

However, rainfall arrived too late to benefit pasture production across large areas of south-eastern Australia, where temperate pasture species tend to have lower growth rates at this time of year.

Neutral outlook for the south, but mixed for northern Australia

The Bureau of Meteorology's climate outlook for March to May 2019 (released 14 February 2019) indicates that a drier than average end to the northern wet season is more likely across large areas of northern Australia. Conditions for much of the remainder of the country are not expected to be wetter or drier than average during autumn 2019 (Map 6).

Map 6 Rainfall outlook, Australia, March to May 2019



Note: Shows the likelihood, as a percentage, of exceeding the 1990–2012 median rainfall for the upcoming 3 months. Median rainfall is defined as the 50th percentile calculated from the 1990–2012 reference period.
Source: Bureau of Meteorology

This climate outlook information has been used to develop ABARES commodity and agricultural outlooks over the short-term. The Bureau of Meteorology has subsequently updated its autumn 2019 climate outlook on 28 February. The new climate outlook indicates that a drier than average three months is now more likely for much of the eastern half of Australia and the Northern Territory. If realised this would present a downside risk to our commodity and agricultural outlooks over the short-term.

The Bureau of Meteorology's El Niño Southern Oscillation (ENSO) outlook remains 'at El Niño WATCH'. This assumes that the likelihood of an El Niño developing during the southern hemisphere autumn or winter is around 50%. In contrast the US National Oceanic and Atmospheric Administration (NOAA) announced the arrival of an El Niño on 14 February 2019. The difference between these assessments is due to the sea-surface temperature anomaly thresholds each organisation uses to indicate ENSO events: the Bureau of Meteorology uses 0.8˚C and NOAA 0.5˚C.

Bureau of Meteorology analysis indicates that warmer than average subsurface temperatures in the tropical Pacific and weaker than average trade winds may result in a weak El Niño event developing during autumn. An El Niño typically brings below average rainfall to southern and eastern Australia during autumn and winter. An El Niño is also likely to bring warmer than average days to large parts of the continent.

Insufficient rainfall during the remainder of the northern wet season will result in continued below average pasture growth rates across northern Australia. However, recent flooding will likely increase future pasture growth and productivity in affected regions.

Close to average rainfall across large areas of southern Australia has somewhat eased rainfall deficiencies in some drought-affected areas. If an El Niño were to arrive during autumn 2019, it would typically bring below average rainfall to southern and eastern Australia.

Wheat

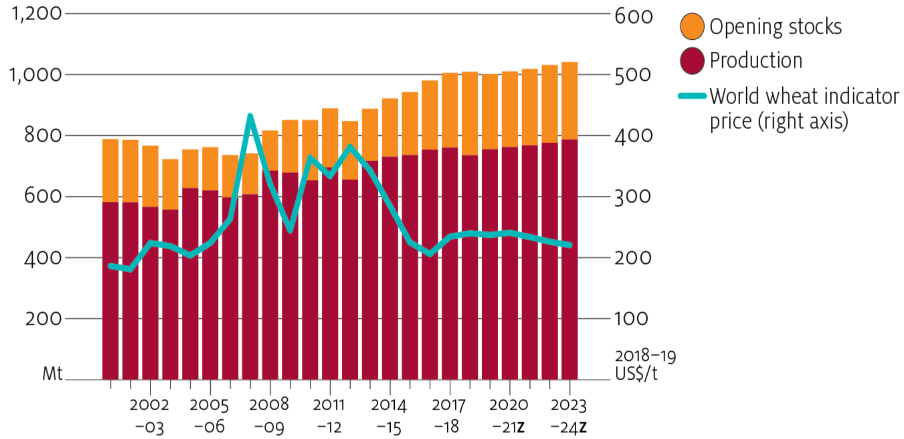
Amelia Brown

Prices to increase before falling over the medium term

The world wheat indicator price (US no.2 hard red winter, fob Gulf) is forecast to average US$242 per tonne in 2019–20—largely unchanged from the 2018–19 price. Despite a slight rise in global production, a decrease in stocks in major wheat-exporting countries is forecast to reduce tradeable supplies.

Over the medium term to 2023–24, world import demand for wheat is expected to continue increasing in line with population growth, changing diets and rising incomes. However, prices are projected to fall gradually (in real terms) over the remainder of the projection period because of expected production increases in Argentina, the Black Sea region and India. This is likely to result in world supply growing faster than demand.

World wheat supply and price, 2000–01 to 2023–24



z ABARES projection.

World production to increase over the medium term

In 2019–20 world wheat production is forecast to increase by 3% to 755 million tonnes. This assumes average seasonal conditions in major wheat-producing countries. It also reflects small increases in areas planted and average yields in Australia, northern Europe and parts of the Russian Federation that were affected by dry conditions in 2018–19.

In 2023–24 production is expected to increase to 787 million tonnes, 7% higher than in 2018–19. India is expected to continue to increase area planted to wheat in response to government policies that support increased wheat production. Area planted is also expected to increase in Argentina, where a reduction in export taxes has increased profitability of wheat production. Area planted in other major producers is expected to remain relatively flat with increases in production to come from long-term productivity growth—particularly in Kazakhstan and parts of the Russian Federation, where average yields are comparatively low.

Australian planting to be determined by seasonal break

Area planted to wheat in Australia in 2019–20 will be highly dependent on rainfall. Prolonged drought conditions across eastern Australia led to extremely low soil moisture levels during the summer of 2018–19. Adequate and timely rainfall will be required for area planted to wheat to recover from the low levels of 2018–19.

According to the latest Bureau of Meteorology three-month rainfall outlook (March to May), issued on 14 February 2019, there is no strong tendency for either a wetter or drier autumn across the majority of winter cropping regions. The exception is Queensland where most winter cropping regions are likely to be drier than average. All winter cropping regions are forecast to be hotter than average. High domestic grain prices are forecast to continue into 2019–20 until production levels become more certain. Domestic grain stocks are low following the drought-affected 2018–19 crop. Over the medium term, area planted to wheat is forecast to return to pre 2018–19 levels of around 12 million hectares.

If there were favourable seasonal conditions leading into the 2019–20 planting window this would be likely to lead to above average area planted to wheat—reflecting a reduction in livestock numbers and greater availability of fallow land.

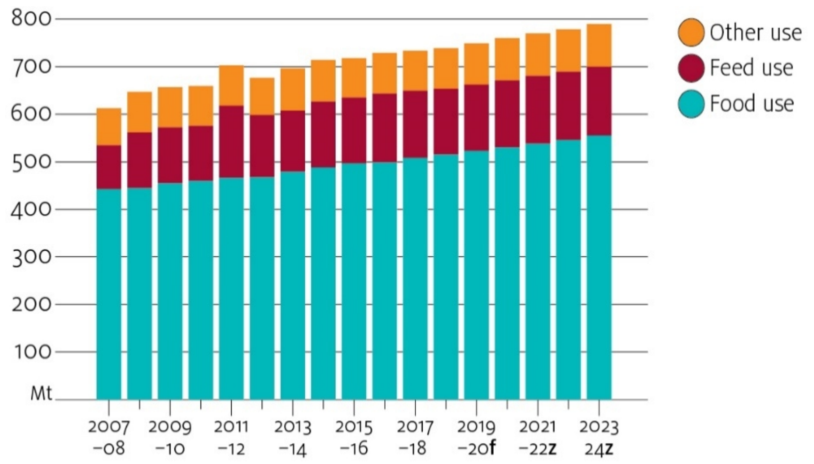
Wheat demand linked mainly to population growth

World wheat consumption is forecast to increase in 2019–20 and over the medium term due to increases in consumption of milling wheat and feed wheat.

Demand for milling wheat is projected to increase as a result of population growth, changing diets and rising incomes—particularly in developing countries. Milling wheat has few substitutes so the quantity demanded is relatively unresponsive to price changes.

Demand for feed wheat is much more price sensitive. Global demand for all feed grains, including wheat, is projected to rise in the medium term because of projected higher meat and dairy production. However, consumption of feed wheat will be determined by its competitiveness with substitute feed grains, particularly corn.

World wheat demand, 2007–08 to 2023–24



f ABARES forecast. **z** ABARES projection.

World wheat trade to continue to break records

The volume of wheat traded is forecast to rise in 2019–20 to 176 million tonnes. This mainly reflects increased milling wheat imports by Asia, the Middle East and North Africa.

Recent export trends indicate that Black Sea wheat is gaining acceptance in more price-conscious Asian markets such as Indonesia, Australia's biggest export market. However, Black Sea wheat is unlikely to substitute for Australian wheat until its quality and protein content improve. High-quality, high-protein milling wheat is used in noodles and high-end bakery products. Australia, Canada and the United States have historically produced wheat for these products, but improved varieties and management could lead to its production by other nations. Demand for Black Sea wheat may also be affected by uncertainty about reliability of supply because the Russian Federation has previously restricted exports during drought.

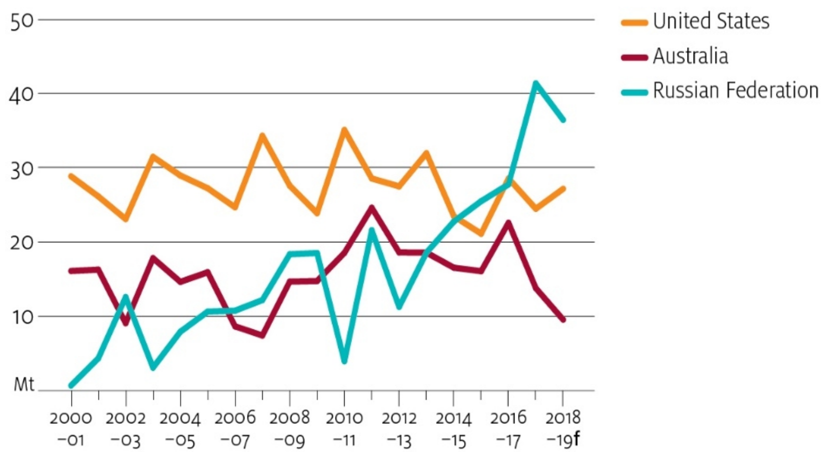
Russian wheat exports dominating world trade

During the first half of the 2018–19 marketing year, Russian wheat exports were at record levels despite an estimated 12 million tonne (16%) fall in production. This followed record production and exports in 2017–18. The Russian Federation has a significant proximity advantage to many key export destinations relative to other major exporters like Australia and the United States. It also plans to maintain competitiveness by subsidising transportation to port by rail from distant regions between February and September 2019. It is unclear how long this policy will persist since exportable supplies are falling.

In the 10 years to 2017–18 Russian wheat production rose by 42%, reaching a record 85 million tonnes. Favourable seasonal conditions boosted yields in 2017–18 but production fell in 2018–19, reflecting closer to average seasonal conditions.

Increased fertiliser use in recent years has led to increased yields, particularly in southern regions. According to the Ministry of Agriculture of the Russian Federation, fertiliser application increased by 33% from 2013 to 2017. However, average yields are still below those of other major producing countries like Canada, Ukraine and the United States. Russian fertiliser application rates are estimated to be around half the world average but expected to continue rising over the medium term, particularly in regions where application rates are still very low.

Wheat exports, major exporters, 2000–01 to 2018–19



f ABARES forecast.

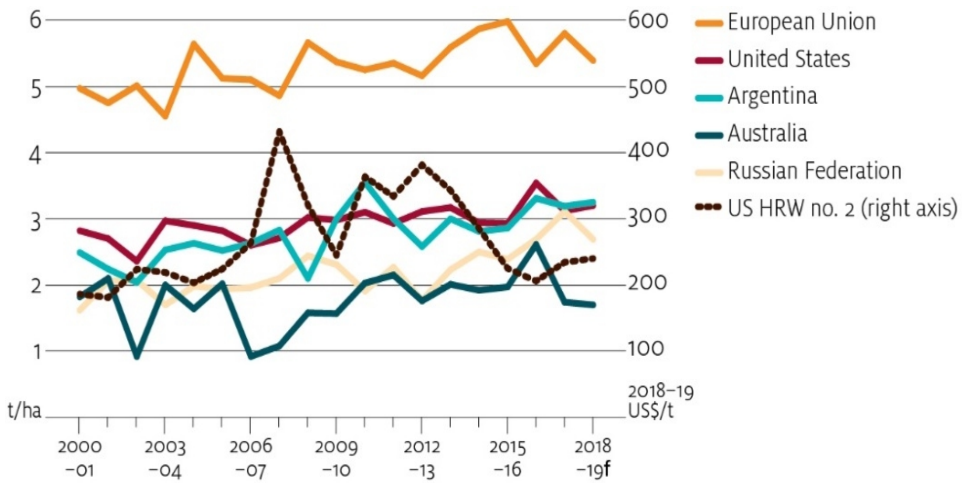
Opportunities and challenges

Climate variability and its impact on prices

A significant proportion of global yield increases are a result of technological advances in genetics and farming practices. However, seasonal conditions are the major influencer of agricultural production. Increasingly variable climatic conditions are likely to affect wheat yield trends. Further advances in wheat varieties and adoption of improved land and farm management practices will result in productivity gains. Rainfall and temperatures will continue to be the most important determinants of yield.

In the absence of long-term forecasts, ABARES assumes average seasonal conditions in major producing countries for its medium-term outlooks. However, significantly above or below average seasonal conditions would be expected for at least one major producer during the next five years. World wheat markets are likely to be more sensitive to climate variability because the stocks-to-disappearance ratio for major exporters is projected to fall. A fall in availability of exportable supplies combined with poor seasonal conditions, would be likely to result in a sharp response in world prices. This represents an upside risk for ABARES projections for the world wheat price. For example, in 2012–13 below average seasonal conditions resulted in a fall in yields in Argentina, Australia, the European Union and the Russian Federation, contributing to a 13% increase in the world indicator price.

Average wheat yields and prices, 2000–01 to 2018–19



f ABARES forecast.

Argentina's record wheat crop to compete with Australian exports

In 2018–19 Argentine wheat production reached record levels. It surpassed Australian production for the first time since 2007–08, partly because Australian production was drought affected. Argentina's exportable supplies in 2018–19 will be competitively priced due to the depreciation of the Argentine peso. This low-cost wheat from Argentina is likely to compete strongly with Australian wheat exports, particularly in price-conscious Asian markets. Over the medium term, Australia and Argentina are likely to experience either significantly above or below average seasonal conditions—resulting in fluctuating exportable supplies. Argentina will need to demonstrate it can reliably supply high-quality wheat if it is to effectively compete with Australia and maintain market share in key export markets.

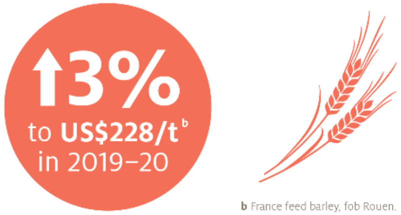
Outlook for wheat

	unit	2016–17	2017–18 s	2018–19 f	2019–20 f	2020–21 z	2021–22 z	2022–23 z	2023–24 z
World									
Area	million ha	222	221	217	222	223	224	225	225
Yield	t/ha	3.4	3.5	3.4	3.4	3.4	3.4	3.5	3.5
Production	Mt	753	763	735	755	763	768	776	787
Consumption	Mt	735	738	747	754	763	772	780	782
Closing stocks	Mt	244	269	250	250	253	257	264	269
Trade	Mt	177	179	174	176	184	188	191	193
Stocks-to-use ratio	%	33.2	36.4	33.4	33.2	33.2	33.3	33.8	34.4
Price **a**									
nominal	US$/t	197	229	240	242	252	250	247	246
real **b**	US$/t	206	234	240	237	241	234	226	221
Australia									
Area	’000 ha	12,191	12,237	10,159	12,141	12,105	12,129	12,117	12,105
Yield	t/ha	2.6	1.7	1.7	2.0	1.9	2.0	2.0	2.0
Production	kt	31,819	21,244	17,298	23,918	23,467	23,768	23,960	24,120
Export volume **c**	kt	22,057	15,492	10,152	14,210	15,618	15,727	15,673	15,846
Export value **c**									
nominal	A$m	6,094	4,672	3,630	5,248	5,752	5,716	5,664	5,723
real **d**	A$m	6,342	4,770	3,630	5,132	5,488	5,321	5,144	5,071
APW 10 net pool return									
nominal	A$/t	268	308	348	344	348	345	340	339
real **d**	A$/t	279	314	348	336	332	321	309	300

a US no. 2 hard red winter wheat, fob Gulf, July–June. **b** In 2018–19 US dollars. **c** July–June years. **d** In 2018–19 Australian dollars. **f** ABARES forecast. **s** ABARES estimate. **z** ABARES projection.
Sources: ABARES; Australian Bureau of Statistics; International Grains Council; US Department of Agriculture

Coarse grains

Benjamin Agbenyegah and Nathan Pitts



Coarse grains

Barley prices to rise due to falling global coarse grain stocks.

b France feed barley, fob Rouen.

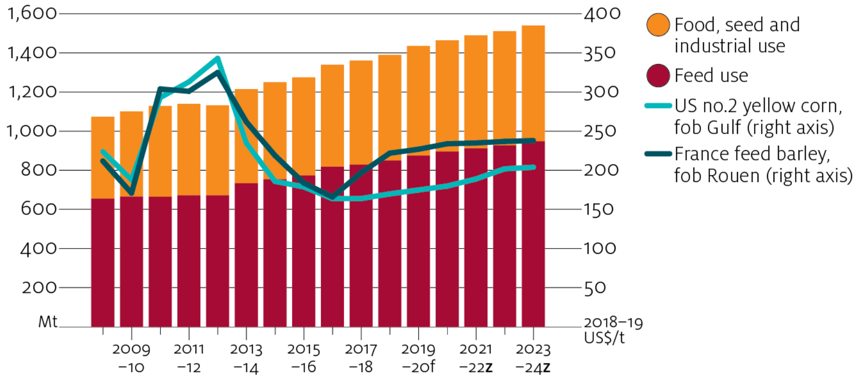
Demand for feed and industrial use to increase prices

The world indicator price for barley (France feed barley, fob Rouen) is forecast to average higher in 2019–20 and continue to increase over the medium term to 2023–24. This is because growth in world supply is expected to be lower than growth in demand for feed and industrial use. The world corn indicator price (US no. 2 yellow corn, fob Gulf) is also forecast to rise over the medium term, underpinned by strong demand growth in China.

Feed and industrial use to drive corn consumption

World coarse grain consumption is forecast to increase to a record high in 2019–20 and to continue to increase over the medium term. Growing populations and rising per capita incomes in emerging and developing economies are driving an increase in global meat consumption. Ongoing strong demand from livestock industries will increase the use of coarse grains for feed. Demand for coarse grains is also being bolstered by biofuel policies that continue to encourage substitution of ethanol for fossil fuels.

World coarse grain consumption and prices, 2008–09 to 2023–24



f ABARES forecast. **z** ABARES projection.

The demand for ethanol in China is expected to rise following the September 2017 announcement of a nationwide ethanol blending mandate. This is estimated to require 40 million tonnes of corn per year, drawn from Chinese reserves. Over the medium term, the effect of this policy on world prices will be marginal because China is not a major importer of corn. It is unclear if the blending mandate will change as China's corn stocks fall. If Chinese corn stocks are depleted, the policy would oblige China to import significant volumes of corn or ethanol, and put upward pressure on global corn prices.

In 2018–19, global barley consumption is expected to fall due to lower production from major exporters and higher global prices. Barley consumption is forecast to recover in 2019–20 to 147 million tonnes, as availability improves with an assumed return to average seasonal conditions in major exporters. Consumption growth over the medium term will be driven by increasing demand for beer in Asia.

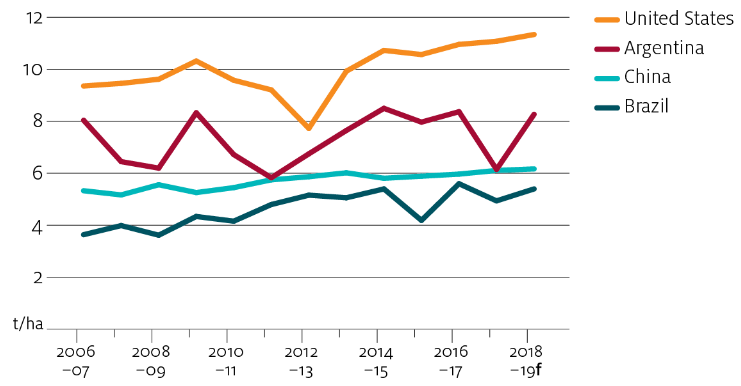
Production to partially meet growing demand

World production of coarse grains is forecast to remain largely unchanged in 2019–20. Falling Chinese corn production will be offset by increases in barley production in Australia, the European Union and the Russian Federation. In the short term, Chinese farmers are expected to shift towards producing soybeans rather than corn in response to higher Chinese import tariffs on US soybeans. Barley yields in Australia, the European Union and the Russian Federation are expected to recover as seasonal conditions improve after a poor 2018–19 season.

Over the medium term, world coarse grain production is projected to increase by under 2% per year to around 1.5 billion tonnes by 2023–24. This is well below the 4% annual growth rate in the 10 years to 2016–17. Higher barley production is expected in Australia, Canada, the Russian Federation and Ukraine in response to projected higher prices.

World corn production is projected to increase over the medium term because of an expansion in area planted, particularly in Argentina, Brazil, China and the United States. This area expansion is subject to some uncertainty and will be affected by the relative profitability of cropping alternatives—particularly soybeans. Global yields are expected to increase only slightly, with minimal increases in Argentina, Brazil and China. In the United States, yields are projected to follow trend growth.

Average corn yields in major producing countries, 2006–07 to 2018–19



f ABARES forecast.

Australian outlook

The drought affecting eastern Australia has reduced coarse grain production substantially and increased livestock feed use. In 2018–19 Australian production is forecast to fall by 9% and exports of coarse grains by 5%. Barley production is estimated to have fallen by 7% to 8.3 million tonnes. Low soil moisture levels in New South Wales and Queensland resulting from an unfavourable growing season reduced grain sorghum production to 1.3 million tonnes.

In 2019–20 Australian coarse grain production is forecast to rise by 15% to around 13 million tonnes, driven by an expansion in grain sorghum planting. Assuming improved seasonal conditions, barley production is forecast to increase by 6% to 8.8 million tonnes and grain sorghum by 50% to 2.0 million tonnes.

Over the medium term, Australian coarse grain production is projected to increase by 1.7% per year to reach 13.4 million tonnes by

2023–24. Barley production is projected to reach 9.4 million tonnes and grain sorghum 2 million tonnes by 2023–24. Exports of barley and grain sorghum are expected to increase, in line with production.

Challenges and opportunities

Climate variability and yields

Projected production growth over the outlook period assumes average seasonal conditions will prevail in the world's major coarse grain-producing countries. Most of the world's coarse grains are rain fed and production varies with seasonal conditions. Increased climate variability adds additional uncertainty to the production outlook.

Australian GM policies and export competitiveness

The Office of the Gene Technology Regulator has not issued any licences to grow GM coarse grain varieties in Australia, and some states and territories ban cultivation of all GM crops. As a result, Australia is less competitive with nations that have adopted the more productive GM varieties. A 2018 study found that GM biotechnology was responsible for additional global production of 405 million tonnes of corn in the 21 years to 2017. This was largely from yield improvements in Argentina, Brazil and the United States.

A 2017 Productivity Commission inquiry into the regulation of agriculture recommended that state and territory governments end these moratoriums. This recommendation was supported by the Australian Government in January 2019. Consistent Australia-wide policies on GM crops and permission to cultivate GM coarse grains would increase domestic productivity. This would improve Australia's competitiveness in price-sensitive export markets.

US–China trade dispute and coarse grain markets

Ongoing trade tensions between China and the United States present a significant downside risk to per capita incomes and consumer confidence in China (see the Economic overview). This could lead to a dampening of Chinese demand for meat, which is otherwise projected to increase over the medium term. Chinese consumption accounts for around 30% of global meat consumption. Any softening in demand could affect global demand for coarse grains for feed use.

Chinese anti-dumping investigation into Australian barley

An adverse finding in the Chinese Ministry of Commerce anti-dumping or countervailing duty investigations could result in duties being imposed on imports of Australian barley. This would reduce the competitiveness of Australia's barley in the Chinese market over the medium term.

Outlook for coarse grains

	unit	2016–17	2017–18 s	2018–19 f	2019–20 f	2020–21 z	2021–22 z	2022–23 z	2023–24 z
World									
Area	million ha	337	326	325	334	338	342	343	345
Yield	t/ha	4.2	4.2	4.2	4.1	4.2	4.3	4.3	4.3
Production	Mt	1,414	1,357	1,373	1,381	1,417	1,457	1,472	1,497
corn	Mt	1,122	1,076	1,099	1,092	1,123	1,157	1,165	1,184
barley	Mt	147	144	143	144	146	148	154	156
Consumption	Mt	1,353	1,374	1,400	1,436	1,467	1,494	1,510	1,541
corn	Mt	1,059	1,088	1,118	1,144	1,169	1,193	1,206	1,228
barley	Mt	149	148	141	147	152	154	156	159
Closing stocks	Mt	384	370	356	306	260	228	196	154
Trade	Mt	199	186	201	211	215	219	223	226
Stocks-to-use ratio	%	28.4	26.9	25.4	21.3	17.7	15.3	13.0	10.0
Corn price **a**									
nominal	US$/t	157	160	170	179	188	202	221	227
real **b**	US$/t	164	164	170	175	180	189	202	204
Barley price **c**									
nominal	US$/t	158	192	222	228	240	247	254	260
real **b**	US$/t	166	197	222	223	229	231	233	234
Australia									
Area									
barley	’000 ha	4,834	3,878	4,019	3,987	4,027	4,067	4,132	4,158
grain sorghum	’000 ha	368	531	537	620	625	627	629	630
total	’000 ha	6,359	5,285	5,300	5,582	5,632	5,679	5,750	5,780
Production									
barley	kt	13,506	8,928	8,310	8,786	8,962	9,143	9,349	9,441
grain sorghum	kt	994	1,439	1,303	1,953	1,981	2,000	2,019	2,035
total	kt	17,352	11,991	10,921	12,522	12,760	12,992	13,249	13,390
Export volume	kt	10,760	8,824	8,402	8,908	9,132	9,328	9,611	9,835
Export value									
nominal	A$m	2,821	2,577	2,981	3,201	3,406	3,553	3,783	3,554
real **b**	A$m	2,936	2,631	2,981	3,130	3,249	3,307	3,436	3,149
Price – nominal									
feed barley **e**	A$/t	174	253	291	300	315	324	334	395
malting barley **g**	A$/t	188	262	354	370	377	382	389	400
grain sorghum **h**	A$/t	238	323	361	348	351	349	335	330
Price – real **d**									
feed barley **e**	A$/t	181	258	291	293	300	302	303	350
malting barley **g**	A$/t	196	268	354	362	360	356	353	354
grain sorghum **h**	A$/t	248	329	361	340	335	325	304	292

a US no. 2 yellow corn, fob Gulf, July–June. **b** In 2018–19 US dollars. **c** France feed barley, fob Rouen, July–June. **d** In 2018–19 Australian dollars. **e** Feed 1, delivered Geelong. **f** ABARES forecast. **g** Gairdner Malt 1, delivered Geelong. **h** Gross unit value of production. **s** ABARES forecast. **z** ABARES projection.

Sources: ABARES; Australian Bureau of Statistics; FranceAgriMer; UN Commodity Trade Statistics Database (UN Comtrade); US Department of Agriculture

Oilseeds

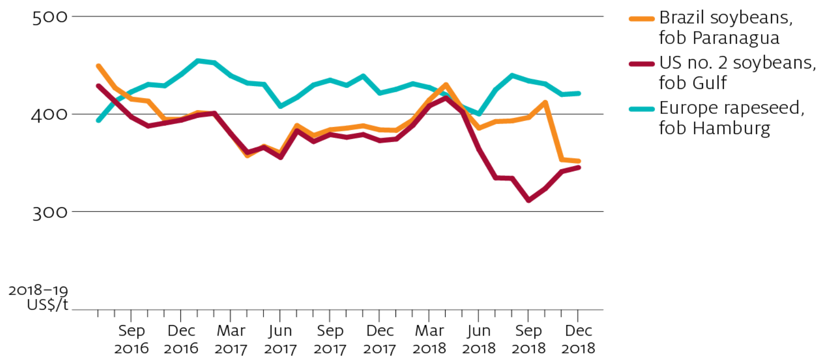
Benjamin K Agbenyegah

Oilseed prices to remain relatively low

In 2019–20 growth in the world supply of canola is expected to broadly align with demand. As a result, world canola prices are forecast to remain largely unchanged. Higher production is forecast in Australia, Canada and the European Union due to an expected expansion in area planted and some improvement in yields following hot and dry weather in 2018–19. Over the medium term, canola prices are projected to fall until 2021–22 before rising moderately to US$430 per tonne (in real terms) in 2023–24. Despite the slight increase, prices remain lower than the 2018–19 forecast and well below the 10 year average to 2017–18 of US$535 per tonne (in real terms).

The world soybean indicator price (US no. 2 soybeans, fob Gulf) is forecast to fall by 8% in 2018–19. This is due to the drop in Chinese demand resulting from the US–China trade dispute. The price is forecast to recover slightly in 2019–20, but projected record production in South America over the medium term will put downward pressure on prices. By 2023–24 the soybean price is expected to fall to US$347 per tonne (in real terms). If realised, this would be the lowest price since 2006–07.

Soybean and canola export prices, July 2016 to December 2018



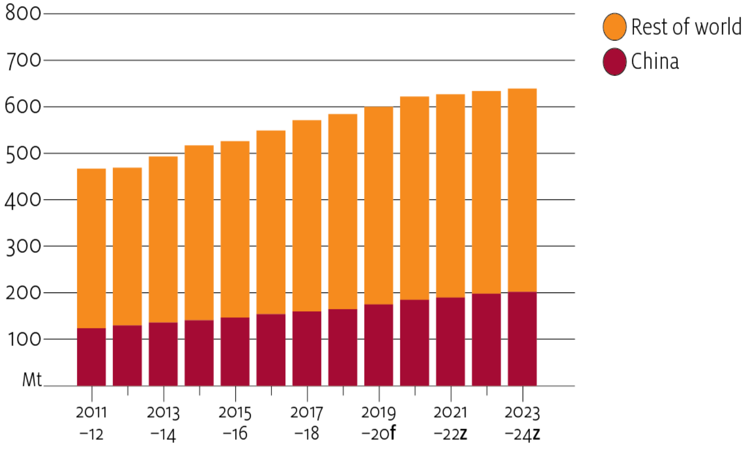
Source: International Grains Council

Demand driven by Chinese growth

World oilseed consumption is forecast to rise, largely due to growing Chinese demand. Rising per capita income continues to lift Chinese demand for meat, resulting in increased demand for high-protein animal feed such as soybean meal. In the short term to 2019–20, a higher proportion of Chinese soybean consumption is expected to be sourced from ample domestic stocks rather than from increased imports. At the beginning of 2018–19 China held around 25% of world soybean stocks. Over the medium term, Chinese soybean consumption is projected to grow at 3.2% per year to reach 128 million tonnes in 2023–24. Domestic supply is not projected to meet demand growth over this period, increasing demand for imports.

Population growth and rising incomes in other emerging and developing economies, particularly in the rest of Asia, Eastern Europe and the Middle East, will add to global demand growth.

World oilseed consumption, 2011–12 to 2023–24



f ABARES forecast. **z** ABARES projection.

Soybean trade diversion boosts canola exports

The 25% additional tariff imposed by China on imports of US soybeans as part of the US–China trade dispute resulted in a significant drop in Chinese imports of US soybeans. This shortfall was only partially offset by increased imports from Argentina and Brazil. As a result, total Chinese soybean imports fell by 8% in 2018. The fall in the world price of soybeans triggered by the trade dispute stimulated demand for US soybeans from the European Union and other countries.

To make up the shortfall of imported protein meal, China increased its imports of canola from Australia and Canada. In 2018–19 China's imports of canola are expected to rise by 19% to 5.6 million tonnes. This stronger demand is expected to boost global imports of canola and rapeseed.

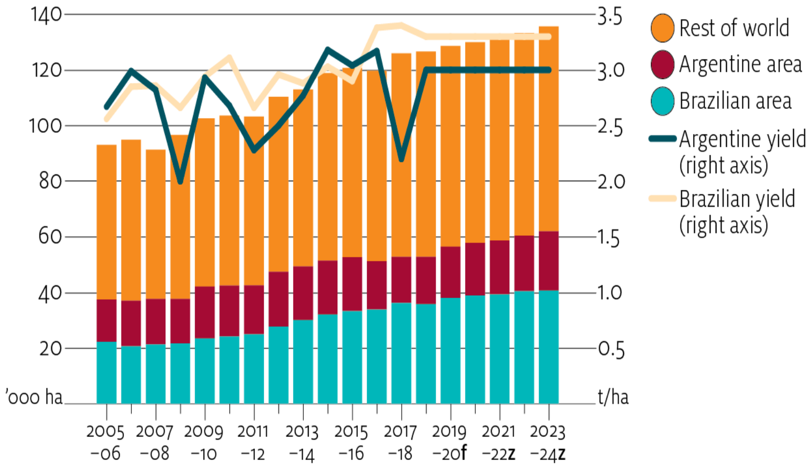
Oilseed production to grow in medium term

Global oilseed production is forecast to rise in 2018–19 to a record 585 million tonnes and a further 603 million tonnes in 2019–20. This increase will be dominated by expected increases in production in Argentina and Brazil. In contrast, world canola and rapeseed production are forecast to fall in 2018–19, following record production in 2017–18. Falling production is expected in Australia, Canada and the European Union because of reduced planted area and lower yields resulting from hot and dry conditions. In 2019–20 oilseed production is expected to rise due to area expansion and yield improvements. Yields are assumed to return to more average levels provided growing conditions improve in Australia, Canada and the European Union.

Although the world soybean price is projected to fall over the medium term, global oilseed production is projected to grow at an average of around 2% per year to reach 638 million tonnes by 2023–24. Increased soybean production in Argentina and Brazil will continue to drive this trend. Production increases are projected to occur largely through expanded planted area. This is because soybeans will remain relatively more profitable compared with alternatives such as corn. This is despite the Argentine Government imposing an additional export tax of 28.5% on soybeans and 25.8% on both soybean meal and soybean oil until 2020.

Soybean yields in Argentina and Brazil are forecast to remain largely unchanged over the medium term because the uptake of the current generation of genetically modified soybean varieties is largely complete. Relatively low prices and agronomic constraints are expected to result in limited growth in canola and rapeseed production in Canada, the European Union and India.

Soybean harvested area and average yield, Brazil and Argentina, 2005–06 to 2023–24



f ABARES forecast. **z** ABARES projection.

Australian outlook

Canola production to remain relatively low

In 2018–19 canola production is estimated to have fallen by 41% to 2.2 million tonnes. The fall is largely driven by an estimated 31% reduction in area planted, to 1.9 million hectares. In Western Australia, relatively stronger prices for barley resulted in farmers shifting from canola to barley. In New South Wales and Victoria, unfavourable seasonal conditions constrained plantings.

In 2019–20 canola production is forecast to increase to around 3.7 million tonnes because area planted and yields are expected to return to more average levels. Australian canola exports are forecast to increase in line with production. Over the medium term, Australian production is projected to remain at roughly 3.7 million tonnes.

Challenges and opportunities

African swine fever poses downside risk to consumption

African swine fever has been spreading through China since August 2018. In the short term, the disease poses a high risk to forecast Chinese demand for animal feed. According to China's Ministry of Agriculture and Rural Affairs, at 14 January 2019 the disease had been recorded in pigs and wild boars in 24 provinces. The speed of the spread has slowed following restrictions on pig movements, but eradication of the disease in an industry comprised of around 26 million small-scale farmers presents a significant challenge for the Chinese Government.

At 15 February 2019 more than 950,000 pigs had been culled through eradication programs. If the disease is not contained and the current rate of culling continues, China's pig population will be significantly reduced. This may lead to a fall in Chinese demand for animal feed.

US–China trade dispute distorting oilseed markets

US soybeans typically account for the majority of Chinese imports when the US marketing season commences in September. However, in 2018 the ongoing US–China trade dispute resulted in US soybean prices being relatively higher for Chinese importers. In October 2018 Chinese soybean imports from the United States fell by 96% to around 272,000 tonnes, compared with the same month in 2017. However, a significant increase in Chinese demand for South American soybeans has led to a rise in Argentine and Brazilian prices in 2018–19.

Chinese food and meal processors are substituting soybeans with other protein sources, including canola meal and dried distillers grains with solubles. As a result, China's canola imports are forecast to rise by 19% in 2018–19 to 5.6 million tonnes, raising world exports to around 17 million tonnes. Any further escalation of the US–China trade dispute will negatively affect the price of and demand for soybeans.

Outlook for oilseeds

	unit	2016–17	2017–18 s	2018–19 f	2019–20 f	2020–21 z	2021–22 z	2022–23 z	2023–24 z
World									
Oilseeds									
Production	Mt	568	574	585	603	611	626	633	638
Consumption	Mt	549	571	584	600	622	627	634	639
Exports	Mt	170	168	169	170	171	172	173	174
Closing stocks	Mt	111	111	109	105	95.5	94.5	87.2	80.6
Oilseed indicator price **a**	US$/t	389	385	355	362	372	378	382	386
real **b**	US$/t	407	394	355	354	356	354	350	347
Canola indicator price **c**	US$/t	427	424	435	443	449	452	464	479
real **b**	US$/t	447	433	435	433	429	423	425	430
Protein meals									
Production	Mt	318	327	338	346	355	361	367	371
Consumption	Mt	311	333	332	341	350	356	363	367
Exports	Mt	88.0	88.0	90.0	92.4	94.5	98.5	101	103
Closing stocks	Mt	22.9	16.8	23.1	28.4	33.8	38.9	43.0	47.3
Indicator price **d**	US$/t	348	325	310	323	340	353	364	375
real **b**	US$/t	364	333	310	316	325	330	334	337
Vegetables oils									
Production	Mt	185	195	200	202	209	214	219	226
Consumption	Mt	184	191	198	204	209	213	217	221
Exports	Mt	77.7	80.7	84.2	87.1	86.3	87.8	91.3	95.0
Closing stocks	Mt	19.7	23.7	25.9	23.9	24.1	24.8	27.1	31.6
Indicator price **e**	US$/t	837	850	784	817	859	892	920	948
real **b**	US$/t	875	870	784	799	821	835	843	852
Australia									
Production	kt	5,648	5,205	3,085	4,958	5,019	5,121	5,113	5,062
Exports	kt	3,923	2,494	1,926	2,839	3,055	3,074	3,112	3,191
Canola									
Area	’000 ha	2,681	2,729	1,893	2,690	2,685	2,700	2,650	2,645
Production	kt	4,313	3,669	2,180	3,685	3,732	3,699	3,631	3,650
Export volume **g**	kt	3,599	2,252	1,647	2,643	2,791	2,766	2,691	2,700
Export value **g**									
nominal	A$m	2,128	1,306	952	1,638	1,674	1,676	1,639	1,732
real **h**	A$m	2,214	1,334	952	1,602	1,597	1,560	1,488	1,534
Price **i**	A$/t	530	512	553	569	569	573	588	607
real **h**	A$/t	552	523	553	556	543	533	534	537

a US no.2 soybeans, fob Gulf. **b** In 2018–19 US dollars. **c** Rapeseed, Europe, fob Hamburg, July–June. **d** Soybean meal, cif, Rotterdam, 45 per cent protein. **e** Soybean oil, Dutch, fob ex-mill. **f** ABARES forecast. **g** July–June. **h** In 2018–19 Australian dollars. **i** Delivered Melbourne, July–June. **s** ABARES estimate. **z** ABARES projection.

Sources: ABARES; Australian Bureau of Statistics; US Department of Agriculture

Sugar

Charley Xia

Prices to remain low and volatile in 2018–19

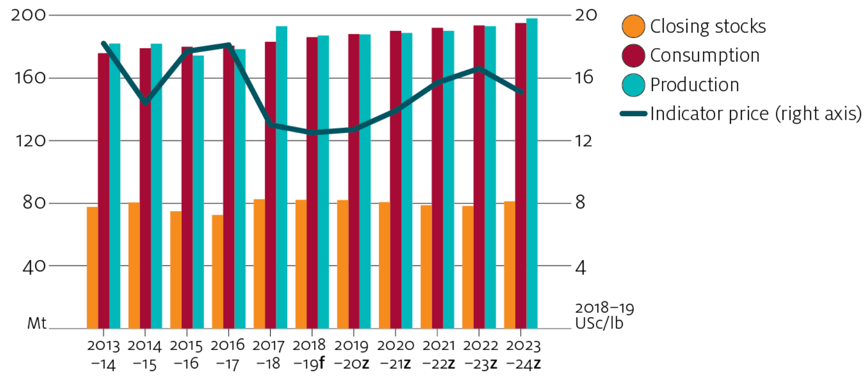
The world indicator price for raw sugar (Intercontinental Exchange, nearby futures, no. 11 contract) is forecast to fall to US12.5 cents per pound in 2018–19. Global production is expected to exceed consumption for the second year in a row, increasing stocks and placing downward pressure on prices.

Ongoing price volatility is expected in the short term due to the liquidity crisis unfolding in the Indian sugar industry. The crisis is the result of the mounting mill arrears payable to cane farmers. Arrears are the shortfall between the price millers can sell sugar for and the government-set minimum cane prices.

To help clear mill arrears, the Indian Government has raised domestic sugar and ethanol prices. These measures are expected to lower Indian exports below the government-mandated 5 million tonne quota.

Brazilian mills are expected to increase cane allocation to sugar production due to assumptions of lower oil prices and a depreciating Brazilian real. Assuming average seasonal conditions through to the upcoming harvest in Brazil, an increase in Brazilian sugar exports is expected to offset lower Indian exports.

World sugar indicators, 2013–14 to 2023–24



f ABARES forecast. **z** ABARES projection.
Note: October to September year. Volumes are in raw equivalent.

Price improvements expected over the medium term

In 2019–20 the world indicator price is expected to improve to US13 cents per pound. Assuming average seasonal conditions in major producing countries, global production is forecast to fall slightly below consumption due to a global fall in area planted to both sugar cane and sugar beet.

High global stocks are expected to dampen the expected recovery in world sugar prices. In India, record mill arrears are expected to turn some farmers away from cane growing towards alternative crops, such as rice and pulses. In Thailand, rising prices of cassava relative to sugar cane are expected to reduce cane area. In the European Union, low beet returns and increasing production costs due to chemical regulations are expected to reduce beet area. Brazilian production is expected to increase based on projected oil price and currency assumptions. However, the rise will be insufficient to offset production declines elsewhere.

Over the medium term to 2023–24, fundamental changes in Brazilian energy policy are expected to provide Brazilian sugar mills with an incentive to increase ethanol production. Between 2020–21 and 2022–23 this is likely to result in a period of declining global sugar stocks, as global production falls below consumption. The Brazilian Government's commitment to carbon abatement has already created positive signals for biofuel investments that could limit sugar production and exports.

Higher sugar prices triggered by falling Brazilian exports are expected to accelerate supply responses in Asian countries, especially India and Thailand. By the end of the projection period, high global production will begin to put downward pressure on sugar prices.

Moderate growth in world sugar consumption

Global consumption growth per person is expected to average 1% per year over the outlook period, compared with 1.5% during the previous decade to 2017–18.

Demand growth in some advanced economies, such as Japan, will continue to be constrained by slowdowns in population growth. This will be accompanied by dietary changes based on greater health awareness and nutritional policies. Faster growth is expected in emerging and developing economies as incomes and populations grow, and as urbanisation drives expansions in processed food and beverage industries. Overall, the rate of growth in global sugar consumption per person will be tempered by increasing global health awareness and lessons learnt in developed countries.

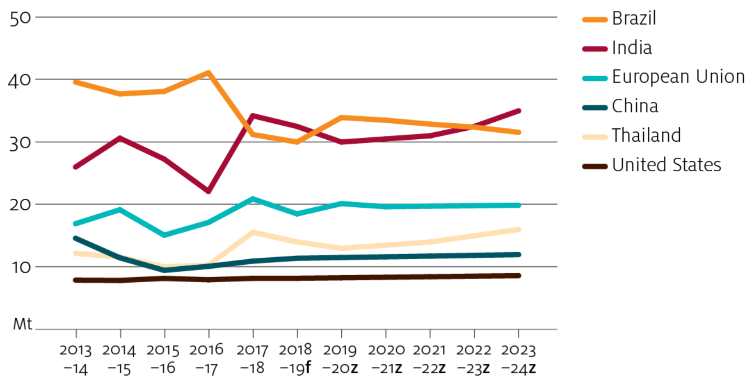
The introduction of sugar taxes globally is expected to further constrain demand growth and provide an incentive for food and beverage industries to reduce sugar content and diversify products. In the past 2 years, sugar taxes have been legislated in India, Ireland, the Philippines, Portugal, Saudi Arabia, South Africa, Sri Lanka, the United Arab Emirates and the United Kingdom. Sugar taxes will be implemented in Malaysia and Thailand in 2019.

Medium-term production outlook

Increasing global production driven by policy distortions

Global sugar production is projected to increase to around 198 million tonnes in 2023–24 in the absence of substantial policy reforms in major sugar-producing countries. Government support policies in China, the European Union, India, Thailand and the United States continue to result in expanded production at the expense of consumers and taxpayers, contribute to lower prices and an erosion of global trade opportunities.

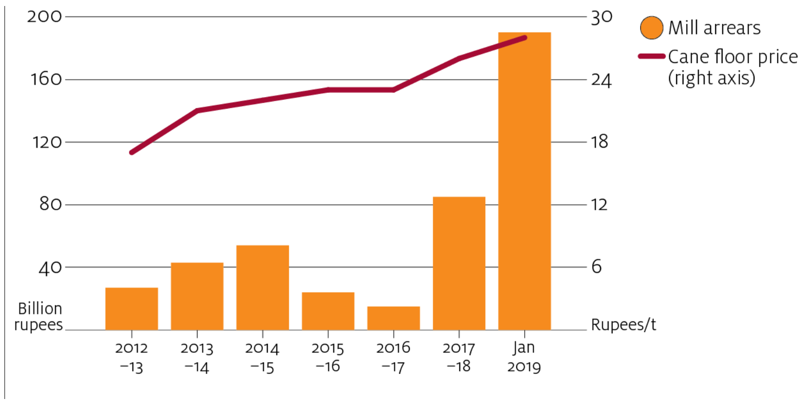
World sugar production, 2013–14 to 2023–24



f ABARES forecast. **z** ABARES projection.
Note: October to September year. Volumes are in raw equivalent.

India's prominence in the world sugar market will continue to grow. Over the past few years, the Indian Government has supported its sugar industry that produces at costs that are higher than other exporting countries. Support to farmers and millers has increased budgetary burdens. In January 2019 mill arrears had reached an estimated 190 billion Indian rupees ($3.7 billion). This has created a liquidity crisis that has precipitated further government price controls in India's domestic sugar and ethanol markets.

Indian cane support price and mill arrears, 2012–13 to January 2019



Sources: Department of Food & Public Distribution, Government of India; FO Licht

In the European Union, voluntary coupled support under the Common Agricultural Policy continues to provide an incentive for farmers in Eastern Europe to expand beet cultivation. This has led to contention with EU member states that are not eligible for these payments, such as France and Germany.

The Thai Government has initiated reforms to its domestic sugar industry by floating the domestic retail sugar price and abolishing the sugar quota system. However, the cane support price and profit-sharing arrangements between mills and farmers still remain in place.

In China, import tariffs on raw sugar continue to protect the domestic sugar industry. This trade barrier prevents Chinese consumers from accessing lower-cost imports and impedes price signals that would help Chinese farmers match supply with demand.

The United States protects its domestic sugar industry from competition through a combination of price support loans, marketing allotments, biofuel subsidies and tariff barriers. The artificially high price of sugar in the United States has been estimated by the American Enterprise Institute to cost the US economy of up to US$1 billion per year. It also means that US consumers pay nearly twice the world price for a pound of sugar.

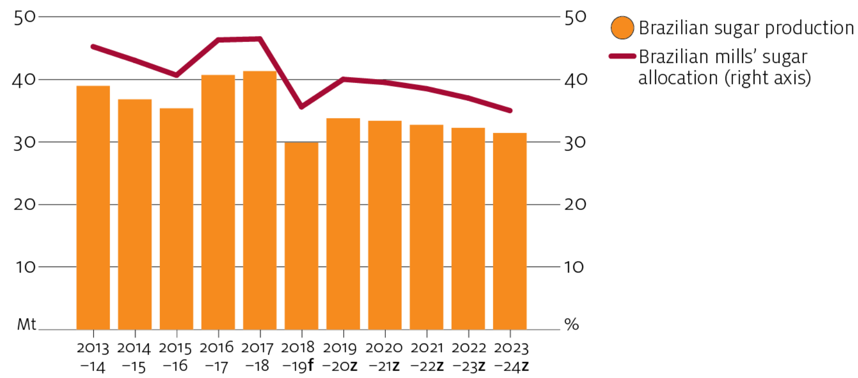
Brazilian decarbonisation policy to drive falling sugar production

In 2020 the Brazilian Government will enact the RenovaBio program to reduce carbon emissions from gasoline in the country's transport sector. Government-mandated emissions targets will be implemented through a market of carbon saving credits tradeable among fuel distributors and biofuel producers. The pricing of carbon is expected to raise demand for ethanol and provide an incentive for sugar mills to produce more ethanol.

Brazil's decarbonisation policies coincide with forecasts of an economic recovery that is expected to expand the country's fleet of flexible fuel vehicles. Economy-wide reforms, including in the domestic gasoline market, are also expected to encourage investment in additional biofuel production capacity.

Over the medium term, Brazilian sugar production and exports are expected to fall due to an expected appreciation of the Brazilian real and emphasis on ethanol production. Falling sugar exports from Brazil are expected to be increasingly offset by rising exports from India and Thailand.

Brazilian sugar production, 2013–14 to 2023–24a



a March to April. **f** ABARES forecast. **z** ABARES projection.
Note: April to March year. Volumes are in raw equivalent.

Stable Australian production, but growing export value

Australian cane production is expected to remain stable at around 34 million tonnes over the medium term. Low world sugar prices, competing land use from horticulture and high land values close to existing sugar mills are expected to limit expansion of the area planted to sugarcane. The gradual emergence of corporatisation is expected to slowly drive cost-saving scale efficiencies in sugarcane farming.

Australian sugar production is expected to average 4.8 million tonnes over the medium term. Australia's processing efficiency, proximity to East-Asian markets, direct marketing to overseas refineries and free trade agreements will continue to maintain the competitiveness of the Australian sugar industry despite abundant global production capacity and low world prices

Opportunities and challenges

Potential investments in Brazilian sugar industry

The RenovaBio program has the capacity to revitalise investments in the Brazilian sugar industry through replanted cane fields, adoption of improved cane varieties and increased vertical integration. Productivity improvements and cost savings in the Brazilian sugar industry could enable Brazilian sugar mills to maintain sugar production and serve growing ethanol demand simultaneously, placing pressure on world prices and Australia's competitiveness.

Trans-Pacific Partnership to benefit Australian exports

The Comprehensive and Progressive Agreement for Trans-Pacific Partnership will improve market access for Australian sugar into Canada, Japan, Mexico and Vietnam. The elimination of Japan's tariff and reduction in the levy on high-polarity sugar are expected to improve the competitiveness of Australia's exporters, with benefits throughout the industry.

Marketing structure of the Australian sugar industry

Ongoing regulation of Australian sugar marketing risks reducing the incentives for Australian sugar mills to invest in renewing infrastructure. This poses a risk to future processing efficiency which, in the medium term, risks reducing returns to canegrowers and accelerating the exit of less efficient farms from the industry.

Greater linkages to energy markets

Both the Indian and Thai governments have made significant investments to expand the ethanol production capacity of sugar mills. In the medium term, greater flexibility to direct sugarcane volumes to sugar or ethanol production in these major sugar-exporting countries could moderate the cyclical volatility of world sugar prices. Global sugar prices could become increasingly coupled to international energy prices and government biofuel policies in India and Thailand.

Australian Government
Department of Agriculture and Water Resources
ABARES

Outlook for sugar a

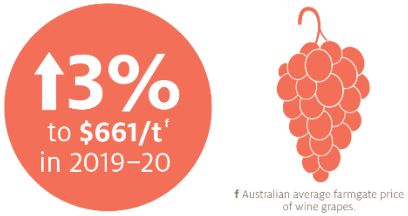
	unit	2016–17	2017–18 s	2018–19 f	2019–20 f	2020–21 z	2021–22 z	2022–23 z	2023–24 z
World b									
Production	Mt	178	193	187	188	189	190	193	198
Brazil	Mt	41.1	31.2	30.0	33.9	33.5	32.9	32.4	31.6
Consumption	Mt	181	183	186	188	190	192	194	195
Exports	Mt	68.8	63.0	60.0	62.0	62.3	62.7	63.7	65.3
Closing stocks	Mt	72.5	82.5	82.1	82.0	80.7	78.7	78.3	81.3
Stocks-to-use ratio	%	40.2	45.1	44.1	43.6	42.5	41.0	40.4	41.7
Price **c**									
nominal	USc/lb	17.3	12.7	12.5	13.0	14.5	16.8	18.1	16.8
real **d**	USc/lb	18.1	13.0	12.5	12.7	13.9	15.7	16.6	15.1
Australia e									
Production	kt	4,772	4,500	4,700	4,830	4,830	4,830	4,830	4,830
Export volume	kt	3,970	3,333	3,600	3,870	3,870	3,870	3,870	3,870
Export value									
nominal	A$m	2,424	1,536	1,546	1,767	2,015	2,384	2,627	2,219
real **g**	A$m	2,523	1,569	1,546	1,728	1,923	2,219	2,386	1,966
Return to cane growers									
nominal	A$/t	44.4	36.2	31.2	33.2	37.9	44.8	49.4	41.7
real **g**	A$/t	46.2	36.9	31.2	32.5	36.2	41.7	44.9	37.0

a Volumes in raw equivalent. **b** October–September years. **c** Nearby futures price, Intercontinental Exchange, New York, no. 11 contract. **d** In 2018–19 US dollars. **e** July–June years. **f** ABARES forecast. **g** In 2018–19 Australian dollars. **s** ABARES estimate. **z** ABARES projection.

Sources: ABARES; Australian Bureau of Statistics; International Sugar Organization

Wine and wine grapes

Charley Xia



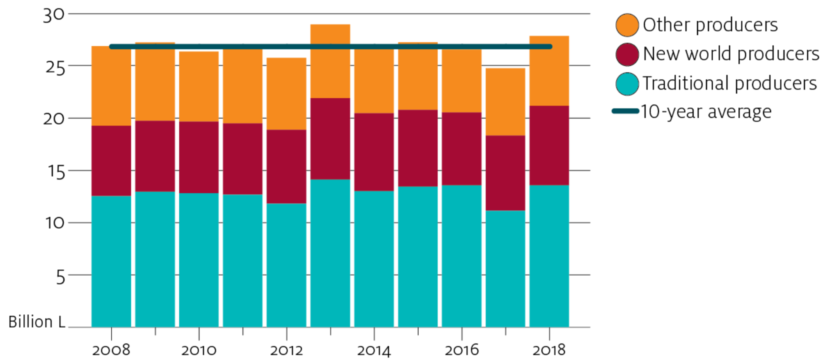
Wine

Demand from China for Australian wine to support wine grape prices.

Bumper global harvest increases wine inventories

In 2018 bumper grape harvests in Europe, South America and the United States substantially increased global wine inventories. These inventories were low due to a limited 2017 vintage and rising consumption from China and the United States. However, demand in these major markets is expected to moderate in the short term due to lower income growth and greater economic uncertainty. Clearance of the 2018 vintage is expected to be slow, with intense price competition between exporters.

World wine production, 2008 to 2018

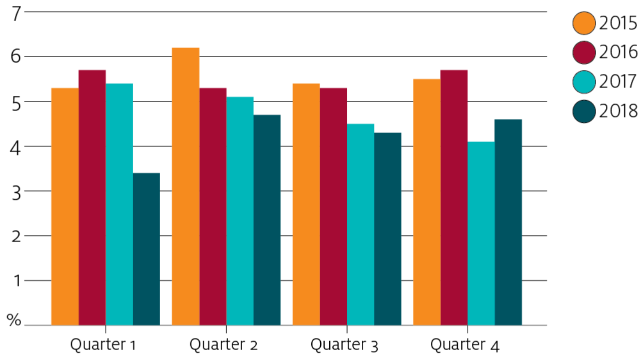


Note: New wine-producing countries include Argentina, Australia, Chile, New Zealand, South Africa and the United States. Traditional wine-producing countries include France, Italy and Spain.
Source: International Organisation of Vine and Wine

Wine imports in China to contract in the short term

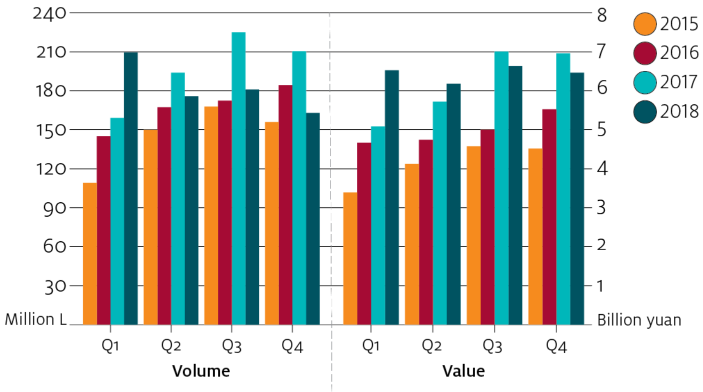
In 2018 the expenditure of urban households in China grew at a slower rate in real terms than in previous years. Tightening household budgets led to a reduction in wine imports at the start of the second quarter of 2018.

Per person expenditure of urban households, quarterly growth rates, China, 2015 to 2018



Note: Growth rate is in real terms and calculated relative to the same quarter in the previous year.
Source: National Bureau of Statistics of China

Value and volume of Chinese wine imports, quarterly, 2015 to 2018



Source: General Administration of Customs, People's Republic of China

In 2018 Australia increased its wine exports to China despite falling Chinese imports. Australia's competitiveness was improved by favourable exchange rates, tariff reductions under the China–Australia Free Trade Agreement and marketing campaigns in China. In 2019 assumptions of slower economic growth are expected to further reduce Chinese wine imports. However, prices of Australian wines in China are expected to strengthen as a result of the smaller 2019 Australian vintage, favourable exchange rates and the elimination of Chinese tariffs on Australian wines.

Over the medium term to 2023–24, growth in the value of Australian wine exports to China is expected to be slower compared with the last 4 years. This is expected to result from slower growth in Chinese wine consumption and greater competition from Chile and France. Growth in the domestic wine industry in China also poses significant risks to Australia's market share.

Challenging conditions in US and UK markets

Estimates by the Silicon Valley Bank show wine consumption in the United States increased only slightly in 2017 and remained flat in 2018. The trend follows declining retail sales of commercial wines and slower growth of premium wines. US wine imports are expected to fall in 2019 due to stagnant consumption and increasing supply of quality Californian wines following the record 2018 harvest. Prices of Australian wines in the US market are expected to fall as competition from domestically produced wine and wine from Argentina, Chile and Spain increases.

In the UK market, wine consumption is expected to fall because of economic uncertainty and rising taxes on wine relative to other alcohols. The value of Australian wine exports to the United Kingdom is expected to fall in 2019–20.

UK consumption will also be affected by the price of imported wine, which could rise quickly depending on the impact of Brexit on the country's exchange rate, logistic networks and market access. The bilateral Wine Agreement between Australia and the United Kingdom will ensure continued access for Australian wines into the UK market post-Brexit. The agreement is expected to preserve Australia's dominant market share in the UK retail market. The UK Government has yet to reach similar agreements with Australia's European competitors, potentially providing capacity for Australian producers to expand their sales in the UK restaurant market.

Over the medium term, demand for wine in the United States and the United Kingdom is expected to remain subdued. Despite relatively poor growth prospects in these major markets, quality, strongly branded and competitively priced Australian wines are expected to capture additional market share from North American and European wine producers.

Outlook for Australian wine grape production

Adverse seasonal conditions to reduce Australia's 2019 harvest

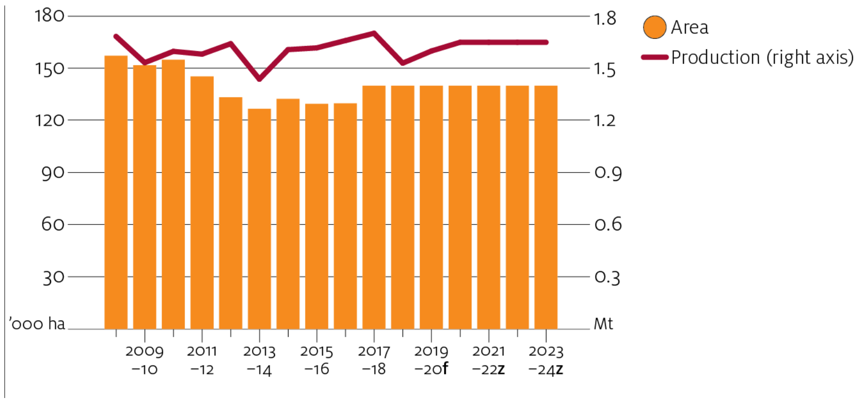
Australian wine grape production for the 2019 vintage is estimated to be around 1.5 million tonnes, the smallest harvest since 2013–14. Shortages of irrigation water, spring frosts and extreme summer heatwaves in Australia's major wine-growing regions are forecast to significantly reduce grapevine yields.

The difficult seasonal conditions of 2018–19 are likely to have affected fruit set for the 2019–20 harvest, which will lower potential production. The price and availability of irrigation water are also expected to affect production decisions.

Wine grape planting to remain low over the medium term

Total vineyard area in Australia is expected to remain stable over the medium term. Increasing competition for resources, including land, water and labour from other perennial crops is expected to limit new vineyard plantings. Existing vineyards are expected to optimise their varieties and replace ageing vines to cater for increasing demand from China for red varietals.

Australian vineyard areas and wine grape production, 2008–09 to 2023–24



f ABARES forecast. **z** ABARES projection.

Moderate increase in wine grape prices over medium term

Over the medium term, Australian wine grape prices are expected to rise more moderately compared with the last 4 years. Slower growth in Chinese demand for Australian wines is expected to reduce the potential for strong increases in wine grape prices.

The short-term tightening of global wine demand is expected to cause wineries to prioritise the long-term development of premium markets. This is likely to increase bonuses and penalties paid for fruit based on quality parameters. Growers will increasingly have to choose between producing greater quantities of lower-quality fruit or reducing yields to achieve higher prices.

Opportunities and challenges

China's economic slowdown

In 2018 the value of Australian wine exports to China totalled just over $1 billion, exceeding the sum of exports to its 3 other largest markets, Canada, the United Kingdom and the United States.

China's economic growth is expected to slow but remain above 6% per year to 2020. Rising disposable income is expected to continue to drive growing Chinese consumption. However, economic uncertainty affecting consumer confidence is a significant downside risks to Australian wine exports.

Impact of Brexit on distribution networks into Europe

The United Kingdom is the largest market for Australian wines by volume. The UK Wine and Spirit Trade Association estimated that around a quarter of Australian bulk wines sent to the United Kingdom are bottled in the country for re-export to the European Union, Norway, Russia and Ukraine.

In 2018 Australia increased exports of bulk wines to the United Kingdom in preparation for potential trade disruptions caused by Brexit. The Wine Agreement between Australia and the United Kingdom will ensure continued access for Australian wines into the UK market. However, it is unclear whether trade arrangements between the United Kingdom and the European Union post-Brexit will retain the current distribution networks for Australian wines.

Trans-Pacific Partnership Agreement opens new opportunities

The Comprehensive and Progressive Agreement for Trans-Pacific Partnership will improve market access for Australian wine into Canada, Malaysia, Mexico and Vietnam. The elimination of Canada's tariffs on Australian wines is expected to improve their competitiveness, with benefits expected throughout the industry.

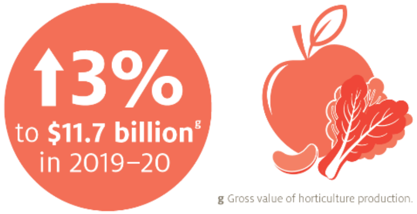
Reforming the Wine Equalisation Tax

Most alcohols in Australia are taxed based on alcoholic content, but wine is taxed based on value through the Wine Equalisation Tax. This taxation arrangement creates price distortions that affect consumers' choice of wine versus other alcohols, and choice of commercial wines versus premium wines. Several government reviews have recommended overhauling the wine taxation system. In 2009 a review of Australia's future tax system called for a transition to a volumetric tax on alcohol that would converge over time to a single tax rate.

On 1 July 2018 eligibility criteria for the Wine Equalisation Tax rebate were tightened to better ensure its recipients were small and regional wine producers. The change follows a 2015 Senate committee inquiry into the Australian grape and wine industry that heard evidence that the rebate was being exploited through eligibility loopholes. This worked against the profitability of the wine industry by creating a disincentive for mergers, and subsidised unprofitable grape production. The committee recommended that the government phase out the current Wine Equalisation Tax rebate over 5 years.

Horticulture

Charley Xia



Horticulture

Growing fruit and nuts production to increase horticulture value.

Heatwaves and high water prices to affect production

Intense heat and dry conditions in January reduced production of berries, broccoli, cauliflower, celery and leafy vegetables. Heatwaves also resulted in an earlier harvest of summer fruit and affected the quality and appearance of fresh produce.

According to the Bureau of Meteorology (14 February 2019), autumn temperatures are highly likely to exceed the median in most horticultural regions. Repeated heatwaves in early autumn could result in reduced yields and blemished produce, and lower returns from horticultural production.

The price and availability of irrigation water are expected to affect production decisions. Water allocations in 2018–19 are lower than in 2017–18, reflecting very low storage levels in key reservoirs.

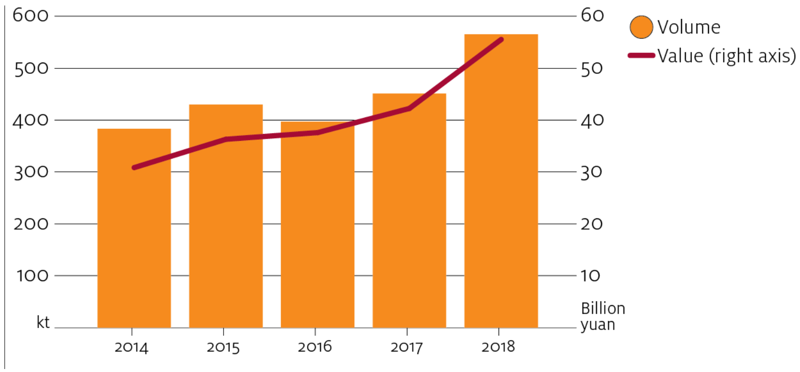
Chinese demand to boost export prices of fruit and nuts

In 2018–19 export prices of citrus, nuts, stone fruit and table grapes are expected to increase because of rising demand from China. The competitiveness of Australian produce has been improved by tariff reductions, reduced shipping times and favourable exchange rates.

China's imports of fruit and nuts have increased substantially in the last 5 years. The Chinese Government has granted market access to an increasing number of exporting countries, streamlined customs clearance requirements and invested in logistics infrastructure.

Chinese consumption has increased because of rising disposable incomes and improved availability of imported products. Rigorous customs inspections at China's borders reinforce consumer perceptions that imports are safer than domestic produce.

Volume and value of fruit and nut imports, China, 2014 to 2018



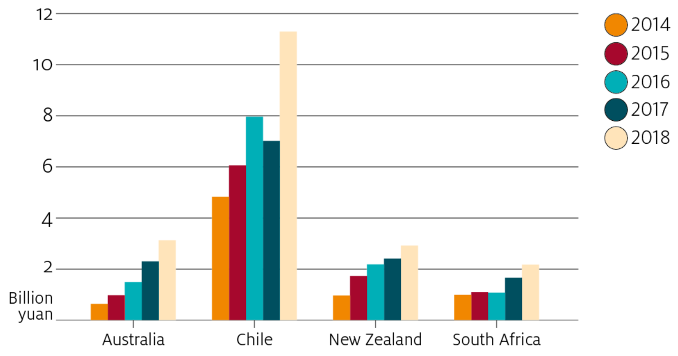
Source: General Administration of Customs, People's Republic of China

Increasing competition from Chilean fruit in China

Large-scale fruit production enables Chile to supply the Chinese market with greater volumes than Australia. Chilean blueberries, cherries, nectarines, peaches, plums and table grapes compete against Australian exports. If the Chilean Government is successful in its request to China for market access for its citrus, Australian growers will face strong competition.

Over the medium term, Australia is expected to face greater competition in China from Chile than from other southern hemisphere competitors. The upgrading of the China–Chile Free Trade Agreement in 2017 reduced investment barriers and strengthened commercial ties between the two countries. Newly negotiated protocols have allowed Chile to export fresh fruit to China through combined sea and air shipments via transhipment to a third country. Chilean companies have invested in cold storage and quality inspection facilities in China, and have signed agreements with retailers to expand distribution networks. These developments are expected to support Chile's competitiveness and slow Australia's export growth.

Fruit and nut exports to China, selected southern hemisphere countries, 2014 to 2018



Source: General Administration of Customs, People's Republic of China

Increasing supplies of berries and avocados for the domestic market

Favourable growing conditions in 2018 increased avocado and berry production, putting downward pressure on prices. Strawberry prices in early spring of 2018 were affected by food sabotage, which reduced demand and caused supermarkets to withdraw stock. However, demand since October has increased following support from consumers and the cooperation of industry and supermarkets to resolve concerns. Strawberry prices for the 2019 season are forecast to increase. This is due to some reduction in vines and investment in supply-chain traceability to address consumer concerns.

Recent new plantings of avocados and adoption of high-yielding berry varieties are expected to increase domestic supplies over the medium term, putting downward pressure on prices.

Growing almond production

Favourable growing conditions and higher yields from maturing orchards are expected to support record almond production in 2018–19. Trade tensions between the United States and Australia's major almond export markets, including China, the European Union and India, are expected to support higher prices for Australian growers.

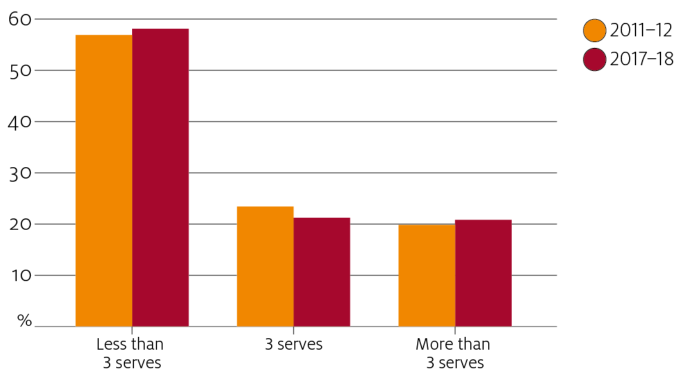
Over the medium term, Australian almond production is expected to increase further as recent plantings in the Riverina, the Riverland and Sunraysia reach maturity. Increasing demand for seasonal labour, irrigation water and bee pollination will affect production costs. More frequent occurrences of heavy rain, warmer weather and untimely frosts will also be challenges in growing regions.

Consumer demand driving diversity of vegetable production

Per person vegetable consumption in Australia has not increased significantly over the last 6 years. Consumer demand for choice and convenience has supported greater diversity of vegetable production, including more varieties of leafy salad greens, lettuces, mushrooms and tomatoes. Demand for year-round availability of produce of consistent quality has also increased investment in protected cropping and water entitlements.

Over the medium term, per person vegetable consumption in Australia is expected to remain close to current levels. Consumer demand for consistent quality produce at affordable prices and rising input costs are expected to drive farm consolidation and specialisation.

Proportion of Australians with different daily vegetable intake, 2011–12 and 2017–18



Note: Sample population is Australians 18 years and over. Nutrition Australia defines a standard serve of vegetables as about 75 grams.
Source: Australian Bureau of Statistics

Urban demand for greenery to support nursery growth

Demand for trees and plants by urban businesses and households is expected to support growth in the Australian nursery industry. Demand for tailored products will likely drive greater specialisation among nursery farms.

Opportunities and challenges

Irrigation costs in the Murray–Darling Basin

High water entitlement prices are expected to limit or postpone planned expansion of horticultural production in the southern Murray–Darling Basin.

Strong commodity prices and continuing drought have increased water demand in 2018–19. If Basin inflows are further reduced, competition for allocation in 2018–19 for carryover into 2019–20 would further increase allocation prices in the short term. This would affect the cost of horticultural production, especially for the almond, citrus and table grape industries, which have recently invested to expand production. Sustained high water prices provide an incentive to invest in improved water-use efficiency.

Seasonal labour remains a challenge

Australia's growing horticultural production has raised industry concerns over shortages and costs of seasonal labour. In 2015–16 average farm expenditure on hired labour accounted for 20% of total cash costs of fruit farms in the Murray–Darling Basin and 21% of total cash costs of Australian vegetable farms. Ongoing collaboration between industry and policymakers will be needed to help horticultural farms secure seasonal labour at competitive costs.

Progress has been made through recent industry and government initiatives. The Harvest Trail job information service, streamlining the Seasonal Worker Programme and increasing incentives for backpackers will help reduce search costs and increase labour supply. Labour hire licence laws in Queensland and Victoria have been passed to target exploitation of workers. Industry initiatives such as the Fair Farms Initiative help farms comply with employment laws. The National Harvest Labour Information Service will gather evidence from agricultural industries to assess the need for an agricultural visa in Australia.

The National Traceability Project

This government initiative is designed to enhance Australia's traceability systems. A cross-jurisdictional working group, led by the Australian Government, with membership from states and territories, is developing a national framework based on government-industry partnerships. Stakeholder consultations for the project closed on 22 February 2019.

Traceability will be increasingly important for Australia’s horticultural industries. Effective traceability systems provide assurance to consumers who increasingly demand information about food safety, quality, provenance and sustainability of production. Maintaining strong export growth will require Australian regulators and industry to comply with the import requirements of key trading partners, such as the new maximum residue limits for agricultural chemicals required by China.

Australian horticultural businesses already comply with a number of standards accrediting traceability. Domestic retailers and industries have worked together to harmonise these standards and reduce auditing costs. The challenge for Australian regulators and industries will be to balance the regulatory burden on businesses and meet the requirements of consumers and trading partners.

Cost of fruit fly incursions to fresh produce trade

Rapid government and industry responses ensured that trade disruptions caused by fruit fly incursions in South Australia and Tasmania in 2018 were minimised. According to the Plant Biosecurity Cooperative Research Centre, fruit flies cost the horticultural industry more than $300 million in 2016. Australia's growing horticultural exports and domestic trade between states and territories mean that an even higher value is now at risk. An increasing number of growing regions could be placed under pressure if habitat for fruit flies expand because of climate change.

Researchers and industries are collaborating to find solutions to eradicate fruit fly in Australia. The Fruit Fly Fund, administered by Horticulture Innovation Australia, is a co-investment by industry, governments and research organisations working to eradicate this pest.

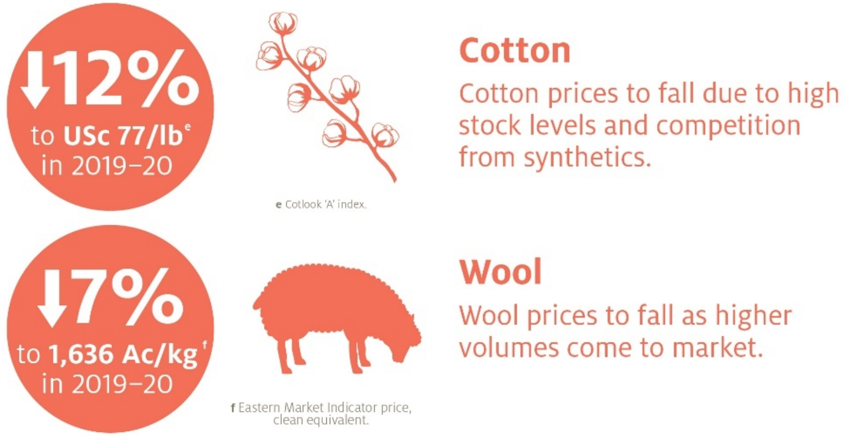
Outlook for horticulture

	unit	2016–17	2017–18 s	2018–19 f	2019–20 f	2020–21 z	2021–22 z	2022–23 z	2023–24 z
Gross value									
nominal	$m	10,459	10,678	11,314	11,657	12,021	12,511	12,922	13,306
real **a**	$m	10,885	10,902	11,314	11,400	11,470	11,646	11,735	11,789
Fruit and tree nuts (excl. grapes)									
nominal	$m	4,234	4,470	4,990	5,176	5,369	5,655	5,883	6,078
real **a**	$m	4,406	4,564	4,990	5,063	5,123	5,264	5,343	5,385
Table and dried grapes									
nominal	$m	504	510	530	553	589	658	705	753
real **a**	$m	525	521	530	541	562	613	640	667
Vegetables									
nominal	$m	3,904	3,850	3,916	4,019	4,124	4,228	4,335	4,445
real **a**	$m	4,063	3,931	3,916	3,930	3,934	3,936	3,937	3,938
Nursery, cut flowers and turf									
nominal	$m	1,572	1,599	1,625	1,652	1,678	1,704	1,731	1,757
real **a**	$m	1,636	1,632	1,625	1,615	1,601	1,587	1,572	1,556
Other horticulture **nei b**									
nominal	$m	245	249	253	257	261	265	269	273
real **a**	$m	255	254	253	251	249	247	244	242
Exports									
nominal	$m	2,561	2,740	3,011	3,163	3,418	3,699	3,987	4,291
real **a**	$m	2,665	2,798	3,011	3,093	3,261	3,443	3,620	3,802
Fruit									
nominal	$m	1,086	1,241	1,298	1,336	1,437	1,554	1,668	1,786
real **a**	$m	1,131	1,267	1,298	1,306	1,371	1,446	1,515	1,582
Tree nuts									
nominal	$m	820	803	974	1,072	1,179	1,297	1,426	1,569
real **a**	$m	853	819	974	1,048	1,125	1,207	1,295	1,390
Vegetables									
nominal	$m	354	377	434	469	506	547	591	638
real **a**	$m	368	385	434	459	483	509	536	565
Nursery									
nominal	$m	19.2	17.5	16.6	16.0	16.8	17.2	16.9	16.7
real **a**	$m	20.0	17.9	16.6	15.7	16.1	16.1	15.3	14.8
Other horticulture **b**									
nominal	$m	281	303	287	271	279	284	285	281
real **a**	$m	293	309	287	265	266	265	259	249

a In 2018–19 Australian dollars. **b** Other horticulture includes mainly coffee, tea, spices, essential oils, vegetables for seed and other miscellaneous horticultural products.
f ABARES forecast. **s** ABARES estimate. **z** ABARES projection.
Sources: ABARES; Australian Bureau of Statistics

Natural fibres

Michael Dylewski



Global textile demand to remain strong

Income and population growth in key markets will support global demand for cotton-based and woollen textiles over the outlook period to 2023–24.

Expansion of the global middle-class consumer base in emerging economies will drive an increase in purchases of cotton-based textiles and apparel. Income growth is expected to slow in most advanced economies but to increase more strongly in many emerging and developing economies, including China, India and South-East Asia.

Demand for wool is derived from consumer demand for high value woollen textiles and clothing. Assumed income growth in major wool-consuming markets—including China, the European Union and the United States—will underpin the expected strengthening of global demand for wool.

Lower cotton production to keep prices high

World cotton stocks remain high following an accumulation of stocks between 2009–10 and 2013–14 and again in 2016–17 when production rose in almost all major cotton-producing countries. In 2018–19 world cotton production is expected to fall due to declines in China, India, Pakistan and the United States more than offsetting higher production in Brazil. In 2019–20 and 2020–21 the global area planted to cotton is forecast to fall slightly in response to lower prices, before increasing gradually over the medium term to 2023–24. The average global lint yield is projected to increase slowly over the outlook period, in line with the historical trend.

World cotton consumption is forecast to grow strongly in 2018–19 and to outpace growth in world production until 2021–22, before world cotton production strengthens to 2023–24. This sustained period of consumption growth is projected to lead to a reduction in world stocks over the medium term.

World cotton prices are relatively high compared with recent years and are expected to remain high for the remainder of 2018–19 as a result of strong demand. However, high stock levels and competition from synthetic fibres are forecast to lead to a softening of prices between 2019–20 and 2020–21 before prices recover gradually over the remainder of the outlook period.

Total Australian cotton production is forecast to decrease significantly in 2018–19, driven by a decline in the area planted to cotton as a result of significantly reduced water levels in irrigation dams and very low levels of stored soil moisture.

Australian cotton production and exports are projected to remain unchanged over the outlook period to 2023–24. Production growth will be constrained by the availability of irrigation water following two years of dry seasonal conditions in eastern Australia. The last 3 recharge events for irrigation dams in the main cotton-producing regions occurred in La Niña years—events that cannot be predicted over the medium term. However, any future increase in irrigation water availability from such an event would present an upside risk to cotton production and exports.

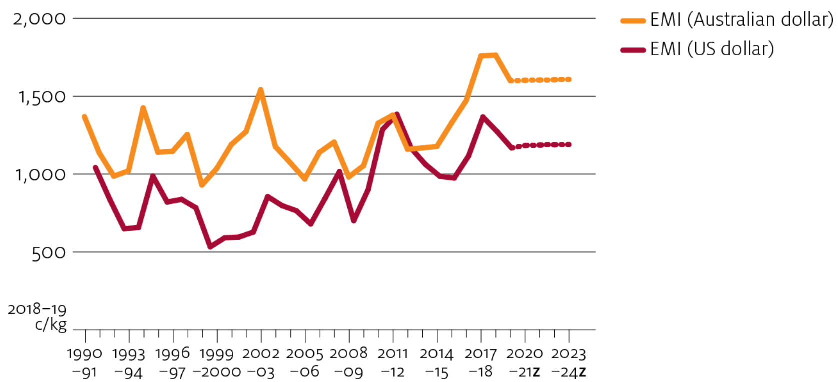
Australian wool production to fall as prices stay high

Total Australian wool production and exports are forecast to fall in 2018–19. Continuing dry seasonal conditions across most wool-growing regions are expected to reduce the number of sheep shorn nationally and the average wool cut per head. From 2019–20 the sheep flock is forecast to begin recovering and increase each year to 2023–24. This will lift wool production and exports over the outlook period.

The Eastern Market Indicator (EMI) price for wool—a weighted average price across different wool types—is forecast to increase in 2018–19. Wool prices are currently high compared with recent years, especially in US dollar terms—the currency predominantly used to purchase Australian wool. The EMI declined slightly in late 2018 but is expected to recover over the remainder of 2018–19 as the supply of wool falls.

In 2019–20 the EMI is forecast to fall, reflecting expected higher volumes of wool coming to market as flock rebuilding commences. The current high EMI is creating an incentive for processors to substitute away from wool for synthetic fibres, which can be blended with medium micron wools (20.6 to 22.5 microns). For the remainder of the outlook period, price growth will be constrained by continuing growth in flock numbers and wool production to 2023–24.

Eastern Market Indicator (EMI), 1990–91 to 2023–24



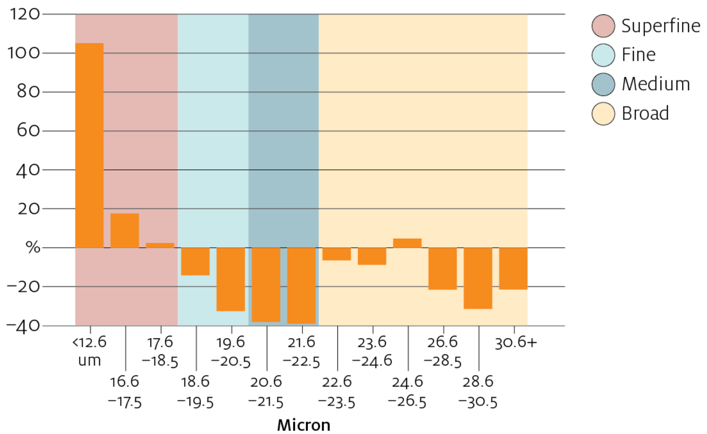
z ABARES projection.
Source: ABARES

Dry conditions increase superfine wool supply

The 2018–19 forecast of lower total Australian wool production is not expected across all wool types. Of the wool tested as at January 2019, the supply of fine and medium wools (18.6 to 22.5 microns and traditionally favoured by many Chinese processors) fell by about 25% year-on-year. Dry seasonal conditions have pushed the average micron of these wools lower. This has resulted in a higher supply of lower quality superfine wools (18.5 microns or less) coming onto market.

The staple strength of drought-affected wools has held up well but the increasing supply of lower quality superfine wool is assumed to continue to 2023–24. This is likely to influence the variation in prices across different wool grades and put pressure on finer grade wool premiums.

Change in wool testing volumes, Australia, July 2018 to January 2019



Notes: Year-on-year percentage change in bales of wool tested.
Sources: Australian Wool Testing Authority; Australian Wool Innovation Limited

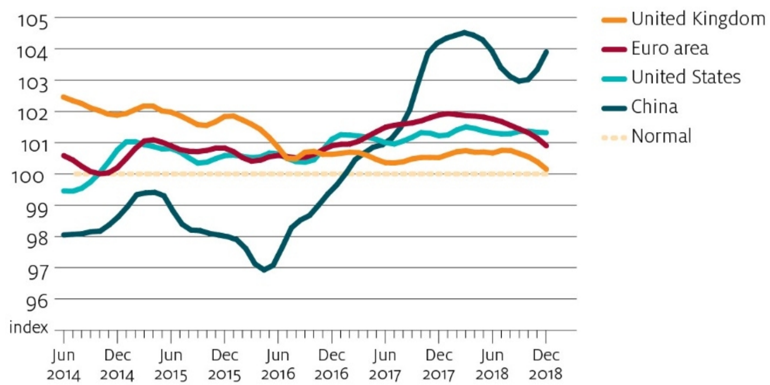
Opportunities and challenges

Trade tensions create uncertainty

The United States is a major importer of textiles and clothing processed in China. The global impact of the trade tensions between the United States and China on world textile demand and trade remains uncertain and contingent on many factors. These include the extent of any future retaliatory import tariffs imposed by these countries and whether global trade tensions broaden to include other nations. A decline in Chinese demand for natural fibres would likely impact Australia's wool industry more severely as Australia exports cotton to a broader range of countries than it does wool.

The effect of the trade tensions on Chinese consumers, who represent a substantial and rapidly growing final market for apparel, has been mixed. Consumer confidence and (to a lesser degree) garment sales declined in China between February and August 2018 but recovered strongly in the remaining months of 2018. These data indicate that Chinese demand for textiles and clothing—which directly influences demand for Australian natural fibres (wool in particular)—may not necessarily weaken if trade tensions continue.

Consumer confidence index, June 2014 to December 2018



Notes: Amplitude-adjusted. Normal (long-term average) = 100. An indicator above 100 signals a boost in consumers' confidence towards the future economic situation.
Euro area comprises Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia and Spain.
Source: Organisation for Economic Co-operation and Development

Competition from substitute fibres

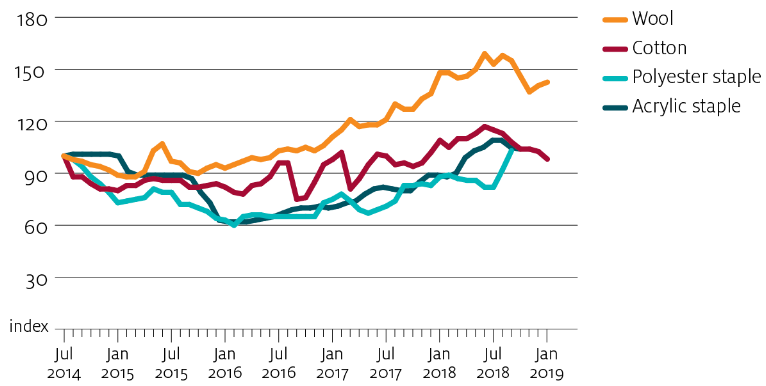
Competition from substitutable synthetic fibres, such as polyester, remains a risk to cotton markets in light of current high cotton prices.

Relatively low oil prices in recent years have increased the price competitiveness of synthetic fibres against cotton. An assumed small decrease in oil prices in 2019–20, influenced partly by global trade tensions, could put downward pressure on cotton prices. If oil prices remain relatively low over the outlook period, the projected recovery of cotton consumption could be adversely affected because of greater substitution towards synthetics.

Synthetic fibres are also substitutable with medium micron wool. Current high wool prices create an incentive for textile manufacturers to substitute lower cost fibres. This incentive presents a downside risk to demand for Australia's medium micron wool exports and wool prices.

More broadly, evolving tastes and preferences continually influence the production and consumption of natural fibres, often in ways that are difficult to estimate and cannot be factored into a medium-term forecast. For example, animal welfare and social and environmental concerns have the potential to decrease wool demand. Similarly, increasing awareness of the environmental impact of synthetic garments can encourage cotton use in textiles and clothing.

Price indexes of substitute fibres, July 2014 to January 2019



Notes: July 2014 = 100. Eastern Market Indicator, Cotlook 'A' Index, Chinese polyester staple fibre (1.5 denier) and North Asian acrylic staple fibre (1.5 denier). Data for polyester staple and acrylic staple available until September 2018.
Sources: Australian Wool Exchange; Cotton Outlook; Fibre2Fashion

Cotton support policies remain significant

Government support policies in major cotton-producing countries play an ongoing role in influencing cotton demand and global trade.

China's cotton stocks can have a major influence on the world cotton market. The country's support policies for its domestic cotton industry, including the level of its stocks and timing of stock drawdowns, remain a source of uncertainty over the outlook period. Any changes to China's cotton policies would have important implications for world textile markets and on regional cotton industries.

In 2018 China reduced its cotton stocks considerably following 3 years of aggressive selling. The US Department of Agriculture forecasts that China's closing stocks of cotton will decrease by about 20% in 2018–19. If China continues to reduce its stocks, it could put downward pressure on its demand for imported cotton, and cotton prices, in the short term.

In India and major cotton-producing countries in Central Asia, government policies promote investment in textile industries and contribute to exports of textile products rather than raw cotton. For example, the Gujarat state government in India recently announced the removal of incentives to support ginning and spinning, with funding redirected to processing. The impact of this policy on Australia's competitiveness in cotton export markets is likely to be minimal given Australia's comparative advantages in producing high-quality cotton rather than processing.

Outlook for natural fibres

Category	unit	2016–17	2017–18 s	2018–19 f	2019–20 f	2020–21 z	2021–22 z	2022–23 z	2023–24 z
Cotton									
World a									
Production	Mt	23.2	26.9	26.1	26.3	26.1	26.6	27.9	29.1
Consumption	Mt	25.2	26.5	27.6	28.3	29.0	29.6	30.4	31.4
Exports	Mt	8.3	8.9	9.0	8.8	8.7	8.7	9.2	9.7
Closing stocks	Mt	18.4	19.2	18.2	18.0	17.7	16.9	16.1	15.6
Cotlook ‘A’ index	USc/lb	82.8	88.0	88.2	77.4	79.4	83.3	92.1	92.1
Australia b									
Area harvested	’000 ha	557	500	280	280	280	280	280	280
Lint production	kt	891	1,000	581	560	560	560	560	560
Exports	kt	763	872	859	557	543	543	543	543
value	A$m	1,788	2,132	2,262	1,359	1,339	1,381	1,467	1,473
Gin-gate returns **c**	A$/bale	492	639	649	611	624	641	709	716
Wool									
Australia b									
Sheep shorn	million	74.3	76.8	71.7	73.2	74.8	75.9	76.3	76.5
Wool production **d**	kt	414	422	383	385	393	405	410	412
Exports									
Volume	kt (gr. eq.)	429	452	412	445	454	466	471	473
value	A$m	3,615	4,380	3,906	2,933	2,904	3,213	3,321	3,756
Eastern Market Indicator **e**	Ac/kg	1,415	1,723	1,764	1,636	1,679	1,723	1,769	1,815

a August–July years. **b** July–June years. **c** Value of lint and cottonseed less ginning costs. **d** Greasy, includes shorn wool and wool on sheepskins, fellmongered and slipe wool. **e** Clean equivalent. f ABARES forecast. **s** ABARES estimate. **z** ABARES projection.

Sources: ABARES; Australian Bureau of Statistics; Australian Wool Innovation Limited; Cotton Outlook, Merseyside, United Kingdom; Organisation for Economic Co-operation and Development, Paris; Rabobank, Sydney; US Department of Agriculture, Washington

Beef and veal

Tim Whitnall

Saleyard prices to fall due to high global supplies

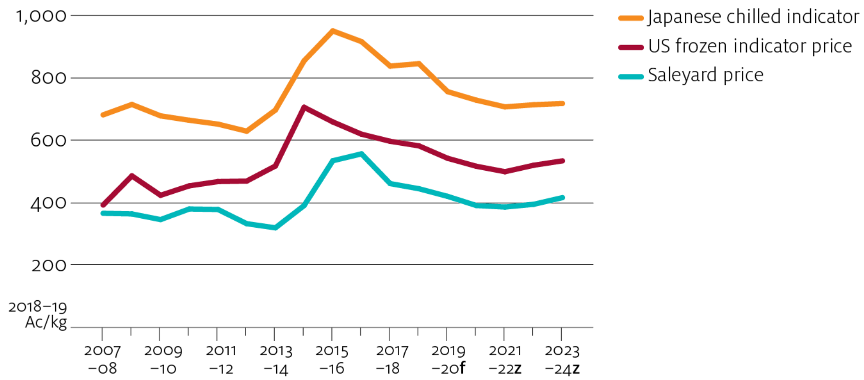
The weighted average saleyard price for cattle is projected to fall over the medium term. A build-up of the cattle herd and rising slaughter rates in the United States mean that the world beef supply is expected to increase for several years. This will intensify competition in export markets and affect Australian saleyard cattle prices.

Herd rebuilding to occur over the outlook period

Drought conditions across much of New South Wales and Queensland in 2018 led to increased turn-off of cattle and halted herd rebuilding efforts. Assuming seasonal conditions improve in 2019, herd rebuilding is expected to resume. Saleyard prices for young cattle are relatively low compared with finished cattle, and restocker purchases of breeding stock were at above average levels in the last 6 months of 2018. This indicates that producers with available pasture or feed are preparing for post-drought herd expansion by taking advantage of the favourable margin between young and finished cattle.

Over the medium term, herd rebuilding is expected to continue. Saleyard prices are expected to remain relatively high in historical terms despite falling from recent highs. This will encourage herd rebuilding, assuming seasonal conditions are conducive.

Weighted average saleyard price and export indicators, 2007–08 to 2023–24

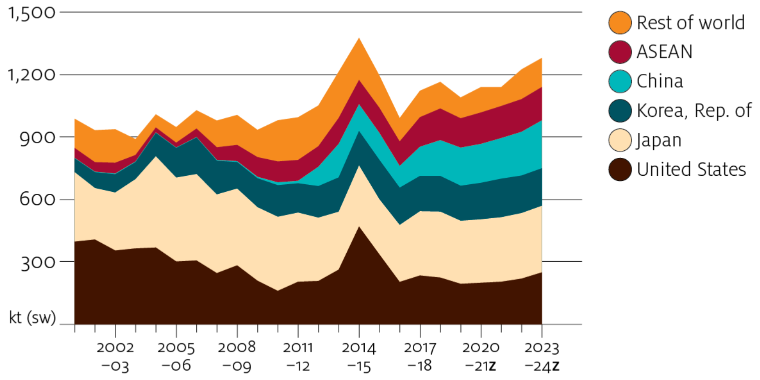


f ABARES forecast. **z** ABARES projection.
Sources: ABARES; Australian Bureau of Statistics; Meat and Livestock Australia

Australian beef exports to rise

An expansion of the domestic herd is projected to drive increased beef production over the medium term. This will flow through to a higher quantity of Australian beef exports. However, changes in global demand are expected to cause exports to Australia's less established beef markets, such as China and the ASEAN region, to grow faster than exports to traditional markets.

Beef exports, by destination, 2000–01 to 2023–24



z ABARES projection.
Sources: ABARES; Australian Bureau of Statistics

Demand for beef imports is expected to fall in some of Australia's major markets over the medium term. High domestic supplies in the United States will limit US demand for lean beef imports in the short term, but this is expected to rise later in the projection period. In Japan, slowing population and economic growth are expected to limit import demand growth for Australian beef.

Demand growth is expected to be strong in China over the outlook period. Rising incomes have enabled people to consume more meat. Over the medium term, this trend is expected to continue because economic growth is assumed to remain high, albeit at a slower pace.

Opportunities and challenges

Scenarios exist where the herd continues to decline

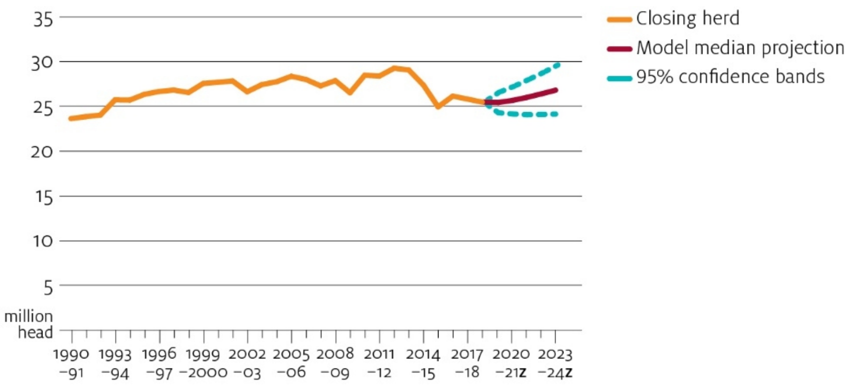
Domestic herd expansion is highly dependent on seasonal conditions because of Australia's pasture-based grazing system. Prices are projected to provide incentives for producers to expand herds, but another season of adverse conditions would cause herd contraction to continue. Low supplies of feed grains would limit the ability of producers to manage poor pasture growth and cause slaughter rates to remain high.

ABARES projections assume average seasonal conditions will be realised. However, because of the inherent uncertainty surrounding seasonal conditions, a probability simulation of possible herd closing sizes has been used to illustrate the range of potential outcomes.

Based on observations of the drivers of herd population growth over the past 30 years, there is a 95% probability that in 2023–24 the herd will be between 24.2 million head and 30 million head. This corresponds to a range between 6% lower and 15% higher than the 2017–18 estimated herd size of 25.8 million head. These results assume population drivers continue to remain within the bounds of historical observations. These drivers include slaughter, death, mating, branding and calf promotion rates.

Scenarios in which herd expansion is not achieved in simulations typically result from periods of above average slaughter rates and below average mating rates. These outcomes would typically occur in periods of poor seasonal conditions or low prices for finished cattle.

Actual and modelled closing herd size, Australia, 1990–91 to 2023–24



z ABARES projection.
Notes: Based on 10,000 simulations of population drivers. 95% confidence bands show herd levels that 95% of simulations fall between.
Source: ABARES

Increasing South American competition in China

Increasing demand for imported beef in China over the decade to 2017–18 has caused the Chinese Government to grant access to Australia's competitors, such as Argentina and Brazil. Competitors from South America produce beef at a lower cost than Australia because of lower processing costs. The Brazilian herd has undergone a significant expansion over the past 2 decades and the industry is expected to become more productive through initiatives such as crossbreeding of European breeds with the common Nellore cattle.

In contrast, in Australia's traditional export markets, such as Japan and Korea, Australia is one of only a few exporters that has market access. These markets put a premium on Australia's clean, disease-free status.

Over the projection period, China is expected to increase its imports of beef from Australia and other markets. However, we are expected to continue to lose market share to our competitors. As the proportion of Australia's exports to China increase, Australia's total exports will become more exposed to price pressures from low-cost producers.

Floods have affected the northern Queensland herd

Severe floods in late January and early February 2019 have adversely affected herds in north-western Queensland. As of 28 February 2019, the full impact of the floods is uncertain, but cattle losses are estimated in the hundreds of thousands. A loss of 300,000 cattle would be equivalent to around 1% of the national herd. Cattle losses are expected to have an adverse impact on both live export cattle from breeder enterprises and slaughter cattle from backgrounding enterprises.

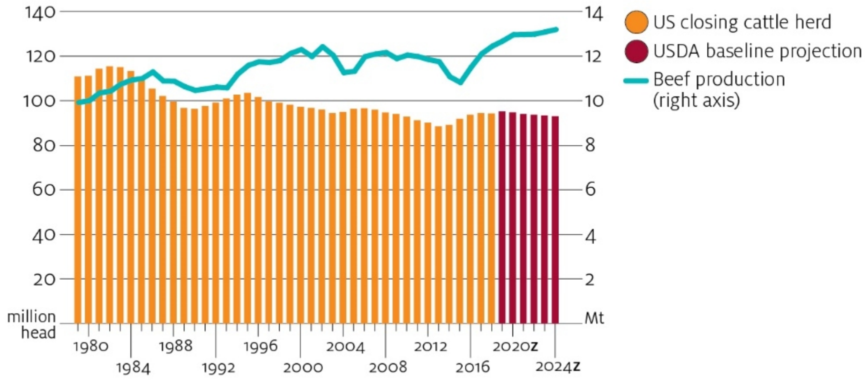
The widespread rainfall events that led to the flooding is expected to have a beneficial impact on vegetation growth in coming months, which will make the land in these areas more productive for grazing. Once farm and transport infrastructure is back in place businesses are expected to seek restocking opportunities from elsewhere in northern Australia where conditions have been less favourable for grazing.

US cattle cycle projected to peak

The US cattle cycle is nearing its peak following 5 years of herd accumulation. Expected falling steer prices and relatively flat corn prices over the next few years will reduce the profitability of raising cattle. This indicates that slaughter rates are likely to rise. As a result, beef supply in the United States is expected to be high for several years.

The US beef cattle herd exhibits distinct periods of accumulation followed by periods of liquidation. These cycles arise because of the time required for producers' responses to changing market conditions to be realised. Such lags are inherent to livestock operations.

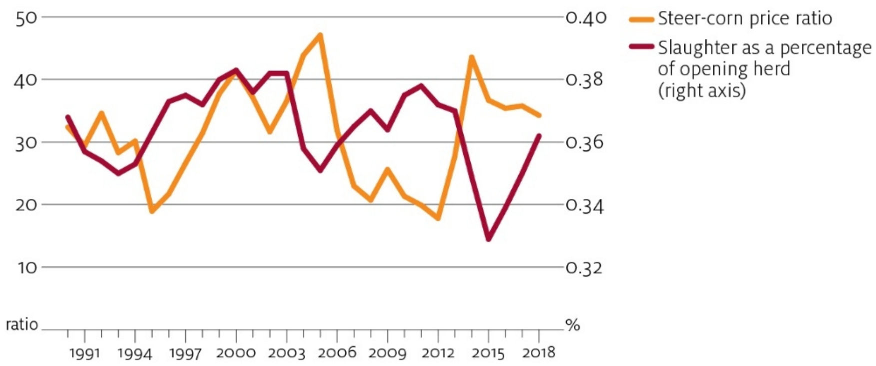
Cattle herd, United States, 1979 to 2024



z USDA projection.
Sources: US Department of Agriculture

Each year US beef cattle producers make decisions about their stocking rates that will ultimately determine the national slaughter rate. These decisions are driven by the costs of raising cattle and prices received for finished cattle. Changes in these underlying drivers move the cattle cycle through three phases: an accumulation phase, a cycle peak and a liquidation phase. In comparison, these phases are much less pronounced in Australia because of its pasture-based grazing system. Australian producer decisions are typically affected more by seasonal conditions than feed grain prices. This makes producer decisions less cyclical.

Steer-corn price ratio and slaughter rates, United States, 1990 to 2018



Source: US Department of Agriculture

Accumulation phase
The profitability of raising cattle is relatively high because of high steer prices and/or low input costs. Slaughter rates are low as producers hold back breeding stock to expand their herds. The national herd expands each year because slaughter is low. Beef production increases each year as herd numbers rise.

Cycle peak
A reduction in profitability causes the cycle to peak. Typically, large supplies of cattle from years of accumulation cause steer prices to fall. However, upward shocks to grain prices can also trigger a cycle peak. Slaughter rates rise because the incentive to retain breeding stock is reduced. Beef production is very high because of the large number of cattle and high slaughter rates.

Liquidation phase
High slaughter rates continue for as long as profitability remains low. This causes the herd to contract each year. Beef production remains

high at the start of the liquidation phase but falls each year as a contracting herd yields less beef from the same slaughter rate.

Outlook for beef and veal

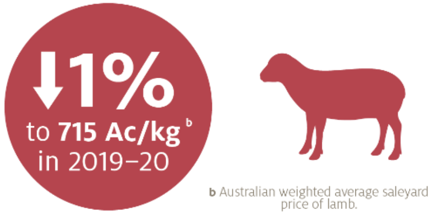
	unit	2016–17	2017–18 s	2018–19 f	2019–20 f	2020–21 z	2021–22 z	2022–23 z	2023–24 z
Saleyard price									
nominal	c/kg (cw)	535	452	445	430	410	415	435	470
real **a**	c/kg (cw)	557	461	445	421	391	386	395	416
Cattle numbers **bc**	million	26.2	25.8	25.5	25.5	25.7	26.0	26.4	26.9
beef cattle	million	23.6	23.2	23.0	23.0	23.2	23.6	24.0	24.4
Slaughterings	’000	7,423	7,913	8,375	7,650	7,950	8,050	8,300	8,400
Production	kt (cw)	2,069	2,238	2,306	2,206	2,274	2,273	2,396	2,477
Consumption per person	kg (cw)	25.4	23.8	23.7	23.7	23.2	22.7	22.3	21.8
Export volume	kt (sw)	991	1,122	1,165	1,090	1,140	1,140	1,225	1,280
to China	kt (sw)	104	140	172	183	187	195	210	230
to Japan	kt (sw)	274	309	317	303	305	310	315	320
to Korea, Rep. of	kt (sw)	179	169	171	168	175	185	180	180
to United States	kt (sw)	204	235	225	195	200	205	220	250
Export value									
nominal	$m	7,115	7,963	8,376	7,470	7,758	7,678	8,643	9,344
real **a**	$m	7,404	8,130	8,376	7,306	7,403	7,147	7,849	8,279
Live feeder/slaughter cattle exports	’000	817	885	955	875	900	950	1,000	1,025
nominal	$m	1,031	1,101	1,135	1,017	1,038	1,085	1,196	1,269
real **a**	$m	1,073	1,124	1,135	994	991	1,010	1,086	1,124

a In 2018–19 Australian dollars. **b** At 30 June. **c** Includes dairy cattle. **f** ABARES forecast. **s** ABARES estimate. **z** ABARES projection.

Sources: ABARES; Australian Bureau of Statistics; Meat & Livestock Australia

Sheep meat

Nathan Pitts



Sheep meat

Lamb prices to fall only slightly from historical highs because of strong saleyard competition.

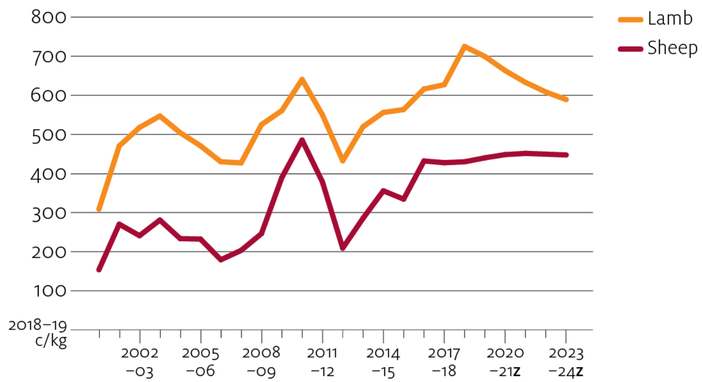
Prices to fall in the medium term

In 2018–19 saleyard lamb prices are forecast to increase significantly due to strong export demand. Dry conditions across large areas of eastern Australia reduced production, causing lamb prices to rise during 2018. From 2019–20 to 2023–24 lamb prices are projected to fall as production recovers, assuming a return to more average seasonal conditions.

However, lamb prices are expected to remain above historical averages due to strong demand from farmers for restocking and from processors for export. Restocker demand is expected to ease from 2020–21 onwards, but strong export demand for sheep meat will keep prices at historically high levels.

Despite high sheep slaughter, saleyard sheep prices in 2018–19 are expected to remain historically high as a result of strong global demand for sheep meat. They are expected to remain high in 2019–20 and throughout the medium term. This is due to ongoing strong demand and lower Australian mutton production as farmers rebuild flocks in eastern Australia.

Saleyard prices, lamb and sheep, 2000–01 to 2023–24



z ABARES projection.
Sources: Australian Bureau of Statistics; Meat and Livestock Australia

Lamb production and sheep flock to rise

In 2018–19 total sheep meat production is estimated to increase because of higher sheep turn-off in response to dry seasonal conditions. This is expected to reduce the size of the national breeding flock and result in lower lamb production in 2019–20.

In 2019–20 the sheep flock is forecast to begin to recover as graziers prioritise flock rebuilding by reducing turn-off. The sheep flock is projected to expand throughout the outlook period to 2023–24. Growth is expected to be strongest early in the period, when a higher proportion of lambs are promoted to the breeding flock rather than turned off. Growth in the national flock is expected to be from both meat and wool producers, due to ongoing high prices for sheep meat and wool. However, high lamb prices will provide an incentive to maintain turn-off rates, extending flock expansion over the projection period to 2023–24.

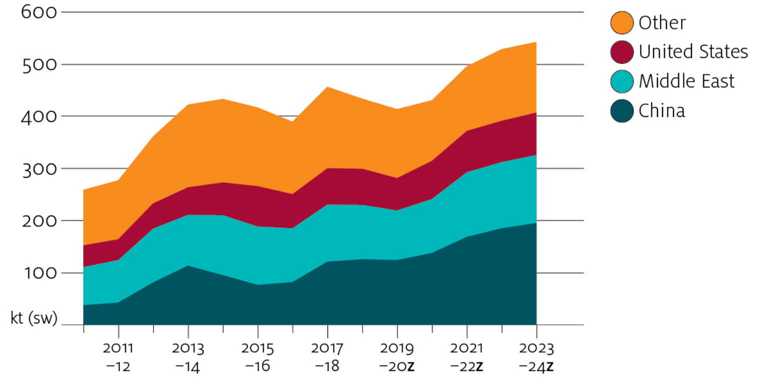
Strong export demand to continue

Australian lamb exports in 2018–19 and 2019–20 are expected to fall, in line with production. Mutton exports in 2019–20 are forecast to fall from high 2018–19 volumes due to lower mutton production. Almost all of Australia's mutton production is exported, and continued strong demand from China is expected.

Over the medium term to 2023–24, Australian sheep meat exports are projected to grow due to higher production and continued strong global demand. Strong export demand is expected to maintain upward pressure on prices, causing some substitution to other sources of protein in Australia's domestic market. Export growth is expected to be strongest for shipments to China, where income and population growth are expected to result in consumption increasing faster than domestic production. Exports to the United States are expected to increase marginally due to population growth. Export volumes to the Middle East are expected to fall slightly as consumer preferences shift from mutton to lamb. However, the total value of sheep meat exports to this market is expected to rise given the relative price of lamb to mutton.

In 2019–20 Australian live sheep exports are forecast to be largely unchanged from the disrupted levels of 2018–19. This is because new regulatory restrictions are assumed to limit shipments to the cooler months in the northern hemisphere (November to April). Over the projection period, live export volumes are expected to remain largely unchanged at around 1.0 million head per year.

Australian exports, sheep meat, 2010–11 to 2023–24



z ABARES projection.
Source: Australian Bureau of Statistics

Opportunities and challenges

Risks to herd rebuilding

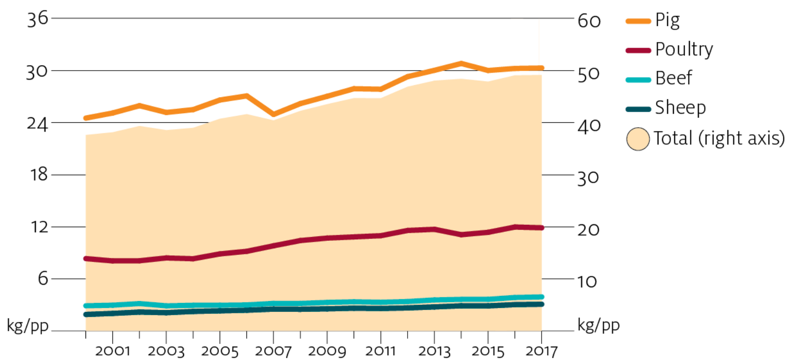
Despite high prices for sheep meat and wool in 2018–19, the national breeding flock is estimated to fall because of dry seasonal conditions and high supplementary feed costs. Over the medium term, the breeding flock is assumed to recover in response to high lamb and wool prices. Due to drought-related elevated turn-off in 2018, a significant proportion of rebuilt breeding flocks are likely to be sourced from lambs born in autumn 2019. However, climatic conditions as of late February 2019 in eastern Australia have been mixed and supplementary feed costs have remained high. If seasonal conditions remain unfavourable in 2019, flock expansion may not achieve assumed levels. This represents a significant downside risk to production and upside risk to prices over the projection period.

Chinese import demand

China is the largest global producer, consumer and importer of sheep meat. Nearly all Chinese imports are from Australia and New Zealand.

China's sheep meat imports are a very small proportion of its total supply, accounting for around 5% in 2017. This means that Australian imports are highly sensitive to developments in Chinese sheep meat markets. Per person Chinese sheep meat and beef consumption have both grown at around 3% per year over the 5 years to 2017. In contrast, poultry and pig meat consumption have increased by less than 1% per year but from much higher levels. Growth in Australia's future exports to China are highly contingent on evolving Chinese preferences for sheep meat and its price competitiveness relative to other meats. For more information, see the meat consumption article.

Per person meat consumption, China, 2000 to 2017



Source: Organisation for Economic Co-operation and Development

New Zealand flock

Sheep meat production in New Zealand declined over the 20 years to 2016–17 as a result of increased dairy production. This enabled Australia to expand its share of world exports, particularly to China.

Over the medium term, New Zealand sheep meat production is forecast to increase only marginally because of ongoing competition from beef, dairy and forestry production. However, if NZ farmers adjust flock size in response to changes in relative prices, this could affect global sheep meat prices. Projections of falling dairy prices add to this risk.

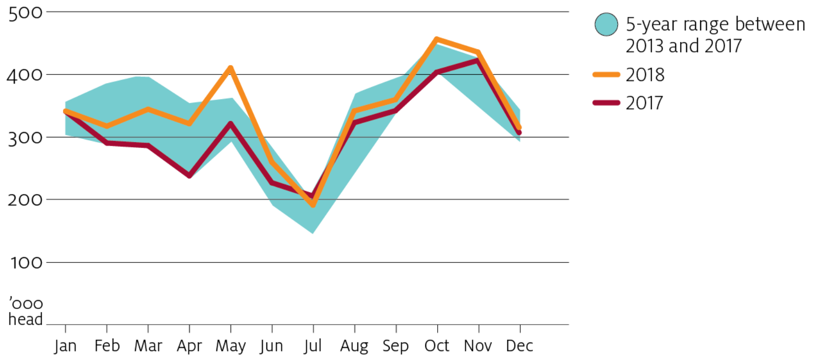
Live exports

In May 2018 the Australian Government accepted all 23 recommendations of the Independent review of conditions for the export of sheep to the middle east during the northern hemisphere summer—subject to consultation and research.

As a result, live exports were restricted to the cooler months in the northern hemisphere (November to April). Ongoing reviews of the Australian Standards for the Export of Livestock and heat stress risk assessments will help inform changes to live export regulations.

Regulatory restrictions are assumed to continue to constrain live exports to small numbers airfreighted over the northern summer months. However, numbers of live exports by ship in other months are assumed to be similar to monthly export volumes in the last undisrupted season in 2016–17. The mobility of ships will enable their deployment in the next most profitable market around the world when not needed for Australian live sheep.

Monthly slaughter, lamb and sheep, Western Australia, January 2013 to November 2018



Source: Australian Bureau of Statistics

In 2018 the impact of live export restrictions on farm incomes was mitigated by favourable seasonal conditions. During winter 2018 WA saleyard prices were below the very high prices of the eastern states, before they reconverged in late 2018 once live exports resumed. However, favourable WA seasonal conditions allowed for lambs to be retained on farm rather than being turned off when prices were depressed. This resulted in WA slaughter rising significantly during spring, when lambs reached prime specifications and prices were converging.

Over the projection period to 2023–24, demand by exporters is assumed to be minimal during winter months, which will depress WA prices over the season. During these months, it is expected that producers will attempt to bring lambs to prime specifications. If WA seasonal conditions are unfavourable, slaughter over winter will rise from expected seasonal lows, reducing annual farm incomes.

EU imports

Australian sheep meat exports to the European Union are subject to relatively low tariff-rate quotas and high out-of-quota tariffs. Australia's tariff-rate quota is significantly lower than New Zealand's. The Australian quota was almost fully utilised between 2012 and 2017, limiting potential growth to this high value export market.

The majority of Australia's exports to the European Union are sent to the United Kingdom but a significant proportion are re-exported to other European countries.

Ongoing uncertainty over Brexit creates uncertainty about Australia's sheep meat exports to the European Union. Given the EU's policy priority of protecting European farmers, Brexit is unlikely to result in higher Australian exports of sheep meat to either the United Kingdom or the European Union.

Outlook for sheep meat

	unit	2016–17	2017–18 s	2018–19 f	2019–20 f	2020–21 z	2021–22 z	2022–23 z	2023–24 z
Prices									
Lambs									
– nominal	c/kg (cw)	592	614	725	715	695	680	670	665
– real **a**	c/kg (cw)	616	627	725	699	663	633	608	589
Sheep									
– nominal	c/kg (cw)	415	419	430	450	470	485	495	505
– real **a**	c/kg (cw)	432	428	430	440	448	451	450	447
Sheep numbers									
Total sheep **b**	million	72.1	68.8	66.1	68.5	70.8	73.0	73.7	74.2
Slaughterings									
Lambs	’000	22,344	23,432	23,000	20,600	21,900	23,000	23,100	23,300
Sheep	’000	6,553	8,396	8,800	7,400	7,600	8,000	8,200	8,500
Production									
Sheep meat	kt (cw)	670	735	729	648	685	722	731	745
Exports									
Sheep meat exports **c**	kt (sw)	390	457	445	376	408	439	448	458
Sheep meat export value									
– nominal	$m	2,653	3,282	3,420	2,752	2,840	2,892	2,789	2,711
– real **a**	$m	2,761	3,351	3,420	2,692	2,710	2,692	2,533	2,402
Live sheep exports	’000	1,851	1,975	1,100	1,085	1,100	1,125	1,150	1,150
Live sheep export value									
– nominal	$m	233	259	138	136	139	143	147	148
– real **a**	$m	242	264	138	133	132	133	134	131
Consumption per person									
Sheep meat	kg (cw)	8.3	7.6	7.8	7.8	7.6	7.5	7.4	7.3

a In 2018–19 Australian dollars. **b** At 30 June. **c** Fresh, chilled and frozen, shipped weight. **f** ABARES forecast. **s** ABARES forecast. **z** ABARES projection.
Sources: ABARES; Australian Bureau of Statistics; Meat & Livestock Australia

Dairy

Andrew Cameron

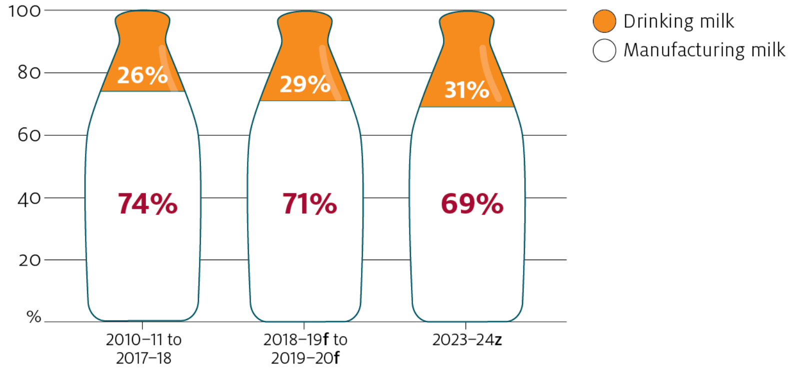
Australian milk price forecast to fall over medium term

The Australian farmgate milk price is forecast to fall in real terms each year until 2023–24. This is the result of forecast global production outpacing demand and putting downward pressure on most dairy product prices. Higher exportable supplies are expected from New Zealand, the European Union, the United States and Argentina. Production in emerging markets is also expected to expand rapidly, especially in India. Higher milk yields will drive much of the increase in production, including in the European Union and New Zealand, where the number of dairy cows is likely to fall.

Fewer cows and less milk

Falling farmgate prices will continue to put pressure on the profitability of Australian dairy businesses. After a drought-induced reduction in the dairy herd in 2018–19, dairy cow numbers are forecast to continue to fall until 2021–22. Yield increases resulting from improved productivity are unlikely to offset falling cow numbers. As a result, Australian milk production is expected to remain below 9.0 billion litres over the period to 2023–24, recovering only moderately in the second half of the projection period. Greater allocation of the milk pool to drinking milk, which is linked primarily to Australia's population growth, will leave less milk available for the manufacture and export of dairy products.

Australian milk utilisation, 2010–11 to 2023–24



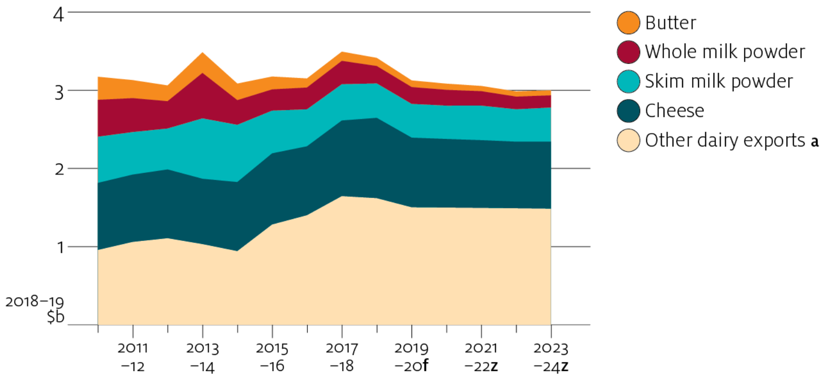
f ABARES forecast. **z** ABARES projection.

Value-added exports to rise but total exports to fall

By 2023–24 Australia's dairy exports are forecast to fall to $3.0 billion in real terms. This is towards the bottom of the $3.0 billion to $3.5 billion range for dairy exports since 2010–11. This is partly because higher domestic consumption is projected to reduce supplies of milk that can be used to manufacture exportable products. Export premiums and global prices are also expected to be lower.

Non-traditional exports, including fresh milk and value-added products such as infant formula, are projected to account for a higher share of dairy export earnings. Cheese is forecast to account for a stable share of export earnings over the projection period, but the other major commodities are projected to account for a reduced share. This reflects the industry's growing focus on Australia's competitive advantages in cheese and value-added products.

Value of Australian dairy exports, 2010–11 to 2023–24



a Other dairy exports include infant formula, fresh milk and whey. **f** ABARES forecast. **z** ABARES projection.
Sources: ABARES; Australian Bureau of Statistics

World dairy commodity prices to fall from current levels

The global prices of butter, cheese and whole milk powder are forecast to fall in 2019–20. Higher production in New Zealand and the United States over the first half of the 2018–19 season is placing downward pressure on commodity prices, especially butter. Increased production in the European Union in 2019–20 is expected to add to global supplies, assuming no adverse weather events occur.

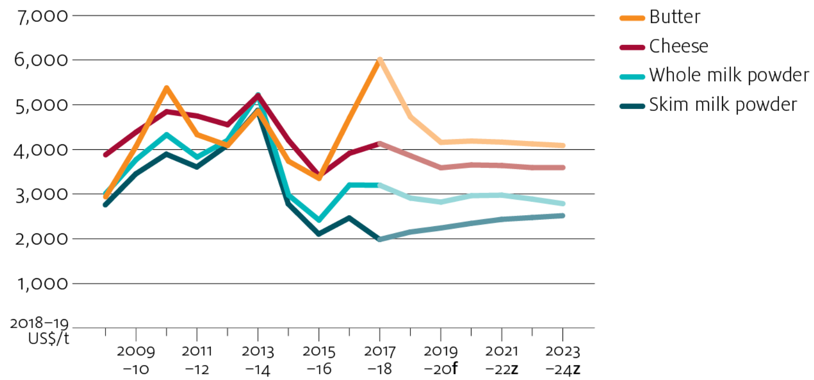
Strengthening global demand for cheese will be driven by economic growth and an ongoing shift to more westernised diets in many countries. However, medium-term prospects for cheese demand growth in Japan—Australia's most important export market—are less favourable given a weak economic growth outlook and a declining population.

Butter prices are expected to average more than US$4,000 per tonne between 2019–20 and 2023–24. This is well above the other major dairy commodities and reflects the latest health consensus on milk fats.

Skim milk powder prices are forecast to increase steadily to 2023–24 from a historically low base. In developing countries, income growth and growing consumer preferences for dairy are expected to drive demand.

In more price-sensitive regions, manufacturers of food products are expected to substitute away from butter to fat-filled powders (blends of vegetable oils and skim milk powder) in response to the higher relative cost of milk fats.

World dairy prices, 2008–09 to 2023–24

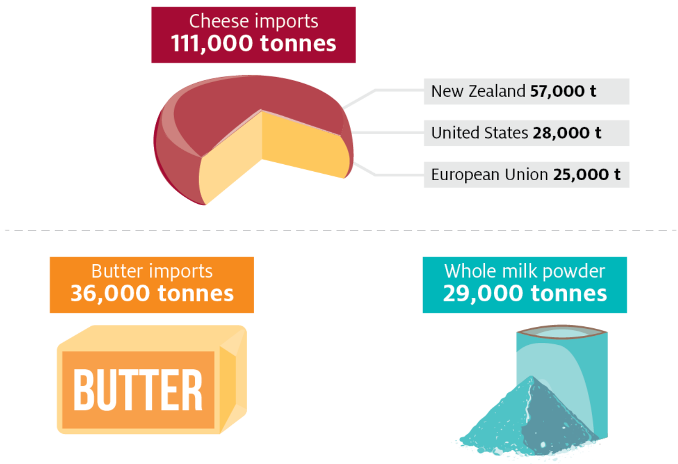


f ABARES forecast. **z** ABARES projection.

Australian dairy imports to grow

With lower forecast milk production and a growing population, Australian imports of dairy products are projected to increase over the medium term. Australia already imports a considerable volume of dairy products, primarily cheese from New Zealand, the United States and the European Union. Imported dairy products provide food manufacturers with competitively priced ingredients and consumers with more affordable and diverse food options.

Australian dairy imports, 2017–18



Source: Australian Bureau of Statistics

Opportunities and challenges

EU–Japan trade agreement to boost cheese competition

The European Union and Japan have entered into an Economic Partnership Agreement, which came into force on 1 February 2019. The agreement is not likely to have a material impact on Australian dairy exports over the medium term due to the long implementation schedule of tariff reductions. But in the long term it could lead to a significant increase in competition for a share of the Japanese cheese market. Japan is a significant importer of cheese. It is Australia's largest export market and the European Union's second largest.

Japan currently imposes tariffs of between 21% and 38% on cheese imported from the European Union. The EU–Japan agreement will establish a European-specific tariff-rate quota for cheeses, which will gradually become a duty-free quota over a 16-year implementation period. The quota will also expand from 20,000 tonnes to 31,000 tonnes over that period. This will leave the European Union with a larger duty-free quota than Australia's 20,000 tonnes, placing EU cheese exporters in a more competitive position than Australian exporters.

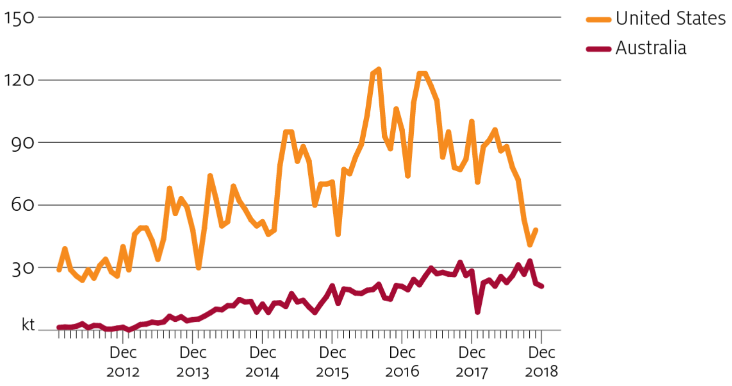
The recently signed Comprehensive and Progressive Agreement for Trans-Pacific Partnership entered into force on 30 December 2018. Read a summary of the key agricultural outcomes for Australia here.

Chinese dairy markets at risk in trade war

The Chinese dairy sector is expected to continue to undergo significant structural change over the medium term in an effort to become more productive and competitive. China's goals for agricultural sector reform include significant increases in milk yields and milk product manufacturing. The growing intensive dairy sector in China relies partly on imported feed, such as hay. The United States supplies between 70% and 80% of these imports, followed by Australia which supplies around 15%.

Hay is among those imported US goods to which China applied tariffs in September 2018 in response to the US application of tariffs on US$200 billion of Chinese imports. US hay exports fell immediately and by October 2018 reached their lowest level since January 2014. This is likely to curtail Chinese milk production and boost dairy import demand temporarily until alternative feed sources are found or tariffs are removed.

Monthly hay exports to China from United States and Australia, 2012 to 2018



Note: US data shown for HS code 1214900010. Australian data shown for HS code 12149019.
Sources: ABS; US Census Bureau

Over the medium term, China's development of its dairy sector is likely to stimulate demand for imported milk powders to be used in manufacturing. However, the effect of trade tensions on consumer confidence and consequent spending on dairy products remain the largest near-term risk to world dairy commodity prices.

Australian dairy industry code of conduct

The Australian Government is consulting on a code of conduct for the dairy industry. The scope and content of a code had not been finalised at the time of publishing. The second round of public consultation on draft clauses closed in February 2019.

The Productivity Commission inquiry into the regulation of Australian agriculture found that codes of conduct can be an effective regulatory tool for addressing unacceptable forms of commercial behaviour. The proposed clauses for the code of conduct are aimed at improving the transparency of milk supply contracts between farmers and processors, and balancing the management of production and price risk between them. More transparent prices can improve the efficiency of dairy markets, with benefits extending to farmers, processors and consumers. However, codes of conduct do not alter global market conditions, so their adoption is unlikely to result in higher milk prices in general.

All parties in vertically integrated value chains are mutually dependent on one another to remain competitive in world markets. While codes of conduct can be effective at guiding good commercial practice, their potential misuse to solve other perceived problems could have unintended consequences. In particular, it will be important to ensure that the code of conduct does not unnecessarily constrain the ability of milk producers and processors to rapidly adapt to changes in world markets and effectively manage risk.

Outlook for dairy

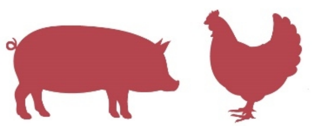
	unit	2016–17	2017–18 s	2018–19 f	2019–20 f	2020–21 z	2021–22 z	2022–23 z	2023–24 z
Australia									
Cow numbers **a**	’000	1,520	1,561	1,480	1,473	1,452	1,432	1,439	1,446
Milk yields	L/cow	5,930	5,951	5,942	5,990	5,996	6,020	6,062	6,104
Production									
Total milk	ML	9,016	9,289	8,794	8,820	8,705	8,618	8,722	8,827
market sales	ML	2,508	2,548	2,577	2,612	2,645	2,678	2,714	2,750
manufacturing	ML	6,508	6,741	6,217	6,209	6,060	5,939	6,007	6,077
Butter **b**	kt	100	92.7	78.0	76.0	76.0	74.0	70.0	72.0
Cheese **c**	kt	349	378	374	370	360	352	351	354
Whole milk powder	kt	60.0	82.5	72.0	70.0	65.0	59.0	56.0	55.0
Skim milk powder	kt	222	191	170	167	164	164	155	161
Farmgate milk price									
nominal	Ac/L	40.9	46.0	46.6	45.8	46.7	47.8	48.6	49.6
real **d**	Ac/L	42.6	47.0	46.6	44.8	44.6	44.5	44.1	43.9
Export value									
nominal	A$m	3,028	3,422	3,414	3,197	3,233	3,282	3,287	3,386
real **d**	A$m	3,151	3,494	3,414	3,127	3,085	3,055	2,985	3,000
Export volume									
Butter **b**	kt	21.4	16.2	16.0	15.0	14.0	12.0	12.0	12.0
Cheese	kt	167	171	183	175	172	171	171	173
Skim milk powder	kt	153	157	143	140	135	135	125	130
Whole milk powder	kt	59.9	48.7	41.0	45.0	46.0	44.0	42.0	42.0
World prices									
Butter									
nominal	US$/t	4,500	5,879	4,752	4,253	4,380	4,450	4,500	4,550
real **e**	US$/t	4,708	6,016	4,752	4,159	4,189	4,165	4,125	4,089
Cheese									
nominal	US$/t	3,742	4,038	3,860	3,670	3,820	3,890	3,920	4,000
real **e**	US$/t	3,915	4,131	3,860	3,589	3,654	3,641	3,593	3,595
Skim milk powder									
nominal	US$/t	2,356	1,938	2,190	2,300	2,450	2,600	2,700	2,800
real **e**	US$/t	2,465	1,983	2,190	2,249	2,343	2,433	2,475	2,516
Whole milk powder									
nominal	US$/t	3,063	3,125	2,910	2,885	3,100	3,180	3,150	3,100
real **e**	US$/t	3,204	3,198	2,910	2,822	2,965	2,976	2,887	2,786

a At 30 June. **b** Includes the butter equivalent of butter oil, butter concentrate, dry butterfat and ghee. **c** Excludes processed cheese. **d** In 2018–19 Australian dollars. **e** In 2018-19 US dollars. **f** ABARES forecast. **s** ABARES estimate. **z** ABARES projection.

Sources: ABARES; Australian Bureau of Statistics; Dairy Australia

Pigs and chickens

Nathan Pitts and Tim Whitnall



Pig and chicken

Pig and chicken meat production growth to slow in 2018–19 and 2019–20 due to high prices for domestic feed grains.

Prices of pigs to increase, chickens to fall over the medium term

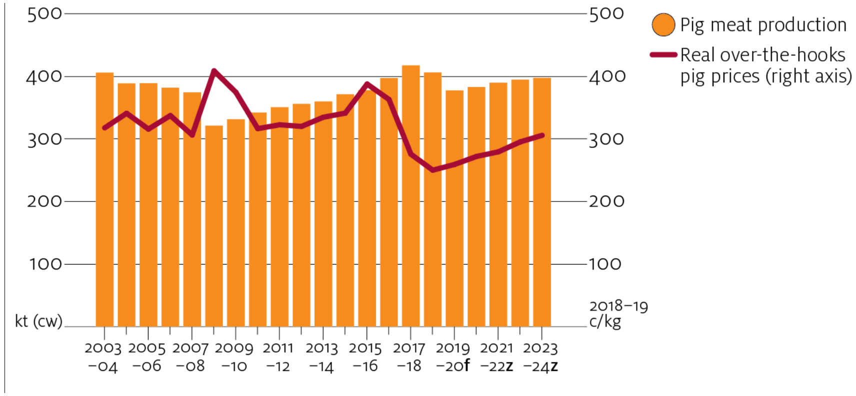
Over the medium term to 2023–24, over-the-hooks pig prices are expected to increase slightly from historical lows because of constrained Australian pig meat production. This recovery follows 4 years of falling prices to 2018–19 due to significantly higher domestic production and strong competition from other protein sources. Over the medium term, price increases will be limited by slow growth in domestic consumption and ample supplies of affordable imports.

Over the 10 years to 2017–18, retail prices for chicken have fallen by 2% per year in real terms, on average. However, prices are forecast to rise in 2018–19 due to high prices for domestic feed grains. Over the medium term, retail prices are expected to resume a downward trend as productivity continues to improve and production increases.

Production to rise over the medium term

Australian sow numbers are estimated to fall in 2018–19 due to higher slaughter. This is in response to low pig meat prices and rising feed costs. As a result, Australian pig meat production is expected to decline in 2019–20. However, lower production is not likely to have a positive influence on prices because of relatively steady domestic consumption and ongoing high global pig meat production. Later in the medium term, production is projected to increase once feed grain prices fall from drought-elevated levels.

Australian pig meat production and prices, 2003–04 to 2023–24



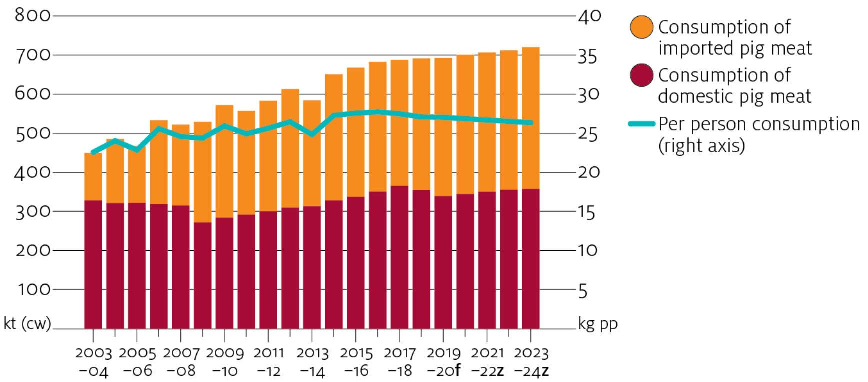
f ABARES forecast. **z** ABARES projection.
Sources: ABARES; Australian Bureau of Statistics

Over the 10 years to 2017–18 growth in chicken meat production averaged 2% per year. However, in 2018–19 chicken meat production is forecast to be relatively unchanged. Higher slaughter is expected to be offset by lower average slaughter weights. Higher domestic feed costs are expected to cause chickens to be harvested earlier because feed conversion becomes significantly less efficient as animals approach slaughter age. Over the medium term, chicken meat production is projected to return to trend growth. Productivity improvements and lower domestic feed prices are expected to drive this increase.

Domestic demand to drive increased consumption

Over the 10 years to 2017–18 total domestic pig meat consumption increased. However, since 2016–17 per person consumption has been declining due to strong price competition from other meats, especially chicken. Over the projection period to 2023–24, Australian pig meat consumption is expected to increase only slightly, in line with population growth, but per person consumption is forecast to continue to fall. The share of consumption from imports is expected to remain around 2017–18 levels due to biosecurity restrictions that prohibit imports of fresh pig meat.

Pig meat consumption, 2003–04 to 2023–24



f ABARES forecast. **z** ABARES projection.
Sources: ABARES; Australian Bureau of Statistics

Chicken meat is projected to remain the most consumed meat in Australia over the medium term. Demand for chicken meat is expected to remain strong because of relatively favourable retail prices compared with those for beef, pig meat and lamb.

Challenges and opportunities

Feed grain prices

Intensive livestock industries are among the largest consumers of domestic feed grains. In 2017–18 Australian feed grain prices rose significantly due to low Australian production and biosecurity requirements that restrict imports of grain, processed plant-based stockfeed and supplements. The combination of high feed prices and low pig prices reduced the profitability of Australian pig producers. Because domestic demand for chicken meat is relatively unresponsive to changes in price, a greater share of higher feed prices are expected to be passed on to consumers of chicken meat through higher retail prices.

Feed grain prices in Australia are expected to remain relatively high until at least spring 2019, when harvesting commences for Australian winter crops. Ongoing high feed prices will continue to constrain profitability in the pig industry and will likely drive industry consolidation.

Australian intensive livestock producers are at a competitive disadvantage relative to international competitors due to minimal domestic soybean crushing capacity. Intensive livestock producers have a strong preference for soybean meal rather than other protein sources because of its nutritional characteristics. However, due to biosecurity requirements and high domestic oilseed crushing costs, Australian producers are almost entirely reliant on soybean meal that is crushed overseas. If access to low-cost soybean meal does not improve, Australian processed pig meat will remain at a competitive disadvantage to imports.

Consumer preferences for Australian pig meat

Australian biosecurity protocols require all imported pig meat to be processed. As a result, unprocessed Australian pig meat faces no competition in the domestic fresh pig meat market. However, high feed costs mean that Australia's processed pig meat costs more than imports. As a result, demand for Australian pig meat is highly dependent on consumer preferences for fresh meat. Future substitution by Australian consumers towards lower-cost imports of processed pig meat represents a significant risk to over-the-hooks pig meat prices.

African swine fever

In 2018 African swine fever was detected in several regions in China. Outbreaks have occurred across large areas, although the scale and spread is still largely unknown. If Chinese imports increase, they are likely to be sourced from major exporting regions, such as the European Union and North America. Australia does not have pig meat export protocols in place for China. The ongoing threat of African swine fever spreading across pig herds outside China presents risks to global production and prices.

African swine fever is assumed to present more risks to Australian imports than to Australian production. This is because biosecurity requirements for pig meat imports and natural geographic barriers reduce the risk of swine fever affecting the Australian pig herd. However, the spread of African swine fever outside China, would present significant risks to Australia's pig meat imports.

Outlook for pig meat

	unit	2016–17	2017–18 s	2018–19 f	2019–20 f	2020–21 z	2021–22 z	2022–23 z	2023–24 z
Over-the-hooks price									
nominal	c/kg (cw)	348	270	250	265	285	300	325	345
real **a**	c/kg (cw)	362	275	250	259	272	279	295	306
Sow numbers **b**	’000	278	273	252	256	260	263	264	267
Slaughterings	’000	5,160	5,378	5,267	4,888	4,951	5,034	5,092	5,121
Production	kt (cw)	397	417	406	377	383	390	395	397
Consumption per person	kg (cw)	27.7	27.5	27.2	26.8	26.7	26.5	26.3	26.2
Import volume	kt (sw)	167	162	170	178	180	179	180	183
Export volume	kt (sw)	30.7	35.3	34.5	25.7	25.7	26.4	26.4	27.1
Export value									
nominal	$m	124	133	121	95.0	103	111	120	131
real **a**	$m	129	136	121	92.9	98.3	103	109	116

a In 2018–19 Australian dollars. **b** At 30 June. **f** ABARES forecast. **s** ABARES estimate. **z** ABARES projection.

Sources: ABARES; Australian Bureau of Statistics; Australian Pork Limited

Outlook for chicken meat

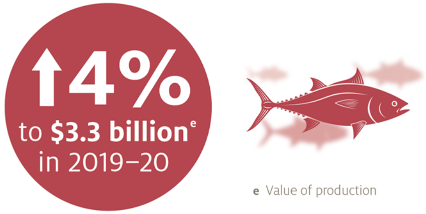
	unit	2016–17	2017–18 s	2018–19 f	2019–20 f	2020–21 z	2021–22 z	2022–23 z	2023–24 z
Slaughterings	million	653	636	650	663	676	690	704	718
Production	kt (cw)	1,230	1,193	1,188	1,253	1,278	1,304	1,330	1,356
Consumption per person	kg (cw)	48.8	47.2	45.5	46.7	46.9	47.2	47.5	47.6
Export volume	kt (sw)	35.4	37.4	34.8	37.5	38.5	37.7	37.8	40.4
Export value									
nominal	$m	54.1	65.5	62.0	67.0	69.0	68.0	69.0	74.0
real **a**	$m	56.3	66.9	62.0	65.5	65.8	63.3	62.7	65.6

a In 2018–19 Australian dollars. **f** ABARES forecast. **s** ABARES estimate. **z** ABARES projection.
Sources: ABARES; Australian Bureau of Statistics

Fisheries

Outlook to 2023–24

David Mobsby and Robert Curtotti



Fisheries and aquaculture

Salmonids and rock lobster are forecast to drive growth in fisheries and aquaculture production value.

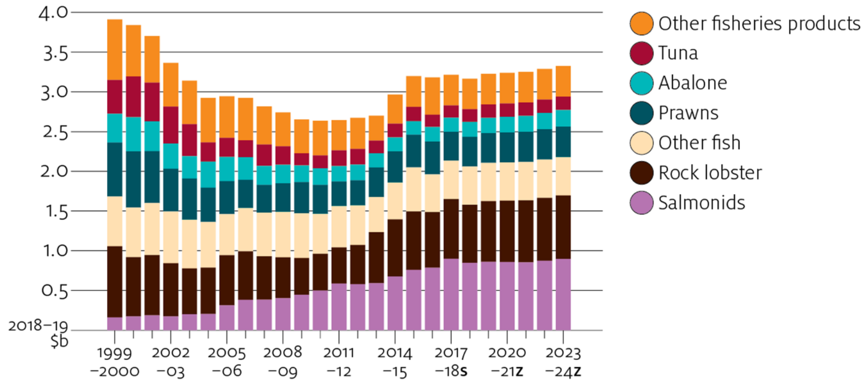
Value of fisheries production to be higher in 2023–24

In 2019–20 the value of Australia's fisheries and aquaculture production is forecast to rise by 4% to $3.3 billion. By 2023–24 this value is projected to increase by a further 3% in real terms ($96 million) to $3.3 billion (in 2018–19 dollars), largely as the result of expected growth in salmonid, rock lobster and abalone production value.

Volume increases in Tasmania's farmed salmonid sector will contribute most to lifting the production value of Australian farmed salmonids, which is projected to increase by $36 million to nearly $900 million by 2023–24.

For rock lobsters, expected higher prices and production volume are projected to drive a $34 million increase in production value in real terms to $797 million by 2023–24. Abalone production value is also projected to contribute significantly to growth, increasing by $16 million to $209 million over the outlook period. Abalone is predominantly wild-caught, but most growth in abalone production value is likely to be driven by volume increases in the aquaculture sector.

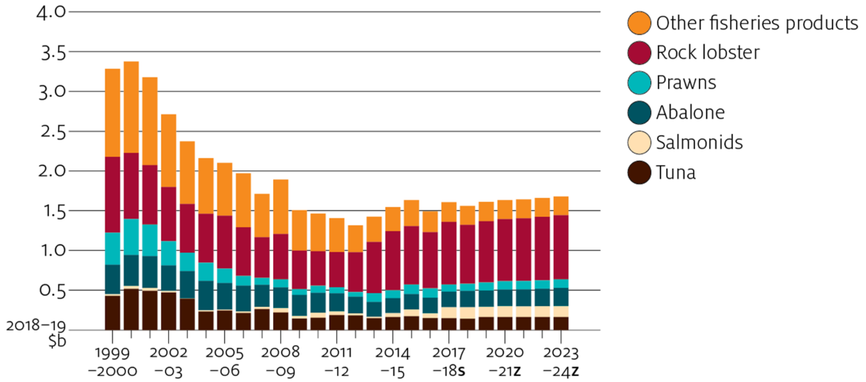
Australian fisheries production value, 1999–2000 to 2023–24



s ABARES estimate. **z** ABARES projection.

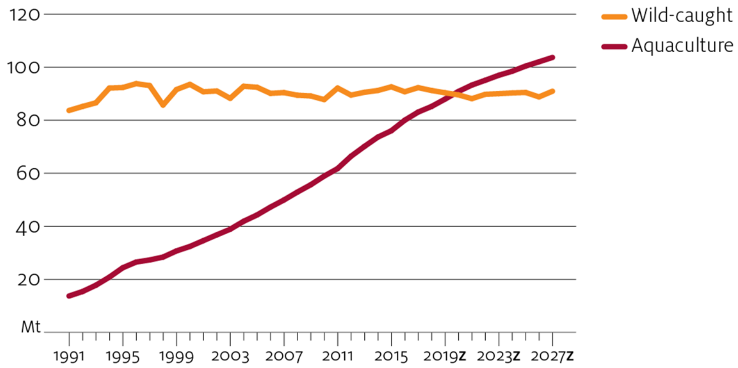
Between 2019–20 and 2023–24 the value of Australia's fishery exports is forecast to rise by 4% in real terms to $1.68 billion. Australia's fisheries and aquaculture industry is highly exposed to trade, so trends in world markets and Australia's exchange rate influence the price received for most of Australia's major produced species. Given the assumption of a stable exchange rate over the outlook period, movements in world prices will be a major determinant of export unit values.

Australian fisheries export value, 1999–2000 to 2023–24



s ABARES estimate. **z** ABARES projection.

World fisheries production, 1991 to 2027



z OECD–FAO projection.
Source: OECD–FAO (2018)

Global fisheries and aquaculture production growth to slow

According to the OECD–FAO (2018), global fisheries production is projected to be 195 million tonnes in 2027 (14% higher than in 2016). Global wild-capture production is expected to remain static at around 90 million tonnes a year, a level that has been maintained since the early 1990s. In contrast, the volume of world aquaculture production is expected to continue to expand during the projection period and will exceed wild-caught production volumes by 2020. However, the aquaculture sector is likely to face constraints on growth (such as finding new suitable production sites). Expansion is therefore projected to be at a slower rate than in the 10 years to 2016.

Global seafood consumption will be driven largely by population growth, rising incomes and increasing urbanisation. The largest growth in fisheries consumption is expected to be in developing economies. Between 2017 and 2027 direct consumption of seafood in these economies is expected to increase by 16% to 144 million tonnes and per person consumption to rise from 20.3 kilograms to 21.0 kilograms a year (OECD–FAO 2018). Improved supply chains will be central to this increase, enabling trade of seafood from supplying regions to better fulfil demand in key markets.

Chinese fisheries reforms and world prices

In 2016 China was the world's largest producer of fisheries products by volume, the largest exporter and third-largest importer of fisheries products by value (FAO 2018).

China's 13th 5-year plan is expected to influence world fisheries production over the projection period. If implemented, these policies are expected to result in a decrease in China's wild-capture fisheries production and a slowdown in aquaculture production (OECD–FAO 2018). This could result in lower Chinese fisheries exports and an increase in imports, reducing the exportable surplus and placing upwards pressure on global fish prices.

The effect of these reforms on Australia's seafood industry will depend on their timing and extent, on the species affected and the degree of trade exposure and substitutability of Australian fisheries products. Australian producers who compete in markets where China is globally dominant (such as abalone) may be more affected than those who sell products that China does not produce (such as rock lobster).

Key species outlook

Salmonids, rock lobster, prawns, tuna and abalone are forecast to account for 73% of the gross value of Australian fisheries production in 2019–20 and will remain the key product groups produced over the remainder of the outlook period. Of these commodities, salmonid, rock lobster and abalone production will contribute most to the overall growth in gross value of production, together accounting for 89% of the increase over the outlook period.

Salmonids

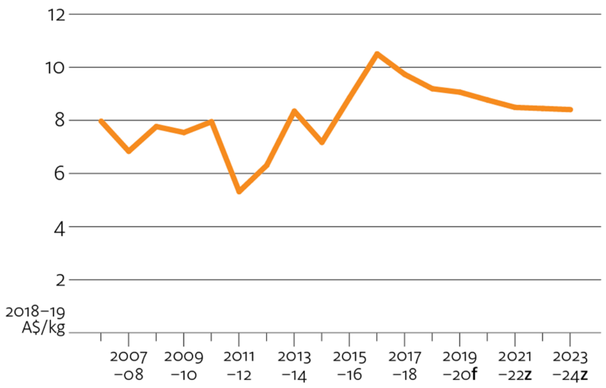
Global aquaculture production of salmonids (salmon, trout and smelt) declined by 2% to 3.3 million tonnes in 2016. Production issues for 2 of the world's largest producers, Norway (37% of global production) and Chile (22%), contributed to lower global supply (FAO 2019). Norwegian farmed salmon were affected by an outbreak of sea lice. In Chile, algae blooms caused mass fish deaths. As a result, international salmonid prices increased during 2015–16 and 2016–17.

Global production of salmonid product is now recovering. Norway has lifted overall seafood exports (mostly salmon) by 5% in 2018, and further production growth is expected for 2019 (*Undercurrent News* 2019). As the global industry recovers, global salmonid prices are projected to decline by 7% in real terms over the period to 2023–24, and this will have some affect on farmgate prices in Australia.

Australia is a relatively small producer of aquaculture salmonid products, accounting for around 2% of global production. In 2019–20 domestic production of salmon is forecast to be $862 million (in 2018–19 dollars). Tasmania accounts for over 99% of total Australian salmonid production. Rapid growth of the Tasmanian industry since the early 1990s has been underpinned by successful marketing campaigns promoting domestic consumption of salmonid products. Per person consumption of salmonids increased from 0.8 kilograms per person in 1998–99 to around 2.1 kilograms per person by 2016–17.

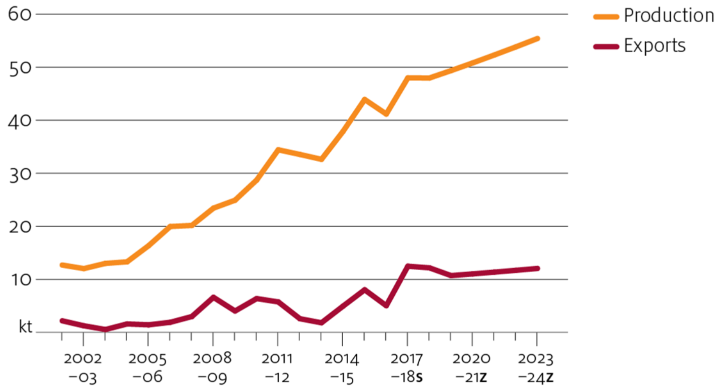
Over the outlook period, the farmed salmon industry is expected to step up production further, expanding into new lease areas, particularly at sites such as Bruny Island, Storm Bay and Okehampton Bay. By 2023–24 Australian salmonid production is forecast to increase to 71,061 tonnes, with a projected gross production value of $898 million (in 2018–19 dollars). This increase is expected to be achieved mainly through production growth. Domestic farmgate prices for salmonids are likely to trend lower over the projection period, in line with lower projected international prices.

International salmonid price, 2006–07 to 2023–24



f ABARES forecast. **z** ABARES projection.
Sources: ABARES; IMF (2019); NASDAQ (2019)

Salmonid production and export volume, 2001–02 to 2023–24



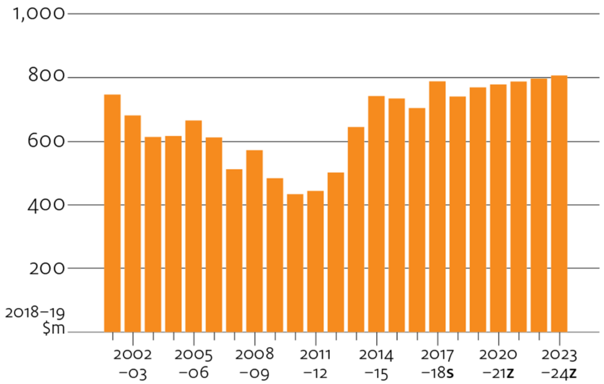
s ABARES estimate. **z** ABARES projection.
Note: Production volume has been converted to an edible weight basis.

Australia exports a relatively small proportion of its salmonid production. Between 2006–07 and 2016–17, we exported an average of 15% of production volume (on an edible weight basis). In 2019–20 the volume of salmonid exports is forecast to decline by 12% to around 10,700 tonnes as a result of increasing competition from Chile and Norway in international markets. The value of exports is forecast to fall from the high of $146 million in 2018–19 to $131 million in 2019–20. Between 2019–20 and 2023–24 expanding domestic production will support an increase in export volume of 13% to around 12,000 tonnes, valued at $139 million (in 2018–19 dollars).

Rock lobster

Between 2019–20 and 2023–24 Australian rock lobster production value is projected to rise by 4% in real terms to $797 million (in 2018–19 dollars), and the real value of exports is projected to reach $806 million. Australia's major rock lobster fisheries are output controlled through total allowable catches. Production volumes are assumed to increase only moderately over the projection period. Growth in the value of Australian rock lobster production is projected to be driven by increased production as well as higher export unit values in real terms.

Rock lobster export value, 2001–2002 to 2023–24



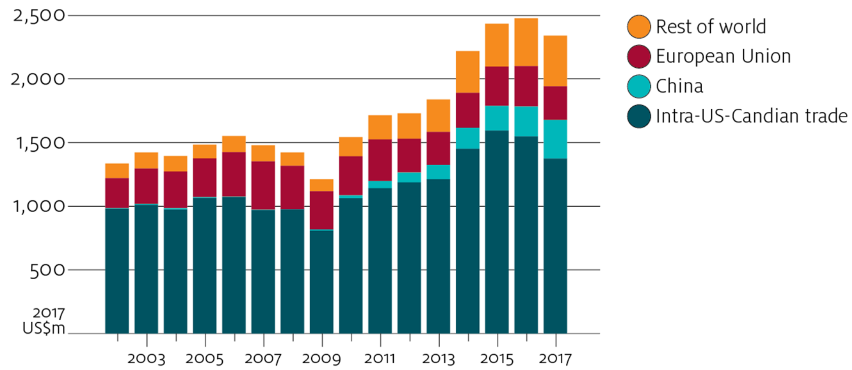
f ABARES forecast. **z** ABARES projection.

Over the projection period, both supply and demand factors will contribute to an increase in Australia's export earnings from rock lobster. Global lobster supply is expected to be constrained because of limitations on the increase in the volume of wild-caught product and limited aquaculture production. However, import demand from Asia, particularly from a growing middle class in China, is anticipated to increase. These factors are projected to lead to higher export unit returns being attained by Australian rock lobster exporters.

Under the China–Australia Free Trade Agreement (ChAFTA), Australian exports of live rock lobster to China will be admitted duty-free from 2019 onwards, increasing Australia's competitiveness into this market. This would put Australian rock lobster exporters on a more equal footing with New Zealand, a significant exporter of rock lobster. New Zealand has been exporting rock lobster to China duty-free since 2012 under the New Zealand–China Free Trade Agreement.

The United States and Canada are the world's largest lobster exporters, but generally trade lobsters with one another, reflecting each country's pattern of annual landings. However, exports from North America to China have grown in recent years, increasing competition for Australian exporters. The species of lobster produced in the United States and Canada, the American lobster, provides consumers in the Chinese market with some degree of substitution and a cheaper-priced alternative to Australian rock lobster. Over the projection period, the value of lobster exports from Canada is projected to remain high and this export will continue to compete with Australian rock lobster exports to China (Fisheries and Oceans Canada 2018). In contrast, in 2018 lobster exports from the United States to China became subject to a 25% ad valorem tariff, which will reduce US export competitiveness to the Chinese market until the tariff is reduced.

US and Canadian lobster exports, 2002 to 2017



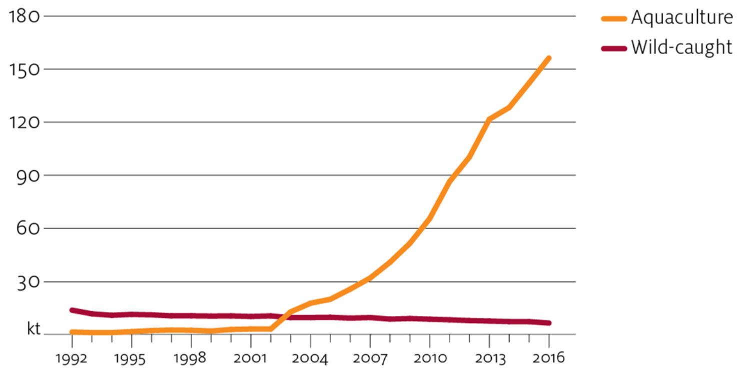
Source: UN Statistics Division (2019)

Abalone

World abalone production more than tripled between 2006 and 2016, increasing from 34,867 tonnes in 2006 to 162,771 tonnes in 2016 (FAO 2019). This was driven by an increase in aquaculture abalone, mainly from China. Global aquaculture abalone has grown substantially, but the volume of wild-caught abalone has continued to fall.

Australia produces predominantly wild-caught abalone, but aquaculture will provide most of the projected growth in production over the outlook period. Australia produces around 55% of global wild-caught abalone. Between 2006 and 2016 global wild-caught abalone production fell from 9,229 tonnes to 6,446 tonnes, driven partly by declining global wild-catch stocks and restrictive quotas (Cook 2016; FAO 2019). Despite the reduction in global wild-caught production, global prices of abalone have gradually fallen, reflecting increased global supply of aquaculture-produced abalone, which through substitution can affect the price of wild-caught product.

World abalone production, 1992 to 2016



Source: FAO (2019)

Abalone unit export prices for have increased over recent financial years and in 2017–18 was the highest on average in real terms since 2006–07. This reflects growing demand in China and a reduction in tariffs to that market. Tariffs on Australian abalone exports entering China have decreased annually since ChAFTA came into force in late 2015 and will enter China duty-free from 1 January 2019 onwards.

On the supply side, Australian wild-caught volumes are expected to remain constrained by conservatively set total allowable catch. As a result, future production growth is projected to be from aquaculture production. The value of Australian abalone production is projected to rise by 11% in real terms to $226 million (in 2018–19 dollars).

Tuna

The global tuna market largely consists of canned tuna (from species such as skipjack) and premium fresh, chilled or frozen tuna from species such as northern and southern bluefin tuna. Australian exporters compete in the premium tuna market, which largely consists of exports of chilled and frozen whole southern bluefin tuna to Japan. Japan remains the main market for global whole bluefin tuna and consequently has a major influence on world prices.

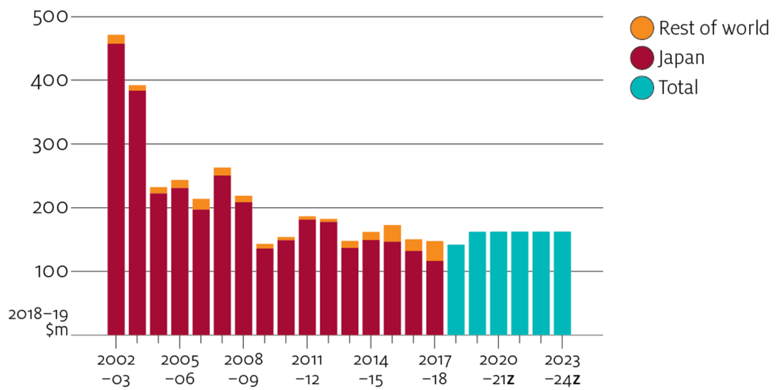
Premium tuna consumption (for products such as sushi and sashimi) in Japan has declined, reflecting several factors such as changes in consumer preferences. Japan's share of global bluefin tuna import value has also fallen as the trade has diversified to other markets (FAO 2016, 2019). Since 2012 global import prices have generally declined as the supply of bluefin tuna has increased (FAO 2019).

Southern bluefin tuna is the most valuable tuna species and is produced in Australia through a combination of wild-catch and ranching. Wild-caught southern bluefin tuna is largely ranched and grown out in purpose-built sea pens in the Port Lincoln region, a significant seafood centre in South Australia. When fattened, the wild-caught southern bluefin tuna gains significant value. Proportionately fewer caught tuna are being farmed. However, an increase in the direct export of wild-caught fish from eastern Australia has resulted in a decreasing share of bluefin tuna being ranched since around 2013–14. Typically well over 90 per cent of SBT has been ranched.

The total allowable commercial catch for Australian southern bluefin tuna is determined by an international governing body, the Commission for the Conservation of Southern Bluefin Tuna. This ensures the global southern bluefin tuna fishery is sustainable. The commission has set the total allowable commercial catch for Australia at 6,165 tonnes per annum from 2018 through to 2020 (up from 5,665 tonnes per annum between 2016 and 2017). A similar level of total allowable commercial catch is assumed for the remaining forecast period to 2023–24.

The sharp decline in the value of tuna exports between 2002–03 and 2017–18 was the result of a 71 per cent decline in the real average export unit price during that period. The value of Australian tuna exports is projected to remain largely unchanged in real terms between 2019–20 and 2023–24 at around $162 million per year (in 2018–19 dollars). This largely reflects the projected stable level of southern bluefin tuna prices over the outlook period.

Australian tuna exports, by destination, 2002–03 to 2023–24



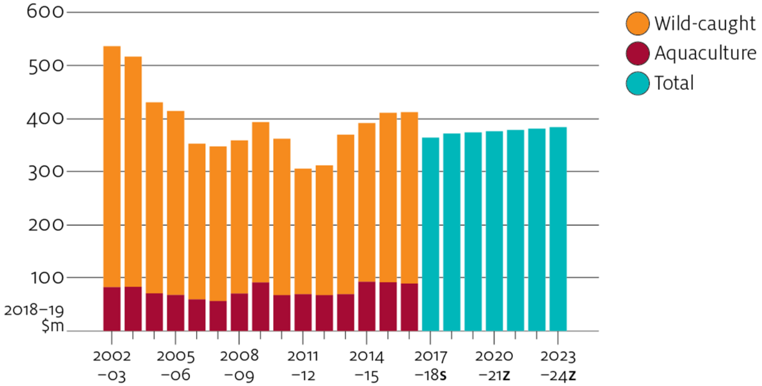
s ABARES estimate. **z** ABARES projection.

Prawns

Australia is a relatively minor producer of prawns, but we supply and export a range of high-quality species. Australia also imports a significant quantity of prawns to meet domestic consumption. Australian prawn exports tend to be high unit value products, but imports are typically more processed and have lower unit values.

Most Australian prawn production is wild-caught, but the share of aquaculture-produced prawns is increasing. Most aquaculture prawn production is in Queensland. In 2016–17 prawn farms in the Logan River region of southern Queensland were destocked following an outbreak of white spot disease. Queensland aquaculture prawn production values is forecast to increase in 2018–19 as farms begin to recover from the effects of white spot disease.

Australian prawn production, 2002–03 to 2023–24



s ABARES estimate. **z** ABARES projection.

Over the outlook period, the value of prawn production in Australia is projected to rise, largely reflecting an increase in aquaculture prawn production. However, a planned large-scale prawn farm in the Northern Territory could significantly increase aquaculture prawn production beyond projections if the farm becomes operational over the outlook period. Landed prices for prawns are expected to remain steady over the outlook period largely as a result of projected growth in global prawn production and stable exchange rates over the period.

References

Cook, P 2016, *Recent Trends in Worldwide Abalone Production, Journal of Shellfish Research*, vol. 35, no. 3.

FAO 2019, Statistics—introduction, Fisheries and Aquaculture Department, Food and Agriculture Organization of the United Nations, Rome, accessed 30 January 2019.

——2018, Fishery and aquaculture statistics yearbook, 2016, Food and Agriculture Organization of the United Nations, Rome.

——2016, Globefish highlights, no. 4, Food and Agriculture Organization of the United Nations, January to June, Rome.

Fisheries and Oceans Canada 2018, *Outlook to 2027 for Canadian fish and seafood*, Economic Analysis and Statistics Directorate, Fisheries and Oceans Canada, Ottowa, Canada.

IMF 2019, IMF primary commodity prices, International Monetary Fund, Washington, DC, accessed 9 January 2019.

NASDAQ 2019, NASDAQ salmon index, New York, accessed 9 January 2019.

OECD–FAO 2018, OECD–FAO agricultural outlook 2018–2027, Organisation for Economic Co-operation and Development and the Food and Agriculture Organization of the United Nations, Paris, accessed 25 January 2019.

Undercurrent News 2019, Norwegian salmon output to increase by 3% in 2019, 9 January 2019, London, accessed 11 January 2019.

UN Statistics Division 2019, UN Comtrade Database, New York, accessed 8 January 2019.

Outlook for fisheries

		2016–17	2017–18 s	2018–19 f	2019–20 f	2020–21 z	2021–22 z	2022–23 z	2023–24 z
Gross value of fisheries products									
Fish									
Tuna	$m	148	150	160	171	176	180	185	189
real **a**	$m	154	153	160	167	168	168	168	168
Salmonids **b**	$m	756	881	849	881	899	919	965	1,013
real **a**	$m	787	900	849	862	858	855	876	898
Other fish	$m	508	472	483	494	506	519	533	547
real **a**	$m	529	482	483	483	483	483	484	484
Crustaceans									
Prawns	$m	396	357	372	382	394	407	420	433
real **a**	$m	412	364	372	374	376	379	381	384
Rock lobster **c**	$m	673	736	729	779	808	837	868	899
real **a**	$m	700	751	729	762	771	779	788	797
Other crustaceans	$m	70.6	73.2	74.6	75.9	77.3	78.8	80.2	81.7
real **a**	$m	73.5	74.8	74.6	74.3	73.8	73.3	72.8	72.4
Molluscs									
Abalone	$m	177	175	188	197	206	216	227	235
real **a**	$m	184	179	188	193	197	201	206	209
Other molluscs	$m	254	232	234	243	249	255	262	269
real **a**	$m	264	237	234	237	237	238	238	238
Other nei	$m	75.0	72.0	74.5	76.1	77.8	79.7	81.5	83.4
real **a**	$m	78.1	73.5	74.5	74.4	74.3	74.2	74.0	73.9
Total value	$m	3,058	3,148	3,163	3,299	3,394	3,492	3,620	3,751
real **a**	$m	3,182	3,214	3,163	3,227	3,238	3,251	3,288	3,323
Fisheries export value									
Fish									
Tuna	$m	144	145	142	166	170	174	179	183
real **a**	$m	150	148	142	162	162	162	162	163
Salmonids	$m	58.9	137	146	134	145	145	150	156
real **a**	$m	61.3	140	146	131	139	135	137	139
Other fish	$m	103	111	107	115	116	118	121	123
real **a**	$m	107	113	107	112	111	110	110	109
Crustaceans and molluscs									
Abalone	$m	187	189	205	209	218	229	241	255
real **a**	$m	195	193	205	204	208	213	219	226
Prawns	$m	114	90.3	90.4	103	111	115	119	124
real **a**	$m	119	92.2	90.4	101	106	107	108	109
Rock lobster	$m	676	771	740	786	815	846	877	910
real **a**	$m	704	788	740	769	778	787	797	806
Pearls	$m	75.4	56.8	54.7	57.9	57.9	57.9	57.9	57.9
real **a**	$m	78.4	58.0	54.7	56.6	55.3	53.9	52.6	51.3
Other crustaceans and molluscs	$m	48.5	50.5	50.8	50.8	52.3	53.8	55.4	57.1
real **a**	$m	50.5	51.6	50.8	49.7	49.9	50.1	50.4	50.6
Other fisheries products	$m	27.3	23.9	26.1	26.6	26.6	26.6	26.6	26.6
real **a**	$m	28.4	24.4	26.1	26.0	25.3	24.7	24.1	23.5
Total fisheries products	$m	1,435	1,575	1,562	1,648	1,713	1,765	1,827	1,893
real **a**	$m	1,494	1,608	1,562	1,611	1,635	1,643	1,659	1,677

a In 2018–19 Australian dollars. **b** Predominantly salmon. Includes trout and salmon-like products. **c** Includes Queensland bugs. **f** ABARES forecast. **s** ABARES estimate. **z** ABARES projection.

Sources: ABARES; Australian Bureau of Statistics

Global trends in meat consumption

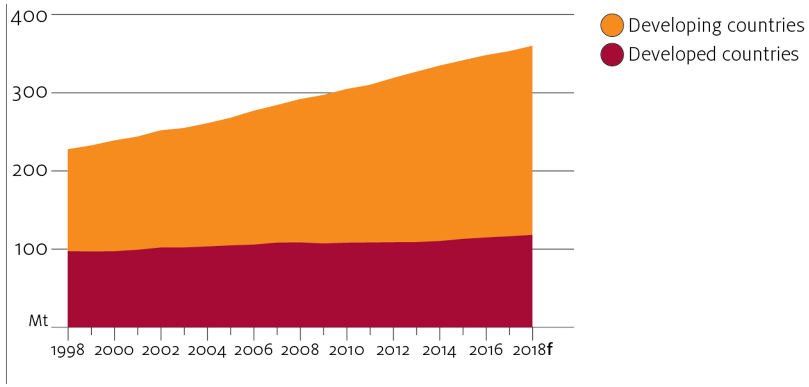
Tim Whitnall and Nathan Pitts

Global meat consumption increased by 58% over the 20 years to 2018 to reach 360 million tonnes. Population growth accounted for 54% of this increase and per person consumption growth accounted for the remainder. Per person consumption was influenced most strongly by changing consumer preferences and income growth. This article compares trends in meat consumption in Australia and some of its major meat export markets—China, Indonesia, Japan and the United States.

In the 20 years to 2018 developing countries accounted for around 85% of the rise in global meat consumption (Figure 1). Between 1998 and 2018, Chinese consumption increased by 72%. This increase accounted for 34% of global consumption growth. Population growth has been the principal driver behind increased Chinese consumption of all meats. Indonesia accounts for only 3% of global meat consumption. However, the combination of population growth and strong economic growth between 1998 and 2008 resulted in Indonesian meat consumption more than doubling. Strong Chinese demand growth and land constraints on meat production in Indonesia increased global import demand for meat. These 2 countries are now major importers of meat.

In Australia and the United States, meat consumption increased over the 20 years to 2018 because of higher poultry consumption. This demand is met principally by domestic production. In contrast, total meat consumption in Japan fell over the period. Japanese expenditure on meat has fallen because the ageing population has weakened overall demand.

Figure 1 Meat consumption, developing and developed countries, 1998 to 2018f



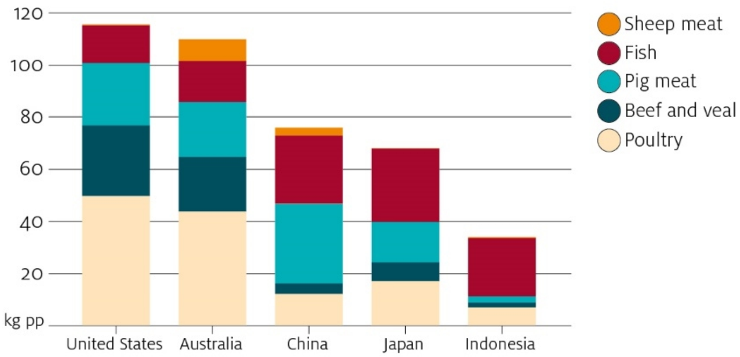
f OECD forecast.
Note: OECD definitions of developing and developed countries.
Source: OECD

Per person consumption

When compared with its major export partners, Australia's meat consumption closely matches the United States (Figure 2). In both countries poultry is the most consumed meat at over 40 kg per person. Beef and veal and pig meat each account for between 20 and 30 kg per person. Fish accounts for around 15 kg per person and sheep meat for less than 10 kg per person.

In contrast, in Australia's major Asian markets, fish accounts for a much larger share of consumption. In Japan and Indonesia, fish is the dominant source of protein by a large margin. In China, pig meat is the most consumed meat, followed by fish. Beef, veal and sheep meat form a relatively small share of consumption in all Asian markets.

Figure 2 Per person consumption of meat, selected countries, 2018f

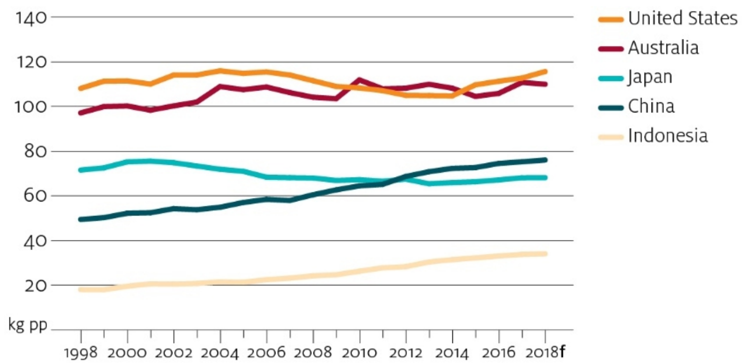


f OECD forecast.
Notes: Per person consumption data are expressed on an edible weight basis, estimated using OECD conversion factors of 0.7 for beef and veal; 0.78 for pig meat; 0.88 for poultry and sheep meat; and 0.6 for fish. Poultry includes chicken, duck, goose, guinea fowl, turkey and prepared liver.
Source: OECD

Rising incomes increase meat consumption

Over the 20 years to 2018 per person meat consumption has grown strongly in Indonesia (by 89%) and China (54%). Growth has been much slower in Australia (13%) and the United States (8%). In contrast, meat consumption fell by 3% in Japan.

Figure 3 Per person consumption of meat, 1998 to 2018f

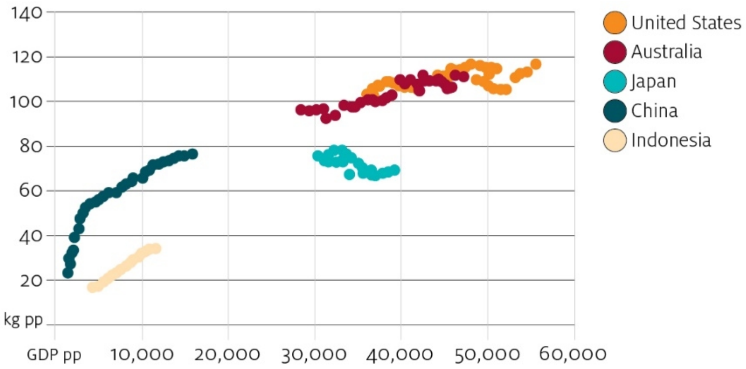


f OECD forecast.
Source: OECD

Rising incomes are a major driver of increased meat consumption. Between 1990 and 2018 higher real GDP per person coincided with higher rates of meat consumption. However, the impact that rising income has on meat consumption slows considerably as countries develop (Figure 4). Per person consumption in China and Indonesia increased markedly with small increases in income over the period. In contrast, Australian and US meat consumption was much less sensitive to income growth.

Japan is an exception to the correlation between consumption and income. Per person meat consumption in Japan has fallen considerably since 1990 despite rising incomes. This reflects an ageing population that is reducing overall expenditure on food. Lower fish consumption accounts for most of the decline, reflecting changing consumer preferences towards a more western diet. Other than fish, Japanese consumption of meat has risen at a rate similar to other developed countries.

Figure 4 Meat consumption and GDP per person, selected countries, 1990 to 2018f



f OECD forecast.
Sources: OECD; International Monetary Fund

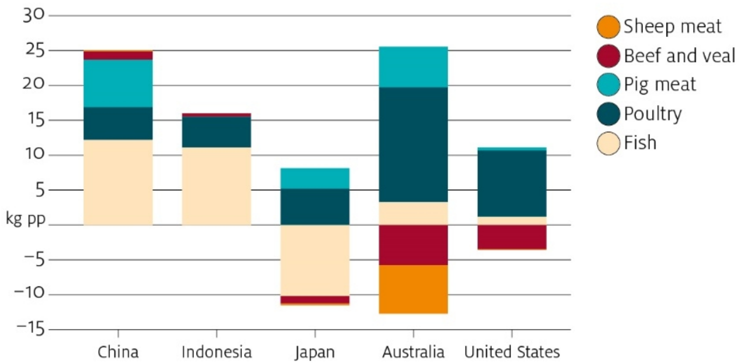
White meat increasing per person consumption growth

Consumer preferences globally have shifted towards higher consumption of fish and poultry, which now account for a much larger share of meat consumption.

In China and Indonesia, a rapid rise in fish consumption has been driven by strong growth in domestic fish production compared with other meats. Fish remains the dominant source of protein in Indonesia, accounting for around two–thirds of meat consumption—largely unchanged from 1998. In China, pig meat remains the most consumed meat, but its share of the total has fallen from 48% in 1998 to 40% in 2018. Fish now accounts for 34% of meat consumed in China (up from 28% in 1998).

In developed countries, growth in total meat consumption has been slower because it has been comparatively high for a long time. In Australia and the United States, higher consumption of poultry has more than offset reduced consumption of beef, veal and sheep meat (Figure 5). This trend has been primarily driven by the increasing affordability of poultry over red meat.

Figure 5 Changes in meat consumption, selected countries, 1998 to 2018f



f OECD forecast.
Source: OECD

Meat consumption projected to increase

Between 2019 and 2024 meat consumption is expected to rise. This is largely driven by population growth and rising incomes in developing countries. Ongoing economic growth in Indonesia is expected to increase meat consumption. Population and income growth will drive higher consumption in China. However per person consumption growth will slow as consumption approaches that of developed countries. Consumption growth in Australia and the United States is expected to be minimal, and moderate increases in poultry meat will be mostly offset by declines in beef, veal and sheep meat.

Globally, white meat is expected to continue displacing red meat in consumer diets. However, this ongoing adjustment is assumed to be lower than over the decade to 2018.

Non-tariff measures affecting Australian agriculture

George Levantis and James Fell

Non-tariff measures

Over the past 25 years, non-tariff measures have become increasingly important to Australia's agricultural trade.

Overview

Since the Uruguay Round Agreement on Agriculture came into effect on 1 January 1995, countries around the world have progressively reduced import tariffs and global agricultural trade has grown. The use of non-tariff measures (NTMs) has also grown (Nicita & Gourdon 2013). NTMs are 'policy measures other than ordinary customs tariffs that can potentially have an economic effect on international trade in goods, changing quantities traded, or prices or both' (UNCTAD 2012). This article provides an introduction to NTMs and explains their potential economic effects and prevalence in Australian agriculture.

Approximately half of all NTMs globally are applied to agricultural products. This is because governments prioritise a safe food supply for consumers, as well as biosecurity and environmental protection. Governments use a diverse range of NTMs to achieve this objective, and they cover a range of areas—from biosecurity to labelling requirements. These NTMs are designed to improve consumer confidence in imported products and maintenance of biosecurity, and can lead to greater benefits from trade despite additional compliance costs for exporters.

There are also measures which can introduce unnecessary inefficiencies in the trading system and others that are used for protectionist reasons to discourage trade. The latter are designed to be unnecessarily burdensome to exporters, and often adversely affect farmers in exporting countries and consumers in importing countries. Because of the increasing prevalence of NTMs, and the perception that many are purely protectionist and unjustifiably applied, they have become an increasing focus of trade liberalisation efforts.

NTMs are mostly imposed non-discriminately. This means that countries generally impose the same NTM on all imports regardless of country of origin, state of development or quality of its agricultural exports. NTMs can also be specific to a country of origin. These are called bilateral NTMs and comprise around 11% of NTMs applied to global agriculture.

Classification

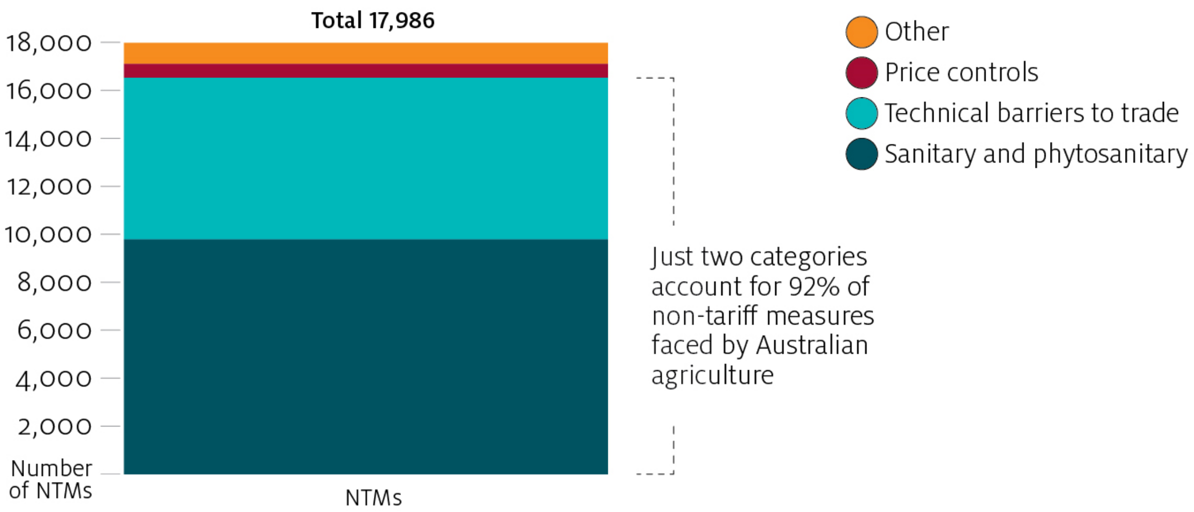
The United Nations Conference on Trade and Development (UNCTAD) Multi-Agency Support Team (MAST) established a classification system which places NTMs into one of 16 categories. Classifying NTMs is useful for analysis because of the large number and variety currently in use:

- Sanitary and phytosanitary measures (SPS)
- Technical barriers to trade (TBT)

- Pre-shipment inspection
- Contingent trade-protective measures
- Non-automatic licensing, quotas, prohibitions and quantity control measures other than for SPS or TBT reasons
- Price control measures, including additional taxes and charges
- Finance measures
- Measures affecting competition
- Trade-related investment measures
- Distribution restrictions
- Restrictions on post-sales services
- Subsidies (excluding export subsidies)
- Government procurement restrictions
- Intellectual property
- Rules of origin
- Export related measures

Sanitary and phytosanitary measures (SPS) and technical barriers to trade (TBT) account for the majority of NTMs affecting Australian agricultural exports (Figure 1). SPS measures impose biosecurity, health and food safety requirements on imports, such as limits on antibiotics in meat production or pesticide residues in grains (UNCTAD 2012). TBT measures for agricultural imports include requirements for labelling, traceability information and importer authorisation.

Figure 1 Non-tariff measures affecting Australian agriculture, January 2019



NTM Non-tariff measure.
Source: UNCTAD 2019

SPS measures account for 55% of the NTMs imposed on agricultural exports globally. Of the nearly 18,000 NTMs applied to Australian agriculture, 54% are SPS measures. The large number of SPS measures imposed on agricultural commodities is a unique characteristic of the sector. SPS measures account for only 21% of NTMs affecting Australia's non-agricultural exports. TBT measures account for 37% of NTMs imposed on both Australian and global agricultural exports. In non-agricultural industries, 70% of NTMs are TBT measures.

NTMs are an inherent cost of doing business faced by Australian agricultural exporters. SPS and TBT measures can include food quality and safety regulations which are appropriately imposed on imports. These typically increase compliance costs for exporters but are regarded as a reasonable consequence of conducting international commerce which support ongoing trade relationships.

Inefficient or poorly designed regulations also increase costs but hinder trade. For this reason, minimising these complications is a large part of trade liberalisation efforts since inefficient NTMs can be employed deliberately to serve protectionist roles. These measures intentionally incorporate unnecessarily burdensome costs of compliance which have little to no scientific or regulatory basis. For example, governments can impose SPS and TBT measures that mandate unnecessary laboratory testing and complex labelling, using them to disguise protectionist intent and hinder trade.

The third-largest category of NTMs applied to Australian agriculture is price control measures. These are implemented to protect domestically produced products from lower-priced imports, improve price stability or raise tax revenue. For example, several countries in the Middle East raise tax revenue through applying customs inspection fees to grain imports.

Two other NTM categories are particularly important for Australian agriculture: pre-shipment inspections and other formalities, and quantity controls. The total number of NTMs in these categories is low, but they can impose significant costs to Australian agricultural exporters. This is because they are more heavily applied to Australian broadacre crops, wool, meat and live animals—together accounting for over 70% of total agricultural exports by value.

Importing countries mandate pre-shipment inspections to be carried out in the exporting country. For example, the Philippines mandates that documentation be provided on the weight, volume and value of grains before the shipment is cleared for import (UNCTAD 2019).

Quantity controls include quotas and bans other than for SPS or TBT reasons. For example, the European Union imposes a tariff-rate quota on imports of high quality beef from Australia, and Afghanistan bans imports of pigs and pig products.

Other obstacles to trade

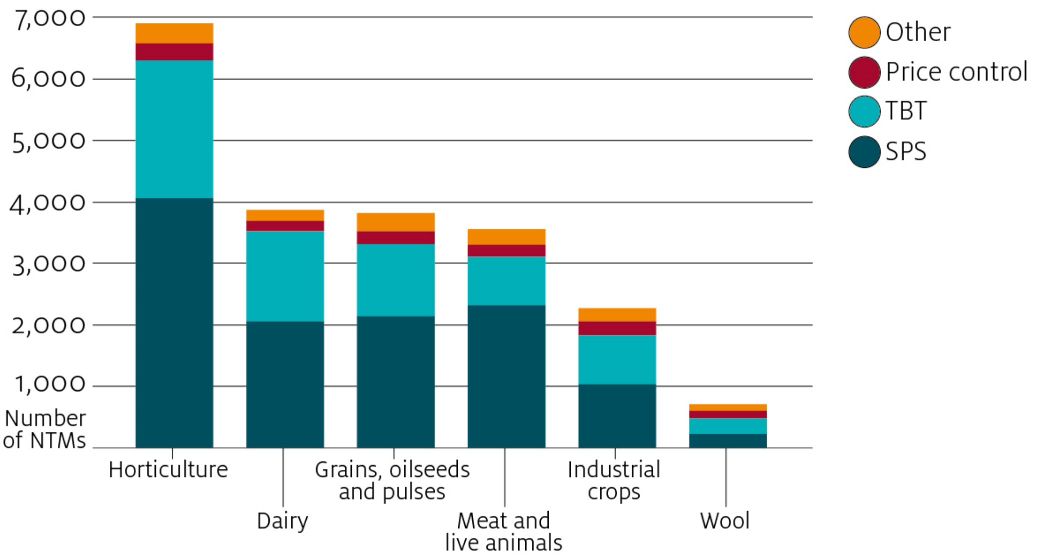
Trade can be impeded by other obstacles that are not policy measures. For example, the cost of doing business may increase as a result of uncertainty or a lack of clarity about future policy changes. Such obstacles are sometimes considered a natural part of international commerce. However, distinctions between NTMs and other trade obstacles can be unclear—hindering negotiations for improved market access.

NTM-related procedures required by importing countries to demonstrate compliance with an NTM can be trade obstacles. These are distinct from the NTM itself and can be more burdensome to exporters of agricultural products than the NTM (ITC 2015). Time delays and informal or unusually high payments are two common examples of such procedural obstacles.

Non-tariff measures applied to Australian agricultural exports

Australian agricultural exports are subject to nearly 18,000 NTMs worldwide as at 1 January 2019 (UNCTAD 2019), and these extend across all commodity types (Figure 2). Horticulture is affected by the greatest number of NTMs, followed by dairy, grains, oilseeds and pulses, and meat and livestock products. The high number of NTMs affecting these commodity groups does not necessarily reflect the potential trade cost. For example, the cost for Australian exporters of complying with one NTM imposed by one country can be higher than the total cost of complying with several NTMs imposed by several countries.

Figure 2 Non-tariff measures applied to Australian agricultural exports, by commodity, January 2019



NTM Non-tariff measure. **SPS** Sanitary and phytosanitary measures. **TBT** Technical barriers to trade.
Note: Many NTMs are applied across commodities, so the sum of individual commodity groups is greater than the total number of NTMs affecting all agricultural exports.
Source: UNCTAD 2019

Some exported commodities by their nature are more likely to be subject to NTMs. For example, horticultural exports (including fresh fruit and vegetables) are highly perishable and potential vectors for pests and diseases that could damage an importing country's agricultural sector. They are also often the object of food quality concerns. The diversity of products in the horticulture export category may also explain the higher number of NTMs. This distinction is important for industry and government when assessing implications of frequency across commodity groups.

SPS measures account for the dominant share of NTMs applied across each commodity group other than wool (Table 1). This reflects the importance of food safety and biosecurity in agriculture. TBT measures account for the largest share of NTMs for wool because health requirements are less significant for non-food items.

Table 1 Number of non-tariff measures applied to Australian agricultural commodities, 2019

Commodity	No.	Most common category
Dairy	3,870	SPS (53%)
Grains, oilseeds and pulses	3,820	SPS (56%)
Horticulture	6,901	SPS (59%)
Industrial crops	2,273	SPS (45%)
Meat and live animals	3,558	SPS (65%)
Wool	709	TBT (36%)

SPS Sanitary and phytosanitary measures. **TBT** Technical barriers to trade.
Note: Includes import-related non-tariff measures only, without regard to commercial significance.
Source: UNCTAD 2019

Effects on Australian agricultural exports

Because NTMs can increase the cost to export, there is often a perception that those applied to Australian agriculture reduce trade. However, it is often the case that the absence of such an NTM may actually destroy the possibility of any trade. An NTM that improves trade is referred to as trade-facilitating. For example, NTMs that ensure food meets health and safety requirements are common in agriculture and are used to provide quality assurance to agricultural products—increasing consumer demand and facilitating trade. Trade-reducing NTMs are those that increase the cost of compliance for exporters without a compensating improvement in demand.

Whether an NTM will have an overall trade-reducing or trade-facilitating effect is sometimes uncertain because often multiple NTMs apply to the same goods. Ascertaining the overall effect of an individual NTM in these circumstances is quantitatively challenging (Cadot, Gourdon & van Tongeren 2018; Piermartini & Yotov 2016).

Quantifying non-tariff measures

Researchers and international organisations like the OECD, UNCTAD and the World Bank have conducted extensive work on estimating the impact of NTMs on exports. How this work has been undertaken has varied because quantifying NTMs means different things to different people. Approaches for quantification include counting, cost modelling and holistic data-based approaches. Counting involves identifying NTMs and summing up the number of times they are applied while often also categorising them by their type. Cost modelling involves analysing the costs of compliance for a specific NTM and estimating how those costs affect exports.

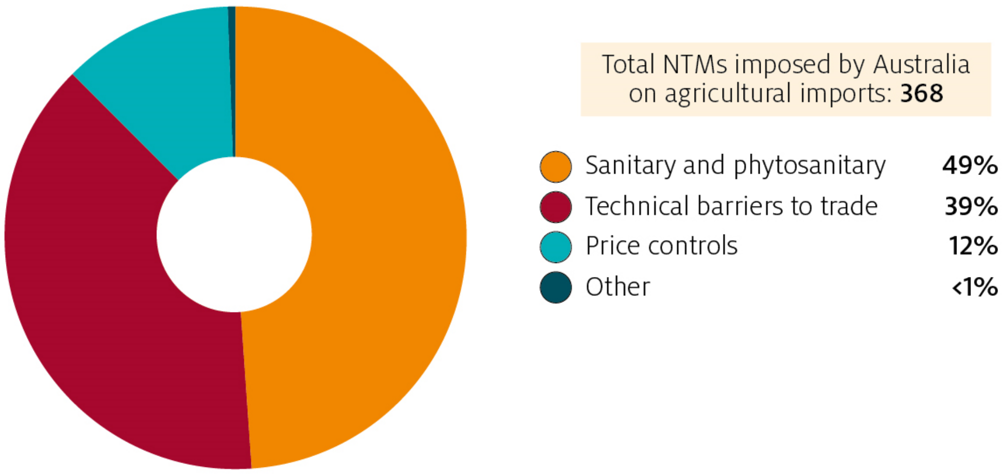
The holistic data-based approach is the one most widely employed by researchers because it provides broad insights that summarise NTMs' effects across exporters and commodities by making use of globally available datasets. Different researchers in this field have different objectives and employ a variety of cutting-edge methodologies. The validity of the results depends on the objectives. Some researchers are interested in results at the sector level, such as agriculture, some at a commodity level, such as barley, and others at the tariff-line level, such as durum wheat seed.

At this time there is no single, accepted methodology for the data-based approach. It is an ongoing area of research. As a result, the validity of published results from analysis undertaken on a country-by-country basis at the commodity or tariff-line level is currently questionable for technical and statistical reasons. These relate to the fact that most NTMs are applied on a multilateral basis, so estimating their country-by-country effect is technically challenging. Leading quantification methods include those described by Anderson, Larch & Yotov (2015), Cadot, Gourdon & van Tongeren (2018) and Kee, Nicita & Olarreaga (2009).

Non-tariff measures imposed by Australia

Australia imposes a variety of NTMs on imported products, including around 368 on agricultural imports—nearly all of which are applied non-discriminately. SPS measures are the largest category of NTMs imposed by Australia on agricultural products (Figure 3). This is similar to the distribution of NTMs applied by importing countries in the rest of the world.

Figure 3 Australian non-tariff measures imposed on agricultural imports, January 2019



Note: NTMs reported as at January 2019.
Source: UNCTAD 2019

Conclusion

Over the past 25 years NTMs have become increasingly prevalent in international trade. NTMs can serve legitimate purposes such as safeguarding health and food safety, especially in agriculture. However, the increasing frequency of unjustified or inefficient trade-reducing NTMs has become a global concern. These NTMs impede consumers and farmers from fully realising the benefits of improved market access through free trade agreements. Governments and industry will need to continue to prioritise the removal or reform of inefficient and illegitimate NTMs to achieve meaningful outcomes from trade liberalisation negotiations.

References

Anderson, J, Larch, M and Yotov, Y 2015, Estimating general equilibrium trade policy effects: GE PPML, *CESifo Working Paper* no. 5592, November.

Cadot, O, Gourdon, J & van Tongeren, F 2018, Estimating ad valorem equivalents of non-tariff measures: combining price-based and quantity-based approaches, *OECD Trade Policy Papers*, no. 215, Paris, doi: 10.1787/18166873.

ITC 2015, The invisible barriers to trade: how businesses experience non-tariff measures, International Trade Centre, Geneva, June.

Kee, HL, Nicita, A and Olarreaga, M 2009, Estimating trade restrictiveness indices, *The Economic Journal*, no. 119, pp. 172–199.

Nicita, A & Gourdon, J 2013, A preliminary analysis on newly collected data on non-tariff measures, *Policy issues in international trade and commodities study series*, no. 53, United Nations Conference on Trade and Development, New York.

Piermartini, R & Yotov, Y 2016, Estimating trade policy effects with structural gravity, *WTO Working Paper*, ERSD-2016–10, World Trade Organization, Geneva, July.

UNCTAD 2012, International classification of non-tariff measures: 2012 version, United Nations Conference on Trade and Development, New York.

—— 2019, TRAINS: Global Database on Non-Tariff Measures, United Nations Conference on Trade and Development, Geneva, accessed 25 January 2019.

Farm performance: broadacre and dairy farms, 2016–17 to 2018–19

Peter Martin and Vernon Topp

- In 2018–19 drought in south-eastern Australia is the dominant influence on the financial performance of broadacre and dairy farms.
- The net effect of the drought on farm incomes in 2018–19 across Australia is negative, but some states and regions are benefiting from high prices for feed grains and fodder.
- In states and regions not directly affected by drought, farm incomes in 2018–19 are expected to be above to well above longer-term average levels.
- In regions where rainfall deficiencies have been more severe and sustained, farm incomes in 2018–19 are projected to fall dramatically compared with the previous year. In some regions this is compounding the effects of comparatively low incomes in 2017–18.
- In 2018–19 the sheep industry is benefiting from high prices for sheep, lambs and wool.
- In the dairy industry, average farm cash incomes are projected to decline in every state except Tasmania, largely due to lower milk production and higher expenditure on purchased feed.

Overview

This article presents results from ABARES most recent surveys of Australian broadacre and dairy farms (see Box 1). The surveys collected detailed information on the physical and financial performance of broadacre and dairy farms in 2017–18, as well as farm managers' estimates of key production, receipts, costs and farm debt variables for the 2018–19 financial year. ABARES uses these estimates to generate projected values of key financial performance indicators for 2018–19. Final ABARES survey results for 2016–17 are also reported. Unless otherwise noted, all financial data in the text and tables are in nominal dollars. Time-series graphs are used to illustrate longer-term trends in key financial performance variables. Financial variables shown in these graphs are displayed in real terms (2018–19 dollars). A map of the regions used by ABARES to disaggregate state-level results is included in this report (see Map 1).

Box 1 ABARES farm surveys

Each year, as part of its annual farm survey program, ABARES interviews operators of around 1,600 broadacre farm businesses in its Australian Agricultural and Grazing industries Survey (AAGIS) and 300 dairy farm businesses in its Australian Dairy Industry Survey (ADIS). The AAGIS is targeted at commercial-scale broadacre farms — those that grow grains or oilseeds or run sheep or beef cattle and have an estimated value of agricultural output exceeding $40,000. Broadacre industries covered in this survey include wheat and other crops, mixed livestock–crops, sheep, beef and sheep–beef industries. The ADIS is targeted at commercial-scale milk-producing farms.

Further information about ABARES survey definitions and methods is available at Farm surveys definitions and methods.

Farm performance in 2018–19 heavily influenced by drought

In 2018–19 drought in much of south-eastern Australia is the dominant influence on the financial performance of broadacre and dairy farming in Australia. Crop production in south-eastern Australia in 2018–19 is projected to be well below average due to drought, contributing to higher prices for fodder and feed-grains across the country. The drought has also reduced the availability of pasture on livestock farms in drought-affected regions, increasing expenditure on purchased feed for livestock.

For cropping farms in drought-affected regions, farm incomes are projected to be substantially lower in 2018–19 (on average) due to lower crop areas and yields. Elsewhere, high prices for most grain, oilseed and grain legume crops are helping to keep incomes for cropping farms at historically high levels.

For sheep and beef producers, high prices for purchased feed are adding substantially to costs in 2018–19. Average expenditure on purchased feed is projected to increase in all states and territories this year. The biggest increases (in percentage terms) are expected in those states and regions where drought conditions have been more severe and sustained.

At the aggregate level, the effect of the current drought on the economic performance of broadacre farms is not expected to be as severe as that of previous droughts (Figure 1). On average across all broadacre farms, most measures of farm financial performance in 2018–19 are expected to be above longer-term average levels, despite the drought. This reflects two main factors. First, the geographic reach of the current drought is less extensive than that of the Millennium Drought (the 2002–03 to 2006–07 drought). Second, high to very high prices for most broadacre commodities are supporting incomes in drought-affected regions. In regions not affected by drought, high commodity prices are contributing to high farm cash incomes, particularly in those regions with broadacre cropping enterprises and with livestock farms that are less reliant on purchased feed.

For Australia as a whole, the average farm cash income for all broadacre farms is projected to fall by 18% between 2017–18 and 2018–19 — from $201,300 per farm in 2017–18 to $173,000 per farm in 2018–19 (Table 1). However, this would still leave average farm cash income in 2018–19 well above the longer-term average of $140,000 per farm in real terms for the 10 years to 2017–18.

Average farm business profit (farm cash income adjusted for changes in livestock and grain inventories, as well as capital depreciation and the imputed value of family labour) is projected to fall from $62,500 per farm in 2017–18 to $33,000 per farm in 2018–19. This is just below the longer-term average.

Regional differences more pronounced in 2018–19

The adverse impact of the drought on average broadacre farm profitability is not expected to be as severe as that recorded in previous droughts, but the aggregate and average results mask important regional and industry differences. For example, in north-western New South Wales and parts of southern Queensland, farm cash incomes in 2018–19 are projected to be substantially lower because these regions have experienced prolonged rainfall deficiencies. In the North-West Slopes and Plains region of New South Wales, the average farm cash income is projected to be just $1,000 per farm in 2018–19, compared with $221,000 per farm the previous year (Table 8). This is the result of severely reduced crop production and much higher expenditure on purchased feed for livestock.

Outside the drought-affected regions of south-eastern Australia, broadacre farm incomes in 2018–19 are projected to remain above longer-term average levels and in some cases surpass previous record levels. In Western Australia, average farm cash income for broadacre farms is projected to reach nearly $490,000 per farm in 2018–19, an increase of 30% on the previous year ($368,800 per farm). If achieved, this will be the highest average farm cash income recorded in over 40 years for this state. This is the result of timely in-season rainfall resulting in good yields for winter crops and high grain, lamb and wool prices.

Table 1 Financial performance, all broadacre industries, Australia, 2016–17 to 2018–19

average per farm

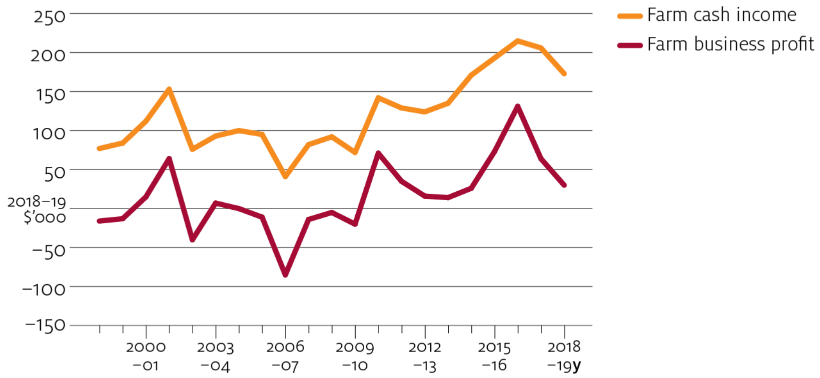
Financial performance measure	Unit	2016–17	2017–18p	RSE	2018–19y
Total cash receipts	$	584,280	591,900	(6)	564,000
Total cash costs	$	377,320	390,600	(8)	391,000
Farm cash income	$	206,960	201,300	(4)	173,000
Farms with negative farm cash income	%	13	16	(12)	23
Farm business profit	$	126,290	62,500	(14)	30,000
Profit at full equity					
– excluding capital appreciation	$	165,220	102,900	(8)	73,000
– including capital appreciation	$	422,870	301,600	(8)	na
Farm capital at 30 June **a**	$	5,151,930	5,602,700	(3)	na
Farm debt at 30 June **b**	$	598,870	639,100	(5)	na
Change in debt – 1 July to 30 June **b**	%	6	7	(24)	na
Equity at 30 June **bc**	$	4,207,490	4,656,000	(3)	na
Equity ratio **bd**	%	88	88	(1)	na
Farm liquid assets at 30 June **b**	$	220,920	248,400	(11)	na
Farm management deposits (FMDs) at 30 June **b**	$	71,250	81,600	(8)	na
Share of farms with FMDs at 30 June **b**	%	28	31	(6)	na
Rate of return **e**					
– excluding capital appreciation	%	3.5	1.9	(7)	1.3
– including capital appreciation	%	8.9	5.6	(7)	na
Off-farm income of owner manager and partner **b**	$	45,340	42,500	(14)	na

a Excludes leased plant and equipment. **b** Average per responding farm. **c** Farm capital minus farm debt. **d** Equity expressed as a percentage of farm capital. **e** Rate of return to farm capital at 1 July. **p** Preliminary estimates. **y** Provisional estimates. **na** Not available.

Note: Figures in parentheses are standard errors expressed as a percentage of the estimate provided.

Source: ABARES Australian Agricultural and Grazing Industries Survey

Figure 1 Financial performance, all broadacre industries, Australia, 1998–99 to 2018–19



y Provisional estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Industry results reflect mixed effects of drought on production, commodity prices and costs

Between 2017–18 and 2018–19 average farm cash income and average farm business profit is projected to decline for each of the broadacre industries except the sheep industry (Table 2, Figure 2 and Figure 3). In the sheep industry, higher farmgate prices for lambs and wool are helping to offset the adverse effects on farm incomes of increased expenditure on purchased feed and some other cost items are being cut back, including purchases of livestock. In the other broadacre industries, lower farm incomes for farms in drought more than offset the generally higher incomes for farms not in drought. For example, in the wheat and other crops industry, the average farm cash income in 2018-19 is projected to fall by just under $100,000 per farm compared with the previous year (from $390,400 per farm in 2017-18 to $295,000 per farm in 2018-19) (Table 2). This reflects the net outcome of very different underlying changes for this industry at the state level, such as a reduction in average farm cash income of around $380,000 per farm in New South Wales (Table 8) and an increase of around $250,000 per farm in Western Australia (Table 12).

As with broadacre farming, the financial performance of dairy farms in 2018–19 varies across regions, largely reflecting differences in exposure to drought and higher fodder prices (hay and feed grains). At the national level, the average farm cash income on dairy farms is projected to fall by around $67,000 per farm between 2017–18 and 2018–19 — from $160,900 per farm in 2017–18 to $93,000 in 2018–19 (Table 6 and Figure 5), a decline of 43%.

Table 2 Financial performance, broadacre industries, 2016–17 to 2018–19

average per farm

Broadacre industries	Unit	Farm cash income			Farm business profit		
		2016–17	2017–18p	2018–19y	2016–17	2017–18p	2018–19y
All broadacre industries	$	206,960	201,300	173,000	126,290	62,500	30,000
Wheat and other crops	$	431,900	390,400	295,000	307,810	149,200	97,000
Mixed livestock–crops	$	240,010	237,300	211,000	142,930	79,000	33,000
Sheep	$	118,740	131,600	142,000	56,230	22,000	30,000
Beef	$	141,370	130,900	113,000	75,480	41,400	–4,000
Sheep–beef	$	163,250	207,500	162,000	98,350	40,800	28,000

p Preliminary estimates. **y** Provisional estimates.
Source: ABARES Australian Agricultural and Grazing Industries Survey

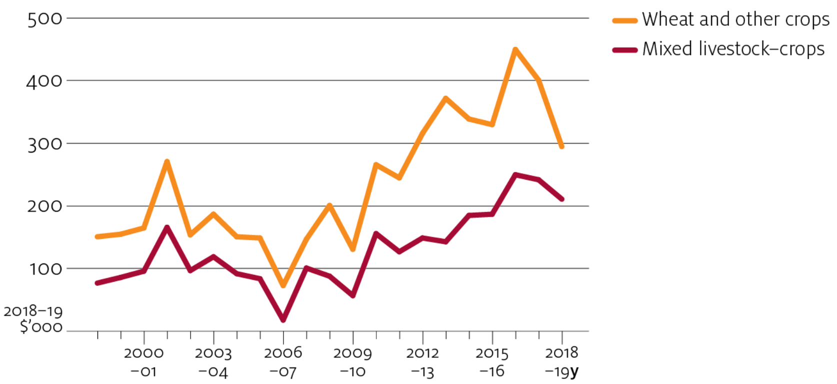
Table 3 Rate of return, broadacre industries, 2016–17 to 2018–19

average per farm

Broadacre industries	Unit	Rate of return excluding capital appreciation a			Rate of return including capital appreciation a		
		2016–17	2017–18p	2018–19y	2016–17	2017–18p	2018–19y
All broadacre industries	%	3.5	1.9	1.3	8.9	5.6	na
Wheat and other crops	%	6.0	3.4	2.8	10.8	7.9	na
Mixed livestock–crops	%	3.9	2.3	1.5	11.6	5.5	na
Sheep	%	2.4	1.1	1.2	8.3	7.4	na
Beef	%	2.1	1.2	0.4	6.2	2.9	na
Sheep–beef	%	2.8	1.3	1.0	9.8	7.9	na

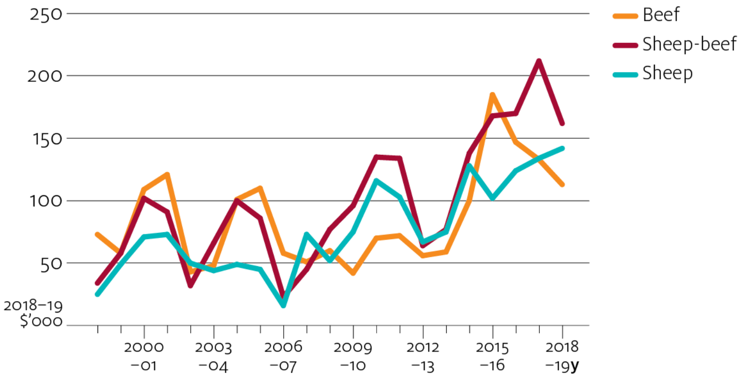
a Rate of return to farm capital at 1 July. **p** Preliminary estimates. **y** Provisional estimates. **na** Not available.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Figure 2 Farm cash income, grains industries, Australia, 1998–99 to 2018–19



y Provisional estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Figure 3 Farm cash income, sheep and beef industries, Australia, 1998–99 to 2018–19



y Provisional estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Performance, by state and region

At the state level, changes in farm financial performance between 2017–18 and 2018–19 vary considerably (Figure 4, Table 4 and Table 5). In the states most affected by drought — New South Wales, Queensland, Victoria and South Australia — average farm incomes are projected to decline in 2018-19 compared with the previous year. These changes reflect lower production (particularly on cropping farms) and higher purchased feed costs. In Western Australia, Tasmania and the Northern Territory, average farm cash income is projected to increase in 2018-19 compared with the previous year, with higher production and receipts more than offsetting an expected increase in cash costs, particularly purchased feed.

Region and industry-level differences are even greater, largely reflecting the geographic reach of drought, which is being felt most strongly in the wheat–sheep and pastoral zones of southern Queensland, New South Wales and north-eastern South Australia, and the wheat–sheep zone in Victoria.

Figure 4 Change in average farm cash income between 2017–18 and 2018–19, all broadacre industries, by state (%)

Source: ABARES Australian Agricultural and Grazing Industries Survey

Table 4 Financial performance, broadacre farms by state, 2016–17 to 2018–19

average per farm

Region	Unit	Farm cash income			Farm business profit		
		2016–17	2017–18p	2018–19y	2016–17	2017–18p	2018–19y
New South Wales	$	176,140	175,600	87,000	104,250	2,000	–69,000
Victoria	$	120,930	141,400	122,000	76,830	44,100	10,000
Queensland	$	216,240	179,100	142,000	121,470	55,400	–1,000
Western Australia	$	378,900	368,800	490,000	233,140	184,500	304,000
South Australia	$	255,540	248,100	219,000	160,600	114,300	79,000
Tasmania	$	127,240	140,000	185,000	64,630	87,100	128,000
Northern Territory	$	1,569,610	1,074,500	1,288,000	1,481,180	1,454,600	1,119,000
Australia	$	206,740	201,300	173,000	126,040	62,500	30,000

p Preliminary estimates. **y** Provisional estimates.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Table 5 Rate of return, broadacre farms by state, 2016–17 to 2018–19

average per farm

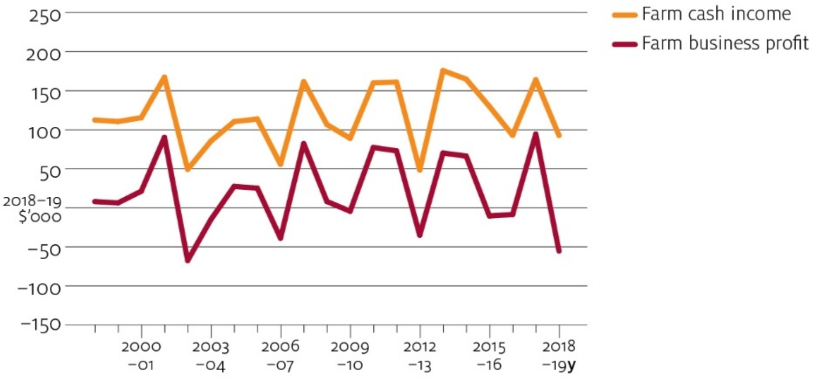
Region	Unit	Rate of return excluding capital appreciation a			Rate of return including capital appreciation a		
		2016–17	2017–18p	2018–19y	2016–17	2017–18p	2018–19y
New South Wales	%	3.1	0.7	–0.5	11.8	6.0	na
Victoria	%	2.8	1.9	1.1	8.4	5.6	na
Queensland	%	2.8	1.5	0.7	6.8	3.6	na
Western Australia	%	5.3	4.2	5.9	7.4	7.0	na
South Australia	%	4.1	2.9	2.1	7.3	6.9	na
Tasmania	%	2.4	2.8	3.7	5.5	4.3	na
Northern Territory	%	5.7	5.2	3.9	14.5	7.4	na
Australia	%	3.5	1.9	1.3	8.9	5.6	na

a Rate of return to farm capital at 1 July. **p** Preliminary estimates. **y** Provisional estimates. **na** Not available.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Between 2017–18 and 2018–19 average farm cash incomes on dairy farms are projected to decline in all states except Tasmania. Reductions range from 66% in New South Wales to 24% in South Australia (Figure 5, Table 6 and Table 7). This is mainly a result of higher expenditure on purchased feed and reduced milk production. The trend towards more intensive feeding of cattle means that many dairy farms are now more exposed to changes in the prices of purchased fodder (hay and feed grains). Drought has driven up the market price of water in 2018–19 (BOM 2018). As a result, dairy farms in Murray–Darling Basin irrigation districts that rely on buying water on the temporary market are also facing higher costs.

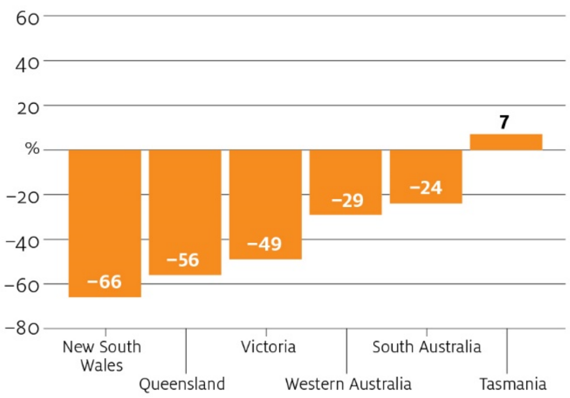
Figure 5 Financial performance, dairy farms, Australia, 1998–99 to 2018–19

average per farm



y Provisional estimate.
Source: ABARES Australian Dairy Industries Survey

Figure 6 Change in average farm cash income between 2017–18 and 2018–19, dairy farms, by state



Source: ABARES Australian Dairy Industry Survey

Table 6 Financial performance, dairy farms by state, 2016–17 to 2018–19

average per farm

Region	Unit	Farm cash income			Farm business profit		
		2016–17	2017–18p	2018–19y	2016–17	2017–18p	2018–19y
New South Wales	$	172,070	178,200	61,000	55,280	48,100	–123,000
Victoria	$	53,680	142,400	73,000	–43,710	90,400	–68,000
Queensland	$	159,130	137,800	61,000	71,210	19,600	–100,000
Western Australia	$	373,980	301,000	215,000	262,750	174,000	56,000
South Australia	$	130,980	152,300	116,000	15,390	85,100	–58,000
Tasmania	$	97,460	282,200	301,000	31,720	223,300	172,000
Australia	$	89,570	160,900	93,000	–8,290	92,600	–55,000

p Preliminary estimates. **y** Provisional estimates.
Source: ABARES Australian Dairy Industries Survey

Table 7 Rate of return, dairy farms by state, 2016–17 to 2018–19

average per farm

Region	Unit	Rate of return excluding capital appreciation a			Rate of return including capital appreciation a		
		2016–17	2017–18p	2018–19y	2016–17	2017–18p	2018–19y
New South Wales	%	2.3	2.2	–0.9	4.9	7.3	na
Victoria	%	0.6	3.3	–0.2	2.3	6.5	na
Queensland	%	2.8	1.2	–1.5	4.6	1.7	na
Western Australia	%	3.7	2.8	1.6	4.0	4.5	na
South Australia	%	1.8	2.5	0.2	7.8	9.1	na
Tasmania	%	2.5	5.6	4.3	3.6	5.9	na
Australia	%	1.3	3.1	0.2	3.2	6.3	na

a Rate of return to farm capital at 1 July. **p** Preliminary estimates. **y** Provisional estimates. **na** Not available.
Source: ABARES Australian Dairy Industries Survey

New South Wales

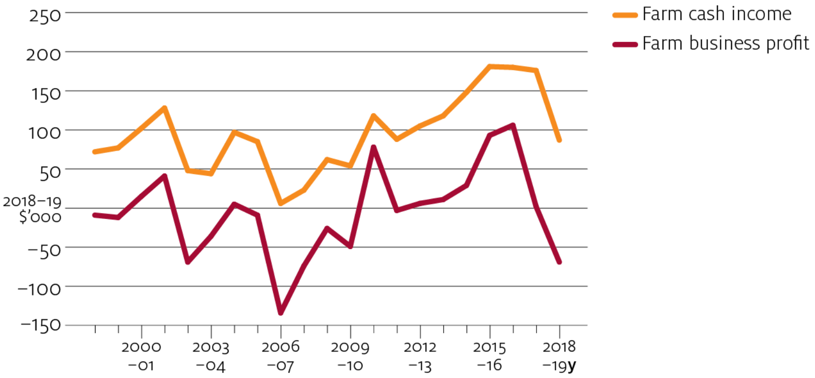
In 2018–19 the far west and north-western regions of New South Wales are expected to record the largest declines in broadacre farm incomes (in percentage terms) compared with the previous year (Table 8). Projected reductions in average farm incomes at the regional level reflect the negative impacts on crop production and pasture growth of rainfall deficiencies in 2018. These were typically less severe from north to south in the NSW wheat–sheep zone.

In 2018–19 all five broadacre industries in New South Wales are projected to record lower average farm incomes compared with 2017–18. The biggest reduction is expected for farms in the wheat and other crops industry. For livestock industries (beef, sheep and sheep–beef), average farm incomes will be lower, due mostly to higher purchased feed costs. Wool and lamb prices are forecast to be around 15% higher in 2018–19 compared with 2017–18. This is expected to limit the decline in average farm cash incomes for the sheep and sheep–beef industries.

For the NSW dairy industry, average farm cash income is projected to fall by 66% in 2018–19 compared with 2017–18 (Figure 8). Overall, farmgate milk prices are expected to be slightly higher this year but milk production is projected to fall by more in percentage terms, leading to a decline in milk receipts. In addition, high prices for hay, silage and feed grains are contributing to an increase in purchased feed costs — a major expense for this industry. The average farm business profit is projected to fall from $48,000 per farm in 2017-18 to $-123,000 in 2018-19, with a projected run-down in livestock inventories adding to the reduction in cash incomes.

Figure 7 Farm cash income and farm business profit for broadacre farms, New South Wales, 1998–99 to 2018–19

average per farm



y Provisional estimates.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Table 8 Financial performance in New South Wales, by region and industry, 2016–17 to 2018–19

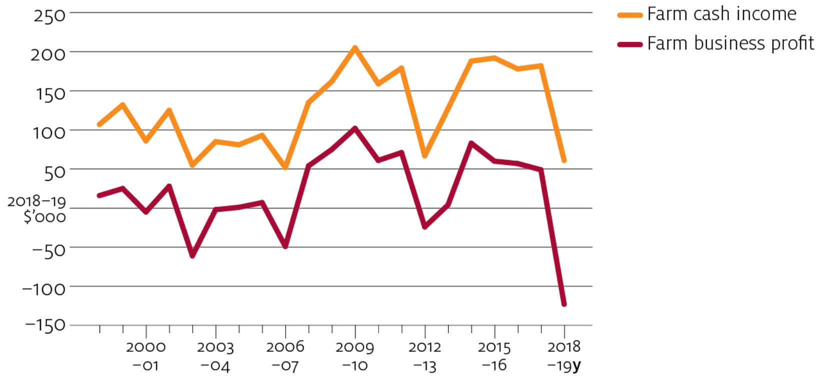
average per farm

Industry/region	Unit	Farm cash income				Farm business profit			
		2016–17	2017–18p	RSE	2018–19y	2016–17	2017–18p	RSE	2018–19y
All broadacre industries	$	176,100	176,000	(7)	87,000	104,200	2,000	(618)	–69,000
Wheat and other crops	$	403,500	385,000	(13)	7,000	316,500	84,000	(81)	–205,000
Mixed livestock–crops	$	251,600	215,000	(13)	117,000	151,500	1,000	(999)	–123,000
Sheep	$	115,800	117,000	(12)	90,000	47,400	–17,000	(73)	–39,000
Beef	$	76,300	98,000	(48)	65,000	38,700	–11,000	(383)	–50,000
Sheep–beef	$	173,200	230,000	(11)	151,000	84,100	4,000	(644)	–14,000
All broadacre industries by region									
111: Far West	$	313,600	280,000	(14)	3,000	245,200	–88,000	(51)	–276,000
121: North West Slopes and Plains	$	232,300	221,000	(16)	1,000	214,800	–34,000	(105)	–226,000
122: Central West	$	162,200	164,000	(14)	68,000	69,800	–32,000	(54)	–81,000
123: Riverina	$	226,900	215,000	(11)	173,000	118,800	54,000	(46)	10,000
131: Tablelands	$	122,200	150,000	(15)	107,000	55,600	33,000	(97)	1,000
132: Coastal	$	33,800	14,000	(61)	41,000	–5,400	–39,000	(27)	–51,000
Dairy industry	$	172,100	178,000	(11)	61,000	55,300	48,000	(47)	–123,000

p Preliminary estimates. **y** Provisional estimates. **RSE** Figures in parentheses are standard errors expressed as a percentage of the estimate provided.
Source: ABARES Australian Agricultural and Grazing Industries Survey and Australian Dairy Industry Survey

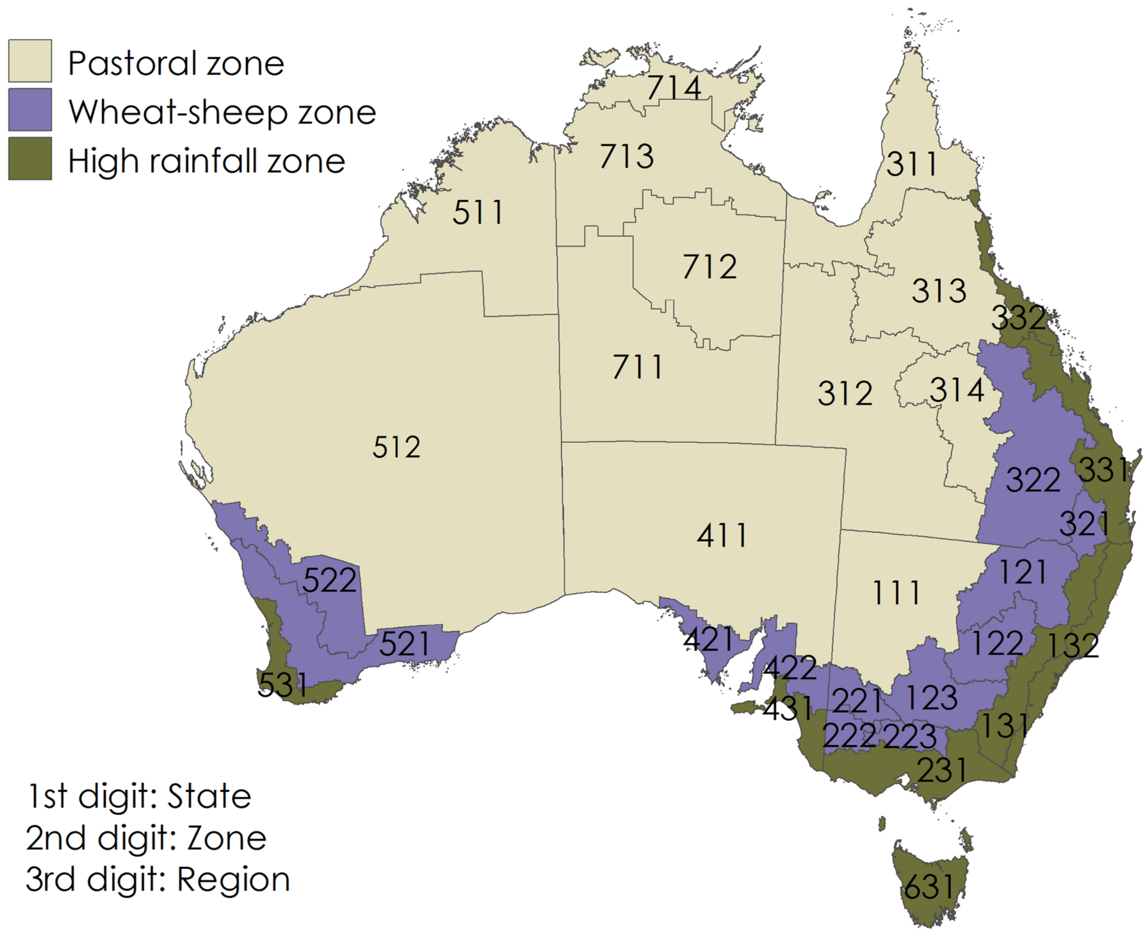
Figure 8 Farm cash income and farm business profit for dairy farms, New South Wales, 1998–99 to 2018–19

average per farm



y Provisional estimates.
Source: ABARES Australian Dairy Industry Survey

Map 1 Broadacre zones and regions, Australia



Note: Each region is identified by a unique code of three digits. The first digit indicates the state or territory, the second digit identifies the zone and the third digit identifies the region.
Source: ABARES

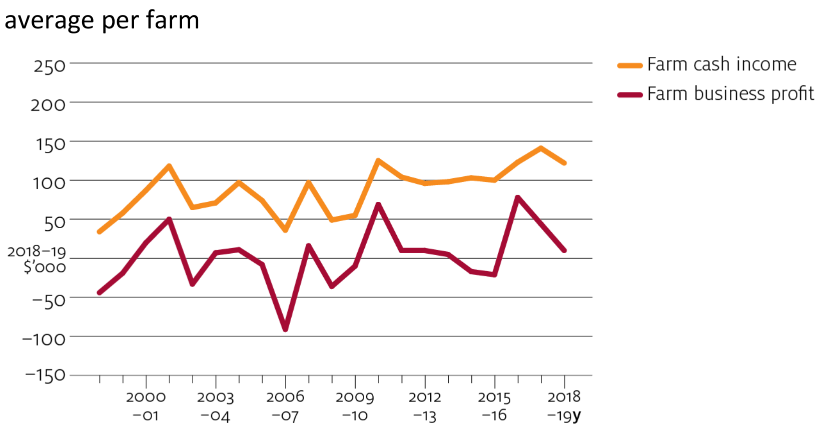
Victoria

For broadacre farms in Victoria, 2017–18 was a comparatively good year. Average farm cash incomes were at or above longer-term average levels in all regions and across all broadacre industry groups (Table 9 and Figure 9). In 2018–19 average farm cash incomes are projected to decline in the main cropping regions of Mallee (region 221) and Wimmera (region 222) due to drought. In the Central North (region 223) and Southern and Eastern Victoria (region 231), average farm cash incomes are projected to be largely unchanged in 2018–19 compared with the previous year. Higher revenues from sheep, lambs and wool are projected to offset higher purchased feed costs.

At the industry level, cropping specialists in Victoria are expected to record a large reduction in average farm incomes in 2018–19. This is because of a substantial decrease in revenue from cropping as a result of reduced production due to drought. Farm performance in the livestock industries is less affected — average farm incomes in 2018–19 are projected to be similar to those recorded in 2017–18.

For dairy farms in Victoria, the return to profitability in 2017–18 is expected to be short-lived. In 2018–19 average farm cash income is expected to fall by around half and average farm business profit is expected to be strongly negative (Figure 10). Reduced milk production and markedly higher costs for purchased feed and water are the main drivers.

Figure 9 Farm cash income and farm business profit for broadacre farms, Victoria, 1998–99 to 2018–19



y Provisional estimates.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Table 9 Financial performance in Victoria, by region and industry, 2016–17 to 2018–19

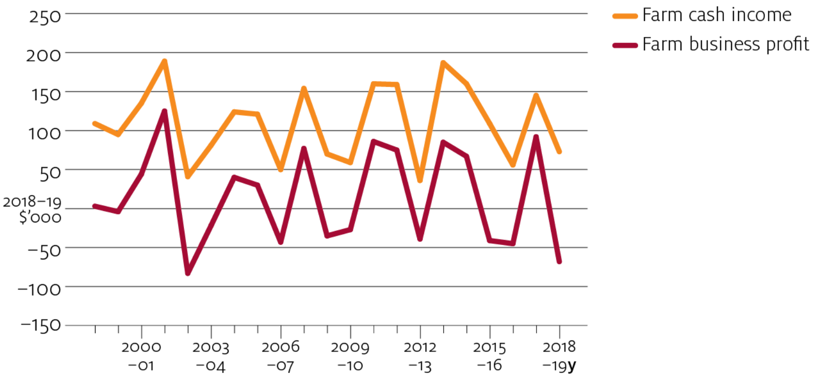
average per farm

Industry/region	Unit	Farm cash income				Farm business profit			
		2016–17	2017–18p	RSE	2018–19y	2016–17	2017–18p	RSE	2018–19y
All broadacre industries	$	120,900	141,000	(7)	122,000	76,800	44,000	(22)	10,000
Wheat and other crops	$	308,800	335,000	(11)	132,000	304,100	151,000	(23)	–46,000
Mixed livestock–crops	$	139,200	136,000	(22)	176,000	88,300	36,000	(82)	54,000
Sheep	$	104,000	157,000	(14)	163,000	69,500	61,000	(33)	62,000
Beef	$	67,200	51,000	(18)	51,000	7,800	–11,000	(104)	–33,000
Sheep–beef	$	101,400	151,000	(17)	171,000	68,700	60,000	(62)	41,000
All broadacre industries by region									
221: Mallee	$	211,500	226,000	(14)	162,000	197,200	87,000	(47)	–28,000
222: Wimmera	$	188,100	263,000	(12)	136,000	154,000	111,000	(25)	–16,000
223: Central North	$	60,000	114,000	(19)	121,000	27,700	30,000	(81)	–2,000
231: Southern and Eastern Victoria	$	113,400	110,000	(13)	114,000	58,200	27,000	(43)	27,000
Dairy industry	$	53,700	142,000	(18)	73,000	–43,700	90,000	(23)	–68,000

p Preliminary estimates. **y** Provisional estimates. **RSE** Figures in parentheses are standard errors expressed as a percentage of the estimate provided.
Source: ABARES Australian Agricultural and Grazing Industries Survey and Australian Dairy Industries Survey

Figure 10 Farm cash income and farm business profit for dairy farms, Victoria, 1998–99 to 2018–19

average per farm



y Provisional estimates.
Source: ABARES Australian Dairy Industry Survey

Queensland

Financial performance of Queensland broadacre farms declined moderately in 2017–18 relative to 2016–17, when farm incomes were historically high due to record winter crop production and very high prices for beef cattle. The average farm cash income for broadacre farms across Queensland was $217,600 in 2016–17, falling to $179,000 per farm in 2017–18 — still well above the longer-term average of $130,000 (Table 10 and Figure 11).

In 2018–19 the financial performance of broadacre farms in Queensland is expected to decline further due to lower prices for beef cattle and ongoing drought conditions in the south that are expected to reduce winter crop production in Queensland by 38% between 2017–18 and 2018–19.

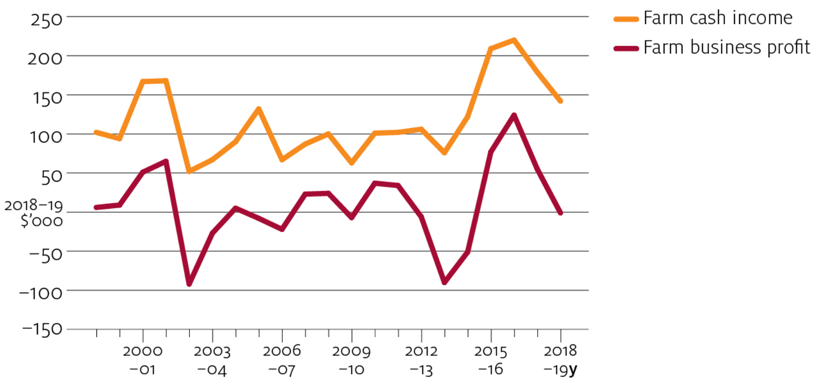
Regional differences in farm performance in 2018–19 are expected. Average farm incomes in the Darling Downs and Central Highlands (region 322) and Charleville – Longreach (region 314) are expected to be much lower in 2018-19 compared with the previous year, and considerably worse than 2016–17 (Table 10).

In contrast, northern and north-western regions of Queensland that predominantly graze beef cattle are expected to achieve average farm incomes in 2018–19 similar to or slightly better than the previous year. However, ABARES estimates of financial performance in 2018–19 were based on surveys conducted prior to the major flooding event in northern Queensland in February 2019. ABARES will revise the 2018–19 projections for broadacre farms in Queensland once the implications of the flooding event are clear.

Dairy farms in Queensland are predominantly located in the south-eastern corner of the state, although pockets of dairy farms can be found along the Queensland coast as far north as the Atherton Tablelands. On average, the financial performance of dairy farms in Queensland is expected to worsen considerably in 2018–19 compared with the previous year (Figure 12) due to higher purchased feed costs (increased by around $40,000 per farm) and lower milk production (down 11% per farm) and milk receipts (down $56,200 per farm). Average farm business profit in this industry is expected to be a loss of $100,000 in 2018–19, reflecting a rundown in holdings of dairy cattle in addition to the reduction in cash incomes.

Figure 11 Farm cash income and farm business profit, broadacre farms in Queensland, 1998–99 to 2018–19

average per farm



y Provisional estimates.
Source: ABARES Australian Agricultural and Grazing Industries Survey

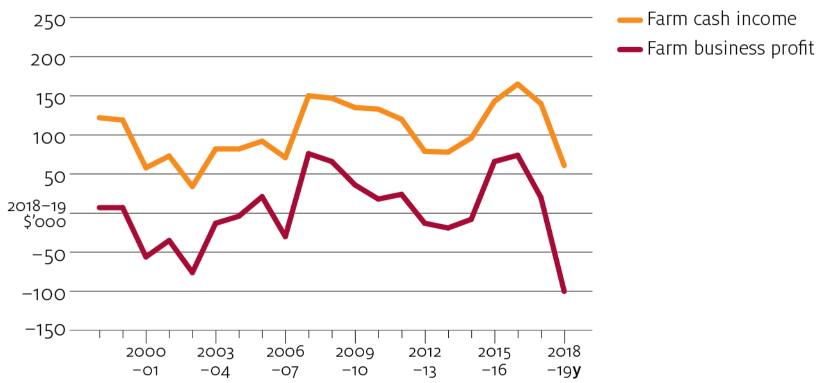
Table 10 Financial performance in Queensland, by region and industry, 2016–17 to 2018–19

average per farm

Industry/region	Unit	Farm cash income				Farm business profit			
		2016–17	2017–18p	RSE	2018–19y	2016–17	2017–18p	RSE	2018–19y
All broadacre industries	$	217,600	179,000	(8)	142,000	122,600	55,000	(23)	–1,000
Wheat and other crops	$	348,500	239,000	(12)	123,000	219,200	9,000	(393)	–19,000
Mixed livestock–crops	$	290,500	141,000	(41)	128,000	175,300	31,000	(170)	–53,000
Sheep	$	103,900	76,000	(48)	111,000	–9,500	–17,000	(202)	–5,000
Beef	$	193,000	177,000	(11)	147,000	103,100	69,000	(23)	6,000
Sheep–beef	$	161,100	126,000	(71)	167,000	189,500	47,000	(179)	47,000
All broadacre industries by region									
311: Cape York and the Gulf	$	655,600	1,065,000	(16)	1,026,000	708,200	748,000	(26)	512,000
312: West and South West	$	170,100	471,000	(28)	164,000	245,800	115,000	(74)	134,000
313: Central North	$	408,600	271,000	(29)	340,000	289,700	242,000	(39)	176,000
314: Charleville - Longreach	$	246,700	160,000	(36)	69,000	166,900	57,000	(60)	–85,000
321: Eastern Darling Downs	$	142,500	128,000	(16)	146,000	39,100	–14,000	(128)	6,000
322: Darling Downs and Central Highlands	$	327,800	227,000	(12)	147,000	191,100	81,000	(30)	–29,000
331: South Queensland Coastal	$	80,500	73,000	(30)	72,000	11,600	–13,000	(136)	–31,000
332: North Queensland Coastal	$	85,200	53,000	(47)	123,000	–2,700	27,000	(71)	–18,000
Dairy industry	$	159,100	138,000	(16)	61,000	71,200	20,000	(143)	–100,000

p Preliminary estimates. **y** Provisional estimates. **RSE** Figures in parentheses are standard errors expressed as a percentage of the estimate provided.
Source: ABARES Australian Agricultural and Grazing Industries Survey and Australian Dairy Industries Survey

Figure 12 Farm cash income and farm business profit for dairy farms, Queensland, 1998–99 to 2018–19



y Provisional estimates.
Source: ABARES Australian Dairy Industry Survey

South Australia

In 2016–17 farm cash incomes for SA broadacre farms were the highest recorded in over 40 years, the result of record grain production and strong grain, beef and lamb prices. Lower grain production in 2017–18 resulted in the average farm cash income of SA broadacre farms declining slightly, but still remaining well above the average for the previous 10 years (Table 11 and Figure 13).

In 2018–19 a further small decline in financial performance of SA broadacre farms is projected. Farm cash income is projected to decline from an average of $248,000 per farm in 2017–18 to $214,000 in 2018–19 — still around 8% above the average for the 10 years to 2017–18.

Average farm cash incomes are projected to fall substantially year-on-year in regions affected by drought, particularly the Northern Pastoral region (region 411) and the Murray Lands and Yorke Peninsula (region 422) but increase in the Eyre Peninsula (region 421).

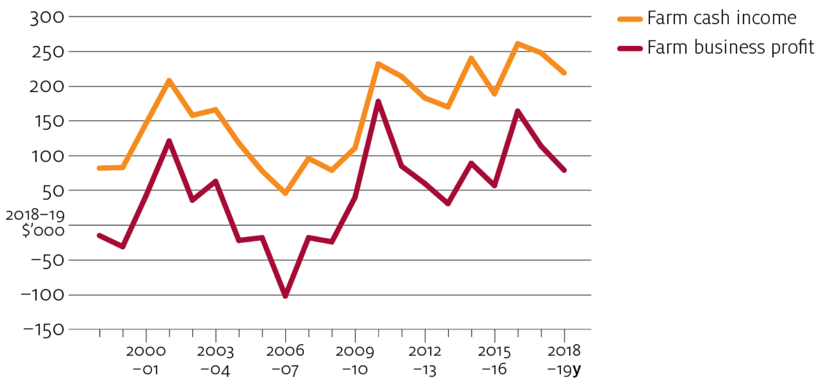
At the industry level, the financial performance of farms in the wheat and other crops industry in 2018–19 reflects a mixture of good performance among crop specialists (including in the southern Eyre Peninsula) and drought-affected performance in the eastern and mid-north portion of the Murray Lands and Yorke Peninsula region (Table 11).

Average farm cash incomes in the sheep industry and the sheep–beef industry are projected to improve moderately in 2018–19 compared with the previous year. Higher prices for wool and sheep are expected to more than offset increases in purchased feed costs.

On average, dairy farmers in South Australia are expected to record a decrease in farm cash incomes in 2018–19 (compared with the previous year) of around 24% (Table 11 and Figure 14). Milk production and milk receipts are projected to increase slightly in 2018–19 (around 2% per farm, on average) but costs are expected to increase more, particularly for purchased feed and fertiliser. Average farm business profit is expected to fall by more than the decrease in farm cash income due to a major turnaround in on-farm trading stocks, which were large and positive in 2017–18 (when farmers built up herds of dairy and beef cattle) but negative in 2018–19 (as farmers are projected to reduce dairy cattle numbers). As a result, average farm business profit in 2018–19 on dairy farms in South Australia is projected to be well below the longer-term average, and only marginally above the level recorded in 2006–07 during the Millennium Drought.

Figure 13 Farm cash income and farm business profit for broadacre farms, South Australia, 1998–99 to 2018–19

average per farm



y Provisional estimates.
Source: ABARES Australian Agricultural and Grazing Industries Survey

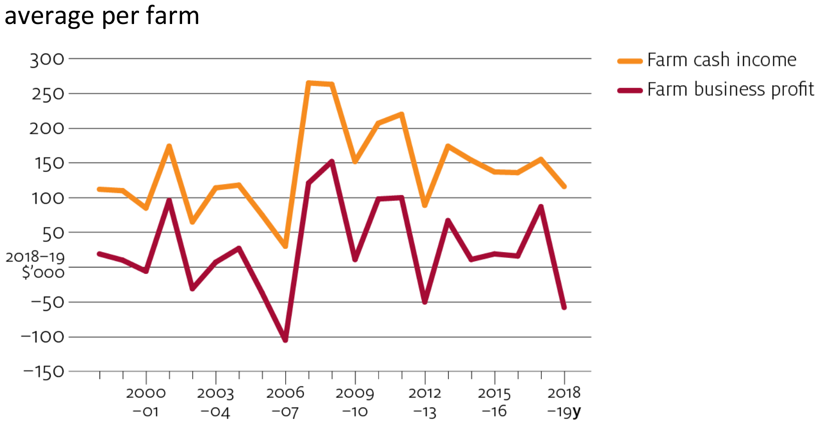
Table 11 Financial performance in South Australia, by region and industry, 2016–17 to 2018–19

average per farm

Industry/region	Unit	Farm cash income				Farm business profit			
		2016–17	2017–18p	RSE	2018–19y	2016–17	2017–18p	RSE	2018–19y
All broadacre industries	$	255,500	248,000	(10)	219,000	160,600	114,000	(19)	79,000
Wheat and other crops	$	358,000	342,000	(17)	192,000	223,000	155,000	(32)	24,000
Mixed livestock–crops	$	303,900	318,000	(22)	318,000	165,400	128,000	(73)	120,000
Sheep	$	143,700	154,000	(22)	229,000	69,300	47,000	(54)	131,000
Beef	$	72,600	79,000	(33)	58,000	95,700	50,000	(65)	34,000
Sheep–beef	$	258,900	225,000	(25)	197,000	252,200	200,000	(28)	141,000
All broadacre industries by region									
411: North Pastoral	$	297,000	416,000	(23)	215,000	332,300	168,000	(57)	64,000
421: Eyre Peninsula	$	298,600	162,000	(22)	318,000	177,100	–9,000	(302)	148,000
422: Murray Lands and Yorke Peninsula	$	315,100	331,000	(15)	205,000	202,600	145,000	(30)	29,000
431: South East	$	157,100	163,000	(18)	191,000	77,200	126,000	(22)	111,000
Dairy industry	$	131,000	152,000	(21)	116,000	15,400	85,000	(45)	–58,000

p Preliminary estimates. **y** Provisional estimates. **RSE** Figures in parentheses are standard errors expressed as a percentage of the estimate provided.
Source: ABARES Australian Agricultural and Grazing Industries Survey and Australian Dairy Industry Survey

Figure 14 Farm cash income and farm business profit for dairy farms, South Australia, 1998–99 to 2018–19



y Provisional estimates.
Source: ABARES Australian Dairy Industry Survey

Western Australia

Overall financial performance of WA broadacre farms remained strong in 2017–18, declining slightly compared with 2016–17 but maintaining the trend of high farm cash incomes that began in 2013–14 (Figure 15 and Table 12). Higher grain prices and carry-over payments on grain delivered in 2016–17 mostly offset the impact on farm cash incomes of lower grain production in 2017–18 compared with the record 2016–17 crop. Farm cash incomes were also maintained by higher wool prices in 2017–18.

In 2018–19 the financial performance of WA broadacre farms is projected to increase further as a result of increased wheat production compared with 2017–18, high grain prices (particularly for barley) and higher wool prices. Overall, average farm cash income for WA broadacre farms is projected to increase to $490,000 in 2017–18 — the highest recorded for WA broadacre farms since ABARES commenced the AAGIS survey in 1977–78.

At the industry level, the increased financial performance of farms in the wheat and other crops industry in 2018–19 reflects high grain prices and increased wheat production particularly in the North and East Wheat Belt (Table 12). In contrast, average incomes for mixed livestock–crops industry farms are projected to decline slightly as a result of reduced grain legume and oilseed production and lower turn-off of sheep, particularly for live export.

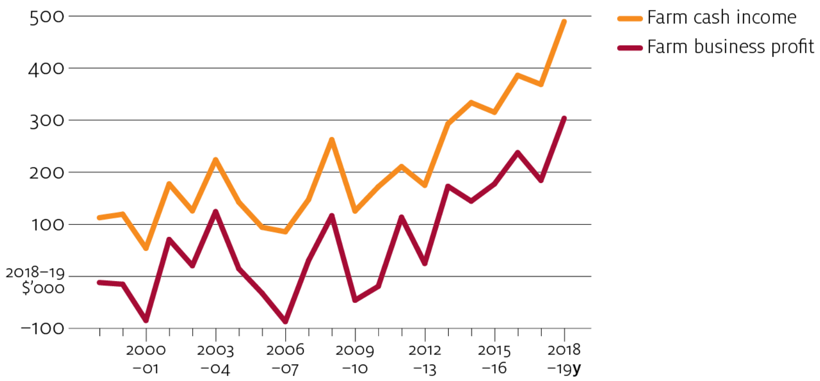
Average farm cash income for the sheep industry is projected to improve in 2018–19 compared with the previous year. Higher prices for wool are expected to more than offset the effects of a reduction in sheep turn-off.

Regional differences in farm performance are expected in 2018–19. Farm cash incomes are expected to be higher in the North and East Wheat Belt (region 522) and the Central and South Wheat Belt (region 521) due mainly to higher overall crop receipts (Table 12). Increased farm cash incomes are also expected in the beef cattle dominant regions of the Kimberly (region 511), Pilbara and Southern Rangelands (region 512), largely as a consequence of increased turn-off of beef cattle for both slaughter and live export. In contrast, farm cash incomes are projected to decline slightly in the South West region (region 531) mainly as a result of lower prices for beef cattle and increased purchased feed costs.

On average, dairy farmers in Western Australia are expected to record a decrease in farm cash incomes in 2018–19 compared with 2017–18 of around 29% (Table 12 and Figure 16). Milk production and milk receipts are projected to decrease slightly in 2018–19 (by around 1% on average), while costs are expected to increase by around 2%. Most of this increase is due to higher expenditure on purchased feed. Average farm business profit is expected to fall by more than the decrease in farm cash income. This is because farmers are not expected to expand their dairy herds in 2018–19 (on average), so the projected change in trading stocks is close to zero. This is in contrast to both 2016–17 and 2017–18, when increases in dairy cattle numbers led to relatively large positive values for the change in trading stocks, adding substantially to average farm business profit in those years.

Figure 15 Farm cash income and farm business profit for broadacre farms, Western Australia, 1998–99 to 2018–19

average per farm



y Provisional estimates.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Table 12 Financial performance in Western Australia, by region and industry, 2016–17 to 2018–19

average per farm

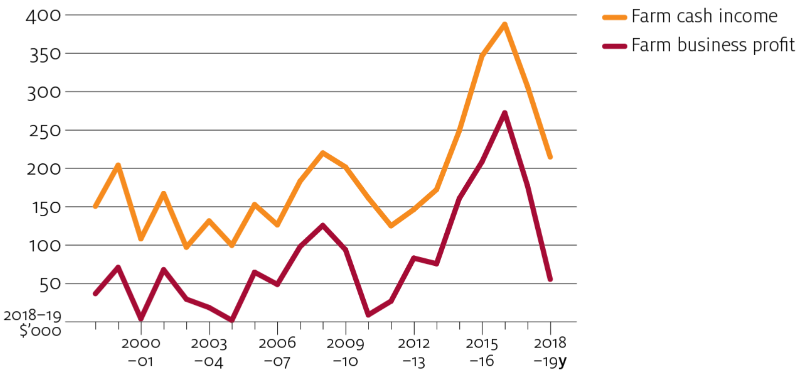
Industry/region	Unit	Farm cash income				Farm business profit			
		2016–17	2017–18p	RSE	2018–19y	2016–17	2017–18p	RSE	2018–19y
All broadacre industries	$	378,900	369,000	(9)	490,000	233,100	185,000	(17)	304,000
Wheat and other crops	$	697,800	573,000	(14)	829,000	458,900	285,000	(29)	588,000
Mixed livestock–crops	$	322,700	393,000	(13)	363,000	190,900	256,000	(12)	219,000
Sheep	$	132,800	95,000	(30)	201,000	47,600	8,000	(335)	93,000
Beef	$	300,300	255,000	(19)	257,000	173,000	107,000	(29)	59,000
Sheep–beef	$	140,000	187,000	(42)	156,000	86,700	40,000	(163)	64,000
All broadacre industries by region									
511: Kimberley	$	1,514,700	902,000	(44)	1,771,000	1,469,200	864,000	(31)	1,387,000
512: Pilbara and Southern Rangelands	$	738,700	613,000	(24)	683,000	283,400	275,000	(37)	220,000
521: Central and South Wheat Belt	$	421,000	460,000	(12)	556,000	293,200	277,000	(18)	392,000
522: North and East Wheat Belt	$	423,200	335,000	(18)	630,000	192,100	91,000	(69)	364,000
531: South West	$	128,900	106,000	(24)	93,000	62,400	–3,000	(650)	–21,000
Dairy industry	$	374,000	301,000	(11)	215,000	262,800	174,000	(22)	56,000

p Preliminary estimates. **y** Provisional estimates. **RSE** Figures in parentheses are standard errors expressed as a percentage of the estimate provided.

Source: ABARES Australian Agricultural and Grazing Industries Survey and Australian Dairy Industry Survey

Figure 16 Farm cash income and farm business profit for dairy farms, Western Australia, 1998–99 to 2018–19

average per farm



y Provisional estimates.

Source: ABARES Australian Dairy Industry Survey

Tasmania

Farm cash incomes increased slightly for Tasmanian broadacre farms in 2017–18 (Table 13 and Figure 17) mainly as a result of increased prices for sheep, lambs and wool. Receipts from cereal grains also increased slightly due to higher prices and despite lower production as a result of dry seasonal conditions. An increase in receipts from non-broadacre crops, particularly potatoes, was also recorded.

In 2018–19 the financial performance of Tasmanian broadacre farms is projected to increase further, mainly as the result of an increase in lamb and wool prices and slightly higher beef cattle turn-off (Figure 17).

Average farm cash incomes for sheep industry farms are expected to increase as a result of higher sheep, lamb and wool prices. Farm cash income for beef industry farms is expected to increase as a result of increased beef cattle turn-off.

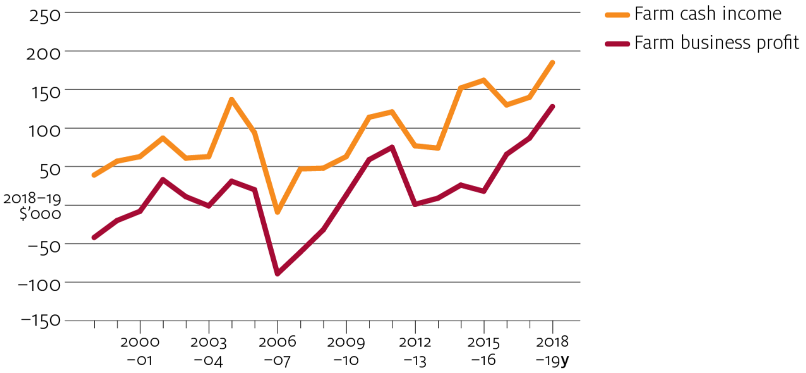
In 2018–19 increased cereal crop production, higher grain prices and higher lamb and wool prices is projected to result in higher farm cash income for Tasmanian mixed livestock–crops industry farms, on average (Table 10). Reduced planting and production of oilseed poppies is projected to result in lower overall crop receipts for many farms but this is expected to be offset by higher lamb and wool receipts.

Tasmania is a comparative bright spot for the dairy industry in Australia. It is the only state that produced more milk in 2017-18 than it did in 2001–02 when national milk production was at its peak. Tasmania is also the only state where the average farm cash income on dairy farms is projected to increase in 2018–19 compared with 2017–18 (Table 6). The projected increase is comparatively small however, from $282,000 per farm in 2017–18 to $301,000 in 2018–19 (Table 13 and Figure 18). Increased milk production in 2018–19, a small increase in milk price and increased receipts from the sale of cattle are expected to more than offset higher costs, particularly increased expenditure on purchased feed as a result of higher feed grain prices and increased demand due to dry seasonal conditions in Tasmania in mid 2018–19.

In 2018–19 average farm business profit on Tasmanian dairy farms is projected to be lower than in 2017–18, but still strongly positive and well above the average for the 10 years ending 2017–18. Similar to Western Australia, the decline in average farm business profit in Tasmania (despite a modest increase in farm cash income) is caused by year-on-year differences in the absolute size of the ‘change in trading stocks’ component. For dairy farms, the size (and sign) of the change in trading stocks each year largely reflects differences between the opening and closing numbers of dairy cattle on hand. In 2017–18 the change in trading stocks on dairy farms in Tasmania was large and positive, reflecting a build-up in dairy cattle numbers during that year. This added substantially to the size of average farm business profit. In contrast, dairy cattle numbers are not expected to change much (on average) during 2018–19. As a result, the change in trading stocks (and its contribution to farm business profit) is much smaller than in the previous year.

Figure 17 Farm cash income and farm business profit for broadacre farms, Tasmania, 1998–99 to 2018–19

average per farm



y Provisional estimates.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Table 13 Financial performance in Tasmania, by region and industry, 2016–17 to 2018–19

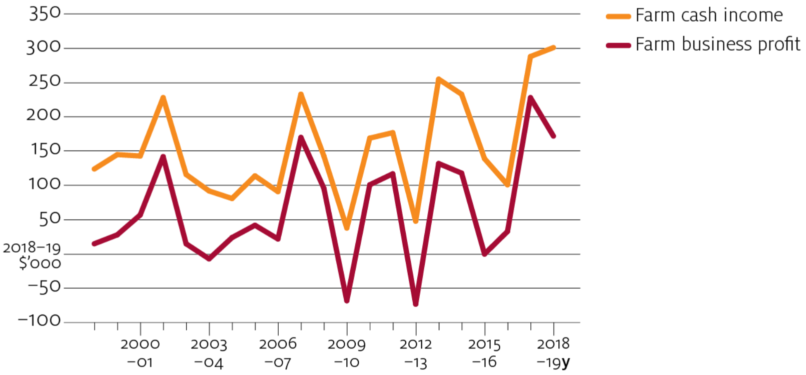
average per farm

Industry	Unit	Farm cash income				Farm business profit			
		2016–17	2017–18p	RSE	2018–19y	2016–17	2017–18p	RSE	2018–19y
All broadacre industries	$	127,200	140,000	(13)	185,000	64,600	87,000	(17)	128,000
Mixed livestock–crops	$	72,600	306,000	(16)	674,000	61,400	239,000	(22)	572,000
Sheep	$	127,900	146,000	(22)	204,000	51,700	123,000	(27)	153,000
Beef	$	128,700	100,000	(28)	111,000	60,800	46,000	(38)	67,000
Sheep–beef	$	147,600	197,000	(30)	263,000	98,500	106,000	(46)	151,000
Dairy industry	$	97,500	282,000	(12)	301,000	31,700	223,000	(17)	172,000

p Preliminary estimates. **y** Provisional estimates. **RSE** Figures in parentheses are standard errors expressed as a percentage of the estimate provided.
Source: ABARES Australian Agricultural and Grazing Industries Survey and Australian Dairy Industry Survey

Figure 18 Farm cash income and farm business profit for dairy farms, Tasmania, 1998–99 to 2018–19

average per farm



y Provisional estimates.

Source: ABARES Australian Dairy Industry Survey

Northern Territory

Financial performance of beef industry farms in the Northern Territory has been strong in recent years. High prices for beef cattle and strong demand for live export cattle in northern Australia resulted in average farm cash income for NT beef farms being the highest recorded in over 20 years in 2015–16 and farm cash income remained high in 2016–17 (Table 14 and Figure 19).

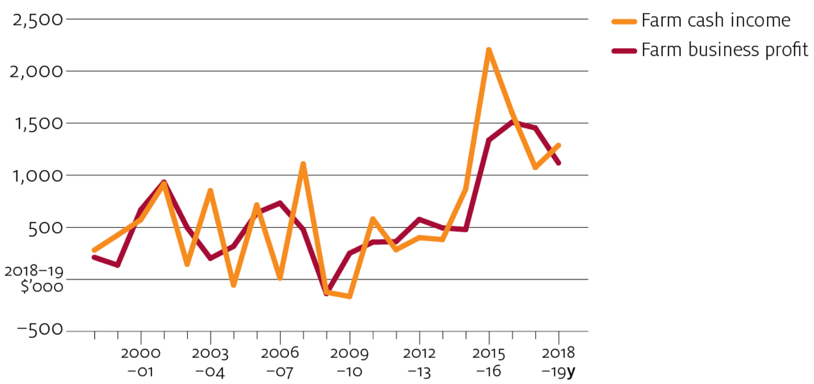
Average farm cash income declined from $1,569,600 per farm in 2016–17 to an average of $1,075,000 in 2017–18. Farm cash income declined due to lower beef cattle prices, reduced cattle turn-off and higher costs because purchases of cattle increased and transfers of cattle onto properties in the Northern Territory increased by entities operating multiple and interstate properties. Purchases and transfers resulted in increased beef cattle numbers, particularly on the Barkly Tableland where a substantial increase in value of cattle inventory and a rise in business profit was recorded (Table 14).

In 2018–19 dry seasonal conditions and sustained demand for cattle for live export is projected to result in increased turn-off of beef cattle from all NT regions and a rise in average farm cash income.

Despite a small reduction in beef cattle prices and higher operating costs (fuel in particular) a moderate increase is expected in average farm cash income in all regions. Higher beef cattle turn-off is expected to result in a reduction in beef cattle numbers in most regions, leading to a decline in the value of cattle inventories and lower farm business profit in all regions in 2018–19 compared with 2017–18.

Figure 19 Farm cash income and farm business profit for broadacre farms, Northern Territory, 1998–99 to 2018–19

average per farm



y Provisional estimates.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Table 14 Financial performance in the Northern Territory, by region and industry, 2016–17 to 2018–19

average per farm

Industry/ region	Unit	Farm cash income				Farm business profit			
		2016–17	2017–18p	RSE	2018–19y	2016–17	2017–18p	RSE	2018–19y
All broadacre industries	$	1,569,600	1,075,000	(21)	1,288,000	1,481,200	1,455,000	(16)	1,119,000
Beef	$	1,569,600	1,075,000	(21)	1,288,000	1,481,200	1,455,000	(16)	1,119,000
All broadacre industries by region									
711: Alice Springs District	$	905,700	872,000	(28)	1,095,000	936,500	841,000	(22)	478,000
712: Barkly Tablelands	$	4,294,700	2,346,000	(42)	2,642,000	3,248,700	4,840,000	(19)	3,905,000
713: Victoria River District - Katherine	$	1,356,600	1,062,000	(30)	1,168,000	1,489,600	1,033,000	(34)	852,000
714: Top End Darwin and the Gulf	$	333,700	218,000	(55)	402,000	226,200	180,000	(64)	3,000

p Preliminary estimates. **y** Provisional estimates. **RSE** Figures in parentheses are standard errors expressed as a percentage of the estimate provided.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Rates or return: broadacre and dairy farms, 5 years ending 2017–18

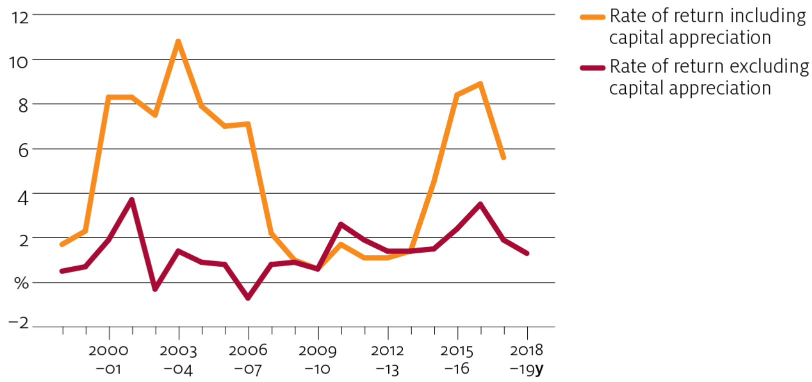
Rates of return on capital

Returns from investment in farm businesses have two components — the returns generated as the profit of the farm business, and capital appreciation. Capital appreciation is the increase in the value of the assets used by the farm business, the farm land in particular.

Rate of return to total capital excluding capital appreciation is the return generated from farm profits. To calculate the rate of return on total capital, farm business profit is adjusted to full equity. Interest and rents paid are added back onto farm business profit so that all businesses can be compared on an equal basis, regardless of the financing arrangements in place. This profit at full equity is then expressed as a percentage of the total value of the capital used in the business (land, livestock and machinery).

Figure 20 Return on capital, broadacre industries, 1998–99 to 2018–19

average per farm



y Provisional estimate
Source: ABARES Australian Agricultural and Grazing Industries Survey

On average, return to total capital excluding capital appreciation is relatively low for broadacre and dairy farms. The average rate of return excluding capital appreciation for all broadacre industry farms for the 5 years ending 2017–18 was 2.1% (Figure 20). Relatively low average rates of return largely reflect the influence of a high proportion of small farms (Box 2) in the livestock industries (beef and sheep industries). Small livestock farms often have high capital values relative to their capacity to produce agricultural output and lack the scale to achieve efficiencies in the use of labour and capital. Many small farms operate on high value land in the high-rainfall zone, near coastal and urban areas with high amenity value. Small farms did not record positive rates of return excluding capital appreciation in any broadacre industry or in the dairy industry over the 5 years ending 2017–18.

Another reason that rates of return on small livestock farms can be quite low is that the methodology used to calculate farm profit makes allowance for the imputed wages of all family members that supplied labour inputs to the farm during the year. Around 99% of small Australian broadacre and dairy farms are family owned and operated, and use mainly unpaid family labour for their operation. ABARES calculation of farm business profit includes the value of unpaid labour input on these farms to enable the performance of all farms to be compared regardless of the type of labour used. The value of unpaid labour is often a large proportion of total costs on small livestock farms.

Rate of return to total capital including capital appreciation is a measure that includes any appreciation in the value of farm assets, together with the return generated from farm profits. When capital appreciation is included, small farms in all broadacre industries and the dairy industry recorded rates of return exceeding 2.0% per year over the 5 years ending 2017–18 (Table 15).

The average rate of return to total farm capital including capital appreciation for all broadacre farms was high between 2000–01 and 2006–07 but declined after 2007–08 (Figure 20). Strong demand for rural land during most of the 2000s resulted in a sharp increase in land values in most agricultural regions. This raised the total capital value of farms. Rapidly rising farm capital values resulted in high rates of return including capital appreciation. However, from 2007–08 to 2013–14 land values generally did not increase and reported land values declined in several regions, particularly in northern Australia. The reduction in reported land values during this period resulted in estimates of average rate of return to total farm capital including capital appreciation for broadacre falling below the average rate of return excluding capital appreciation.

In 2014–15 and 2015–16 higher incomes for beef industry farms led to small increases in recorded land values in high rainfall and pastoral zone regions, and increases in the value of inventories. The increase in farm capital value added around 3.0 percentage points to the average rate of return for broadacre farms in 2014–15 and around 6.0 percentage points in 2015–16. Further increases were recorded in land values in all zones in 2016–17 following record crop production. The value of sheep inventories (part of livestock capital) also increased.

In 2017–18 the average rate of return excluding capital appreciation for Australian broadacre farms is estimated to have been 1.9%. The average rate of return including capital appreciation is estimated to have been 5.6% for all broadacre farms.

Large farms generate high rates of return

Generally, larger farms generate higher rates of return than smaller farms as a result of increasing returns to scale, greater access to superior technologies and greater management skill (Jackson & Martin 2014).

Very large wheat and other crops industry farms (see Box 2) generated an average rate of return excluding capital appreciation of 8.1% over the 5 years ending 2017–18, compared with 5.4% for large-sized wheat and other crops industry farms and 2.5% for medium-sized farms (Table 15). The rate of return including capital appreciation for very large wheat and other crops industry farms was estimated to be 12.6%.

Very large farms in the beef industry recorded an average rate of return including capital appreciation of 9.2% for the 5 years ending 2017–18. Large sheep industry farms recorded an average rate of return including capital appreciation of 8.6%.

Box 2 Farm sizes

Small farms: farms with a total value of sales of less than $500,000. Small farms account for 66% of Australian broadacre and dairy farms and around 22% of the total value of sales (receipts) from broadacre and dairy farms. Around 99% of small farms are family owned and operated (mainly owned and operated by related individuals). Small farms typically have a total capital value of less than $5 million. Off-farm income from wages, salaries, investments and other non-farm businesses often account for more than 50% of the net cash income of the farm operators.

Medium farms: farms with a total value of sales of between $500,000 and $1 million. Medium farms account for 18% of Australian broadacre and dairy farm and around 22% of the total value of sales from broadacre and dairy farms. Around 98% of medium-sized farms are family owned and operated, typically with a capital value of between $5 million and $10 million. Off-farm income generally accounts for less than 50% of the net cash income of the farm operators.

Large farms: farms with a total value of sales of between $1 million and $5 million. Large farms account for around 15% of Australian broadacre and dairy farms and around 47% of the total value of sales from broadacre and dairy farms. Around 95% of large farms are family owned and operated, typically with a capital value of between $10 million and $20 million. Off-farm income generally accounts for less than 25% of the net cash income of the farm operators.

Very large farms: farms with a total value of sales exceeding $5 million. Very large farms account for around 1% of Australian broadacre and dairy farms and around 9% of the total value of sales from broadacre and dairy farms. Around 85% of very large farms are family owned and operated, typically with a capital value exceeding $20 million. Off-farm income generally accounts for less than 15% of the net cash income of the farm operators.

Table 15 Rate of return to total capital, by industry and farm size, average for the 5 years ending 2017–18

average per farm

Industry	Business size	Excluding capital appreciation		Including capital appreciation	
		%	RSE	%	RSE
Wheat and other crops	Small	–0.3	(95)	2.3	(29)
	Medium	2.5	(10)	7.5	(11)
	Large	5.4	(4)	8.8	(4)
	Very large	8.1	(7)	12.6	(12)
Mixed livestock–crops	Small	–0.2	(92)	2.2	(24)
	Medium	3.0	(7)	7.0	(9)
	Large	4.4	(4)	9.3	(6)
	Very large	6.7	(20)	6.9	(19)
Sheep	Small	–0.1	(95)	3.9	(15)
	Medium	2.6	(10)	6.5	(10)
	Large	4.0	(8)	8.6	(10)
	Very large	ns	–	ns	–
Beef	Small	–0.6	(17)	2.6	(53)
	Medium	1.8	(10)	4.6	(11)
	Large	2.5	(7)	5.6	(10)
	Very large	4.5	(9)	9.2	(12)
Sheep–beef	Small	0.0	(99)	3.9	(16)
	Medium	2.3	(8)	8.8	(13)
	Large	3.1	(7)	8.5	(13)
	Very large	3.2	(25)	5.1	(12)
Dairy	Small	–0.7	(86)	3.8	(42)
	Medium	2.4	(10)	4.6	(12)
	Large	4.1	(4)	6.3	(5)
	Very large	5.3	(9)	6.3	(13)

ns Not supplied. Sample too small to provide reliable estimates. **RSE** Figures in parentheses are standard errors expressed as a percentage of the estimate provided.
Source: ABARES Australian Agricultural and Grazing Industries Survey and Australian Dairy Industry Survey

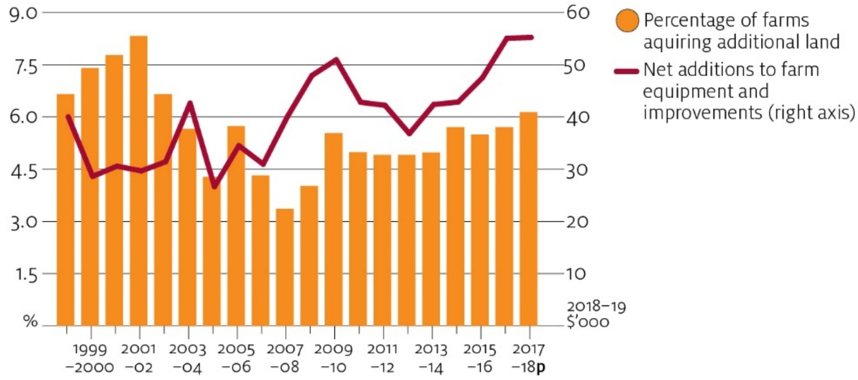
Farm investment and debt

Farm investment

The capacity of farm businesses to generate income is influenced by past investments in land to expand the scale of farming activities and in new infrastructure, machinery, equipment and vehicles to boost productivity in the longer term.

Figure 21 Farms acquiring land and expenditure on plant, machinery and infrastructure, broadacre farms, Australia, 1998–99 to 2017–18

average per farm and percentage of farms

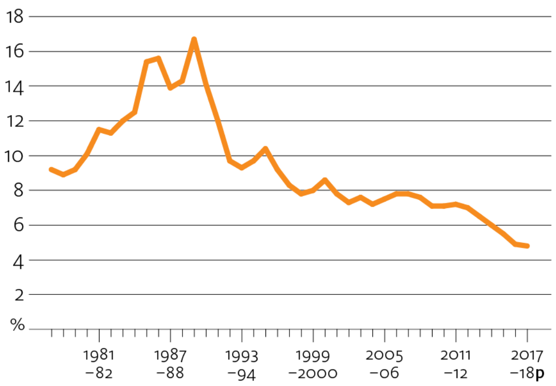


p Preliminary estimates.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Expenditure on additions to farm plant, machinery and infrastructure (for example, buildings, yards, dams and fencing) trended upward over the 20 years to 2017–18 at a rate of 2.8% a year (Figure 21) in real terms. Additions of farm plant, machinery and infrastructure increased strongly between 2012–13 and 2016–17. Higher incomes for beef industry farms after 2013–14 resulted in increased expenditure on capital additions, further adding to the steady increase in investment by grains industry farms (wheat and other crops industry and mixed livestock–crops industry).

In the late 1990s and early 2000s the proportion of broadacre farms acquiring additional land (through purchase or lease) was historically high (Figure 21). Increased incomes for grain farms, strong demand for land in general and sustained lower interest rates on borrowings (Figure 22) resulted in increased demand for land and higher land values.

Figure 22 Average interest rate paid on farm business debt, broadacre farms, Australia, 1977–78 to 2017–18



p Preliminary estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey

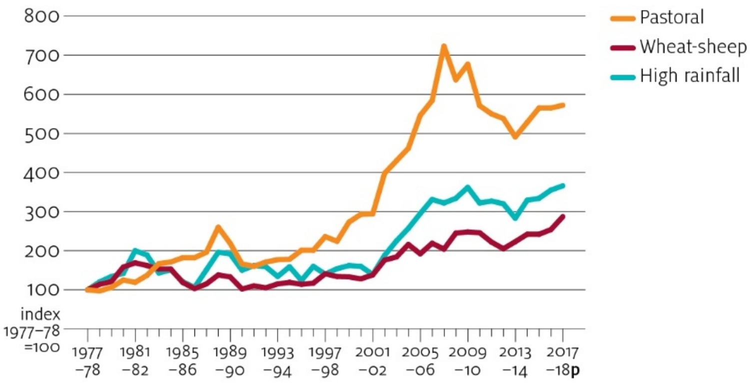
The proportion of broadacre farms acquiring land declined between 2002–03 and 2007–08 — a period of widespread drought and reduced farm cash incomes in eastern Australia. Despite reduced farm cash incomes in many regions, large increases were recorded in land values

(Figure 23), particularly in the pastoral zone regions of northern Australia and the high rainfall zone in all states.

Land values declined in the pastoral zone of northern Australia between 2009–10 and 2013–14 when incomes for beef industry farms were reduced by lower beef cattle prices.

Since 2013–14 higher average farm cash incomes for beef industry farms, continued growth in average farm cash incomes for grains and sheep industry farms and sustained low interest rates on borrowings have led to a steady increase in the proportion of farms acquiring additional land and a rise in land values in all states and zones.

Figure 23 Land prices for broadacre farms, by zone, Australia, 1977–78 to 2017–18



p Preliminary estimates.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Farm debt

Debt is an important source of funds for Australian farmers. It is used for purchasing land and new plant and equipment as well as for ongoing working capital. This is largely because more than 95% of Australian farms are family owned and operated (Martin et al. 2018). Funding by family farms for expansion and improvement is limited to the funds available to the family, the profits the business can generate and the funds it can borrow.

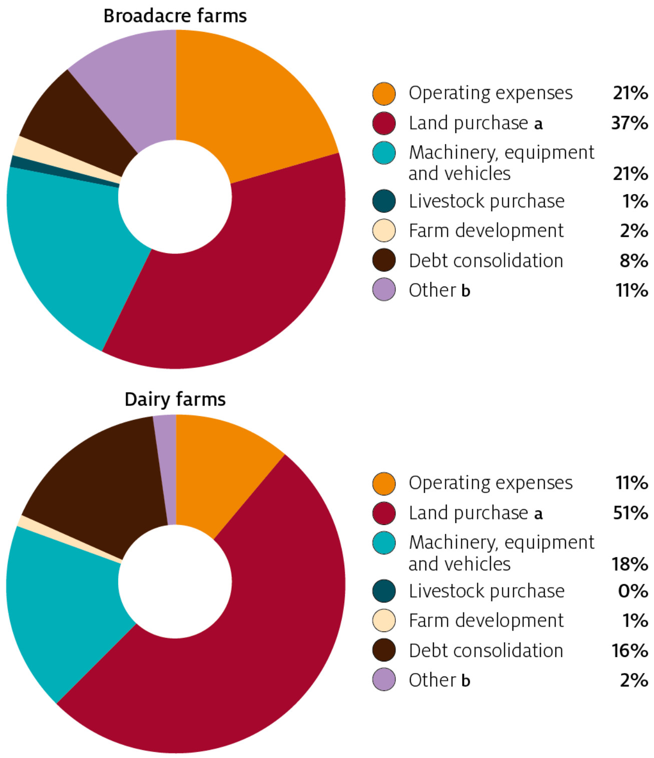
ABARES farm survey data for broadacre and dairy farms indicates that debt to fund land purchases accounted for the largest share of debt on farms, at an estimated 45% of average broadacre debt at 30 June 2018. Working capital debt accounted for 33% of average broadacre debt at 30 June 2018.

In 2017–18 new borrowing for broadacre and dairy farms mostly funded on-farm investment. Around 60% of new borrowing by broadacre farms and 70% by dairy farms was for the purchase of land, machinery, equipment and vehicles or farm development (Figure 24).

In 2018–19 borrowing to cover operating expenses is expected to increase as a result of lower farm cash incomes and a significant proportion of farms in regions affected by drought having insufficient cash receipts to cover cash operating costs.

Figure 24 Purpose of borrowing increases identified by farm operators, Australia, 2017–18p

average per farm



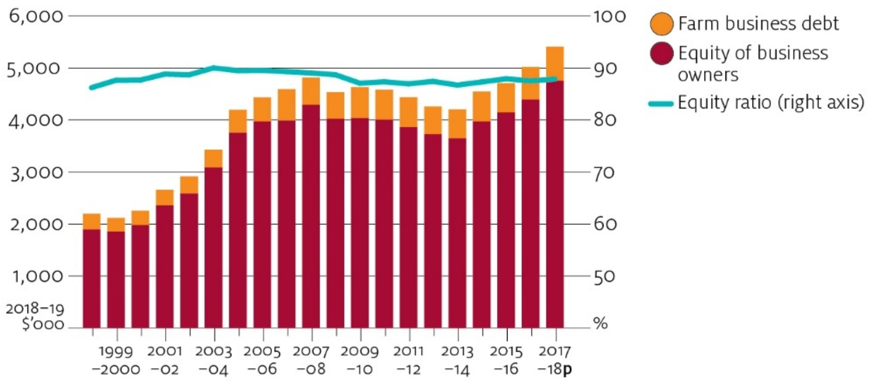
a Includes purchase of permanent irrigation water entitlement. **b** Includes borrowing to fund changes in farm business ownership/partnership. **p** Preliminary estimates.
Source: ABARES Australian Agricultural and Grazing Industries Survey and Australian Dairy Industry Survey

Farm equity

Family farms in Australia rely on maintaining high farm equity to provide the capacity to borrow to meet cash flow needs during periods of reduced farm income and for new investment. Despite increases in farm debt over the long term, average farm equity for broadacre and dairy farms remains strong because of increases in the value of agricultural land (Figure 25).

Figure 25 Farm business debt, owners' equity and equity ratio for broadacre farms, Australia, 1998–99 to 2017–18

average per farm



p Preliminary estimates.
Source: ABARES Australian Agricultural and Grazing Industries Survey

The average equity ratio at 30 June 2018 is estimated at 88% for broadacre farms and 80% for dairy farms. Around 82% of broadacre farms and 56% of dairy farms had equity ratios exceeding 80% at 30 June 2018.

For the majority of broadacre farms, farm equity strengthened between 2014–15 and 2016–17. This was owing to a general increase in land values, higher livestock prices and reductions in debt made possible by high farm cash incomes.

National rural indebtedness

Data collected by the Australian Prudential Regulation Authority (APRA) and reported by the Reserve Bank of Australia provides an indicator of trends in aggregate debt since 1964 (RBA 2018). Total indebtedness of the agriculture, forestry and fishing industries (defined by the RBA as 'rural debt') to institutional lenders (banks, government agencies, and pastoral and other financial companies) increased rapidly between 2001 and 2009. Total rural indebtedness increased by 77% from $42.7 billion at 30 June 2001 to $75.5 billion at 30 June 2009, in real terms.

Table 16 Distribution of broadacre farms, by farm business debt and equity ratio at 30 June 2018 pa

Percentage of farms

Measure	Unit	New South Wales		Victoria		Queensland		South Australia		Western Australia		Tasmania		Northern Territory		Australia	
Farm business debt b																	
Less than $100,000	%	50	(8)	58	(8)	46	(9)	55	(8)	35	(17)	55	(18)	39	(41)	50	(4)
$100,000 to less than $250,000	%	11	(28)	15	(26)	12	(21)	10	(29)	11	(36)	17	(45)	6	(53)	12	(13)
$250,000 to less than $500,000	%	12	(21)	8	(25)	11	(27)	4	(52)	8	(36)	9	(48)	1	(85)	9	(12)
$500,000 to less than $1 million	%	10	(19)	9	(35)	13	(21)	13	(21)	13	(30)	4	(50)	11	(96)	11	(11)
$1 million to less than $2 million	%	8	(17)	6	(22)	9	(18)	12	(21)	18	(23)	7	(39)	14	(61)	9	(9)
Greater than or equal to $2 million	%	9	(12)	5	(16)	8	(18)	6	(26)	16	(14)	8	(18)	29	(26)	8	(7)
Total	%	100	–	100	–	100	–	100	–	100	–	100	–	100	–	100	–
Average farm debt at 30 June	$'000	656	(9)	412	(11)	701	(12)	567	(13)	997	(10)	576	(15)	1,495	(22)	639	(5)
Farm business equity ratio bc																	
Greater than or equal to 90%	%	69	(5)	73	(5)	65	(6)	74	(5)	53	(10)	78	(5)	61	(23)	68	(3)
80% to less than 90%	%	15	(16)	13	(22)	14	(18)	13	(23)	15	(26)	9	(29)	31	(42)	14	(9)
70% to less than 80%	%	11	(23)	8	(29)	11	(24)	6	(29)	13	(25)	6	(40)	4	(74)	10	(12)
60% to less than 70%	%	3	(28)	3	(26)	5	(27)	4	(44)	9	(24)	5	(38)	2	(89)	4	(12)
Less than 60%	%	2	(28)	3	(81)	5	(39)	3	(49)	10	(36)	2	(72)	1	(82)	4	(21)
Total	%	100	–	100	–	100	–	100	–	100	–	100	–	100	–	100	–
Average farm business equity ratio at 30 June	%	88	(1)	90	(1)	88	(1)	90	(1)	83	(2)	87	(2)	89	(2)	88	(1)
Population of farms	no.	15,900	–	11,800	–	9,100	–	5,800	–	5,800	–	1,000	–	200	–	49,500	–

a Excludes debt for large corporate farms. **b** Average per responding farm. **c** Equity ratio defined as total owned business capital at 30 June less debt as a percentage of total owned business capital. **p** ABARES preliminary estimates.

Note: Figures in parentheses are standard errors expressed as a percentage of the estimate provided.

Table 17 Distribution of broadacre and dairy farms, by farm business debt and equity ratio at 30 June 2018 pa

Percentage of farms

Measure	Unit	Wheat and other crops		Mixed livestock–crops		Sheep		Beef		Sheep–beef		Dairy	
Farm business debt b													
Less than $100,000	%	25	(18)	32	(16)	57	(10)	66	(5)	50	(14)	21	(25)
$100,000 to less than $250,000	%	10	(29)	16	(29)	18	(28)	10	(21)	8	(47)	6	(61)
$250,000 to less than $500,000	%	6	(36)	10	(26)	12	(21)	8	(22)	14	(38)	6	(21)
$500,000 to less than $1 million	%	17	(19)	15	(24)	8	(26)	7	(20)	11	(37)	33	(16)
$1 million to less than $2 million	%	18	(13)	18	(18)	4	(34)	5	(25)	8	(41)	16	(17)
Greater than or equal to $2 million	%	23	(9)	9	(18)	2	(32)	4	(26)	9	(31)	18	(16)
Total	%	100	–	100	–	100	–	100	–	100	–	100	–
Average farm debt at 30 June	$'000	1,428	(7)	856	(22)	279	(14)	382	(13)	557	(29)	1,043	(6)
Farm business equity ratio bc													
Greater than or equal to 90%	%	44	(9)	55	(8)	75	(6)	80	(3)	73	(8)	29	(14)
80% to less than 90%	%	21	(17)	17	(19)	12	(23)	10	(20)	16	(32)	27	(22)
70% to less than 80%	%	15	(15)	17	(22)	8	(44)	6	(27)	5	(40)	23	(18)
60% to less than 70%	%	12	(18)	6	(26)	2	(51)	2	(34)	5	(49)	9	(31)
Less than 60%	%	8	(25)	4	(47)	3	(43)	3	(46)	2	(82)	12	(32)
Total	%	100	–	100	–	100	–	100	–	100	–	100	–
Average farm business equity ratio at 30 June	%	81	(1)	85	(3)	92	(1)	92	(1)	90	(3)	80	(1)
Population of farms	no.	8,500	–	8,400	–	9,700	–	18,100	–	4,800	–	6,000	–

a Excludes debt for large corporate farms. **b** Average per responding farm. **c** Equity ratio defined as total owned business capital at 30 June less debt as a percentage of total owned business capital. **p** ABARES preliminary estimates.

Note: Figures in parentheses are standard errors expressed as a percentage of the estimate provided.

A number of factors influenced growth in rural debt between 2001 and 2009. These include much lower interest rates, structural adjustment, intensification of farm enterprises and borrowing to meet working capital requirements as widespread and extended drought conditions reduced farm incomes in the 2000s.

Total rural debt subsequently declined in real terms to $69.4 billion at 30 June 2015, before rising again to $76.4 billion at 30 June 2018. Bank lending accounts for 95% of total institutional lending. Bank lending declined from $68.5 billion at 31 December 2009 to $63.2 billion at 31 March 2014, before rising to $73.0 billion at 30 June 2018.

Distribution of farm debt

Much of the aggregate agriculture sector debt is held by a relatively small proportion of mostly larger farms. At 30 June 2018 around 70% of aggregate broadacre debt was held by just 12% of farms. On average, these were large farm businesses. In aggregate, these farms produced around 50% of the total value of broadacre farm production in 2017–18.

Nationally, around 41% of grain industry farms and 34% of dairy farms carried more than $1 million in debt at 30 June 2017 (Table 17). In contrast, 66% of beef farms and 57% of sheep farms had debt of less than $100,000 at 30 June 2017. Many of these are small farm businesses.

Aggregate debt is slightly less concentrated among larger farms in the dairy industry. Nevertheless, around 70% of aggregate dairy industry debt at 30 June 2018 was held by 30% of farms.

Debt serviceability

The decline in interest rates, and more recently the strong increase in incomes between 2010–11 and 2016–17 for broadacre farms, reduced the burden of servicing debt and increased the rate of debt repayment.

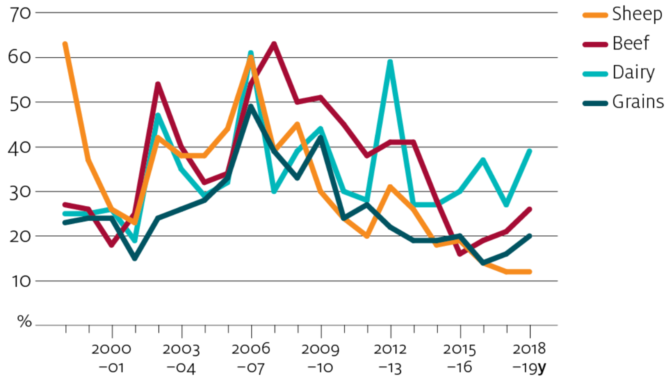
The average proportion of net income needed to fund interest payments declined for grains and beef farms before increasing slightly in 2017–18 (Figure 26). A further increase is projected for 2018–19 — financial pressure is expected to increase more on farms in drought-affected regions.

For the sheep industry, the proportion of net income needed to fund interest payments in 2018–19 is also projected to remain historically low, at around 12%. Farm cash incomes for sheep industry farms in 2018–19 are projected to be the highest recorded in more than 20 years.

For the dairy industry, debt serviceability over the past 20 years has been affected by frequent years of low farm cash income resulting in a high proportion of net income consumed to fund interest payments. At the national level, the proportion of net farm income needed to meet interest payment is projected to increase to 39% in 2018–19, above the average for the previous decade of 35%.

Figure 26 Proportion of net income needed to meet interest payments, by industry, Australia, 1998–99 to 2018–19

average per farm



y Provisional estimate.
Source: ABARES Australian Agricultural and Grazing Industries Survey and Australian Dairy Industry Survey

Further information on the difficulty of servicing debt for the agriculture sector, including information on debt in arrears, is provided in data collected by APRA published by the Department of Agriculture and Water Resources in the publication Agricultural Lending Data (Department of Agriculture and Water Resources 2018).

References

BOM 2018, Water information dashboard, Bureau of Meteorology, Canberra, accessed 20 February 2019.

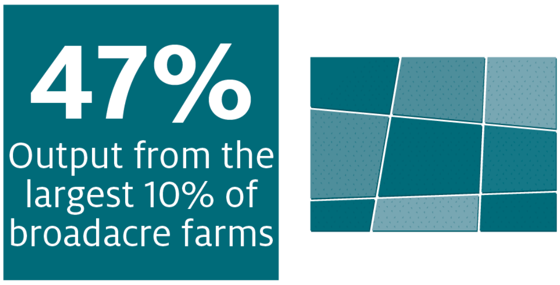
Department of Agriculture and Water Resources 2018, Agricultural Lending Data 2016–17, Canberra, October.

Jackson, T & Martin, P 2014, Trends in the size of Australian farms, in *Agricultural commodities: September quarter 2014*, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

Martin, P, Levantis, C, Shafron, W, Phillips, P & Frilay, J 2018, Farm performance: broadacre and dairy farms, 2015–16 to 2017–18, in *Agricultural commodities: March quarter 2018*, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

RBA 2018, Rural debt by lender–D9, Reserve Bank of Australia, Sydney, accessed 20 February 2019.

Disaggregating farm performance statistics by size, 2017–18



Disaggregating farm performance by size

Farm performance varied significantly for farms of different sizes.

Christopher Boult and Thomas Jackson

Summary

- Across all industries and sectors, larger farms tend to be more profitable than their smaller counterparts, using on average more capital and other inputs to produce greater levels of output.
- In the broadacre industries, the largest 10% of farms produced just under half of total output and the smallest 50% just over 10% in the 3 years to 2017–18.
- The beef industry was the most concentrated broadacre industry, with the largest 10% of farms producing over half of total industry output in the 3 years to 2017–18. This is especially true for beef farms in northern Australia, where farms in the top decile are around three times larger than their counterparts in southern Australia.
- Farm size differences were largest in the vegetable industry. Those in the largest decile used around 20 times more capital and produced around 200 times more output than farms in the smallest decile in the 3 years to 2017–18.
- Output was most equally distributed in the dairy industry. Nonetheless, the largest 10% of farms produced around nine times more output than the smallest 10% of farms in the 3 years to 2017–18.

Size is an important indicator of farm business performance. Previous ABARES research has found that larger farms are generally more profitable, invest more and generate higher rates of return on capital (Jackson & Shafron 2018). Larger farms also tend to carry higher levels of debt in absolute terms and as a proportion of total capital.

This article presents farm performance statistics for 10 size categories. Each category represents 10% of the farm population within each industry and region, ranked from smallest to largest according to total farm receipts. Farm returns vary significantly from year to year, reflecting factors such as seasonal conditions and commodity prices. Data are averaged over 2015–16 to 2017–18 to provide a more meaningful picture of farm performance than would be provided by data from a single year.

This article provides statistics sourced from the following ABARES farm surveys:

- Australian Agricultural and Grazing Industries Survey (AAGIS)
- Australian Dairy Industry Survey (ADIS)
- Survey of Australian Vegetable Growing Farms

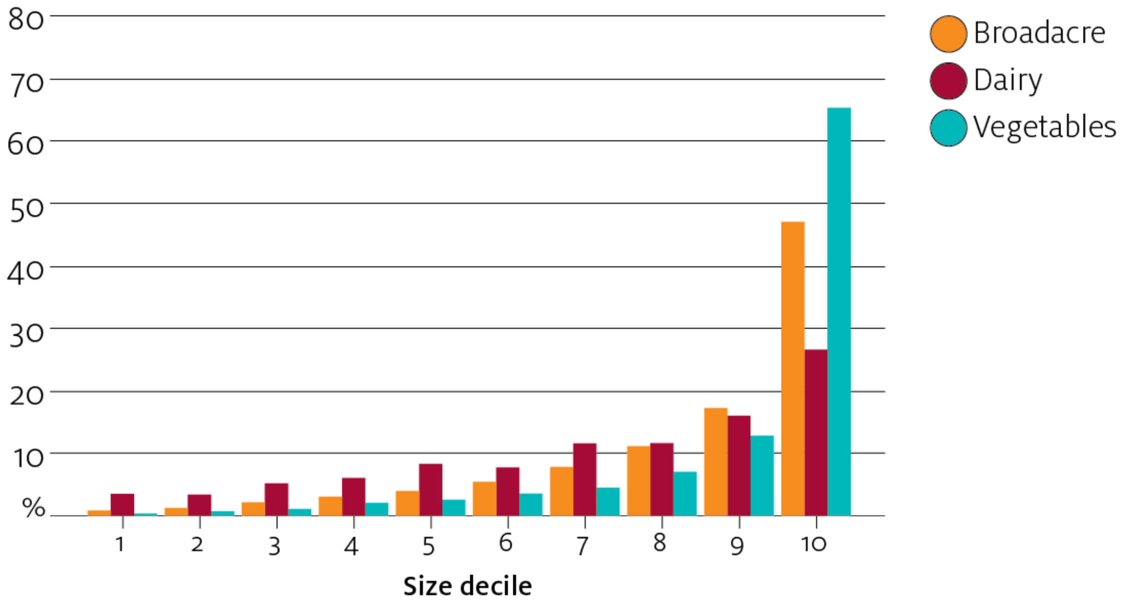
Farms in the broadacre, dairy and vegetable industries are separated into size deciles based on farm total cash receipts—a measure of total revenue received by the business in a given financial year. Statistics for the broadacre industry are further split into the sub-industries of wheat and other crops, beef, sheep, mixed cropping–livestock, and sheep–beef. The cropping industry is separated into the Grains Research and Development Corporation Western, Northern and Southern regions (Map 1) and the beef industry into the Meat & Livestock Australia Northern and Southern regions (Map 2). Data are presented in 13 tables according to classification by industry and region.

Farm characteristics and performance

Over much of the past three decades, Australian agriculture has been characterised by a trend towards fewer and larger farms. This is because larger farms are typically more productive and profitable than their smaller counterparts (Jackson, Hatfield-Dodds & Zammit 2018). An important consequence of this trend is that industry-level changes in farm output and performance are increasingly driven by the performance of the largest farms.

The distribution of output across farm size deciles varies markedly between agricultural industries. In the three years to 2017–18, deciles were most unequal in the vegetable industry (Figure 1). It has a large number of small farms that produce relatively little output due to many farms being situated in areas close to urban centres where farm land prices are generally high. As a result, owners of these farms have little capacity or incentive to increase farm size and may supplement farm income with off-farm earnings. Some small vegetable farms produce specialised vegetables and the market size is relatively small.

Figure 1 Output share, by decile and industry, Australia, 2015–16 to 2017–18

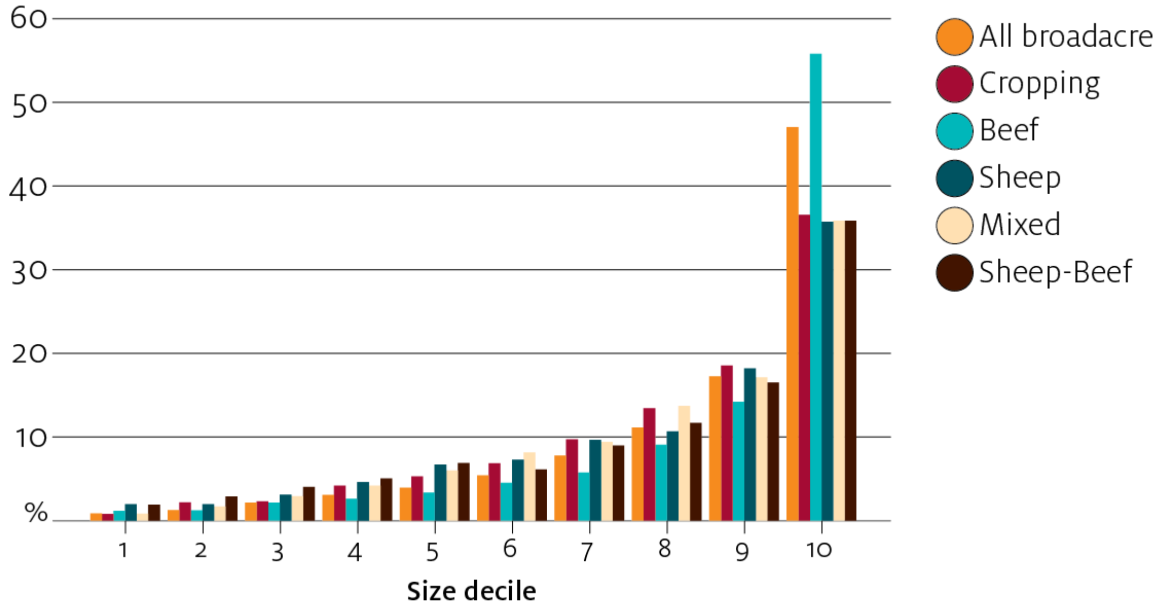


Source: ABARES Australian Agricultural and Grazing Industries Survey, ABARES Australian Dairy Industry Survey, ABARES Survey of Australian Vegetable Growing Farms

Output is most evenly spread across size deciles in the dairy industry. The average dairy farm in the top decile produces around nine times more output than the average farm in the smallest decile. The relative size equality of dairy industry farms primarily reflects the more homogenous structure of Australian dairy farms. Many dairy farms use a similar input mix, face similar capital requirements (including costs of entry and exit), produce a similar output mix and receive similar output prices.

The distribution of output by farm size decile in the broadacre sector (non-irrigated cropping and livestock farms) reflects the distributions of individual sub-industries. The sheep, cropping and mixed cropping–livestock sub-industries all have a similar distribution of output across farm size deciles. In the beef industry, the largest 10% of farms account for substantially more output than in other broadacre sectors (Figure 2).

Figure 2 Output share, by decile and broadacre industry, Australia, 2015–16 to 2017–18

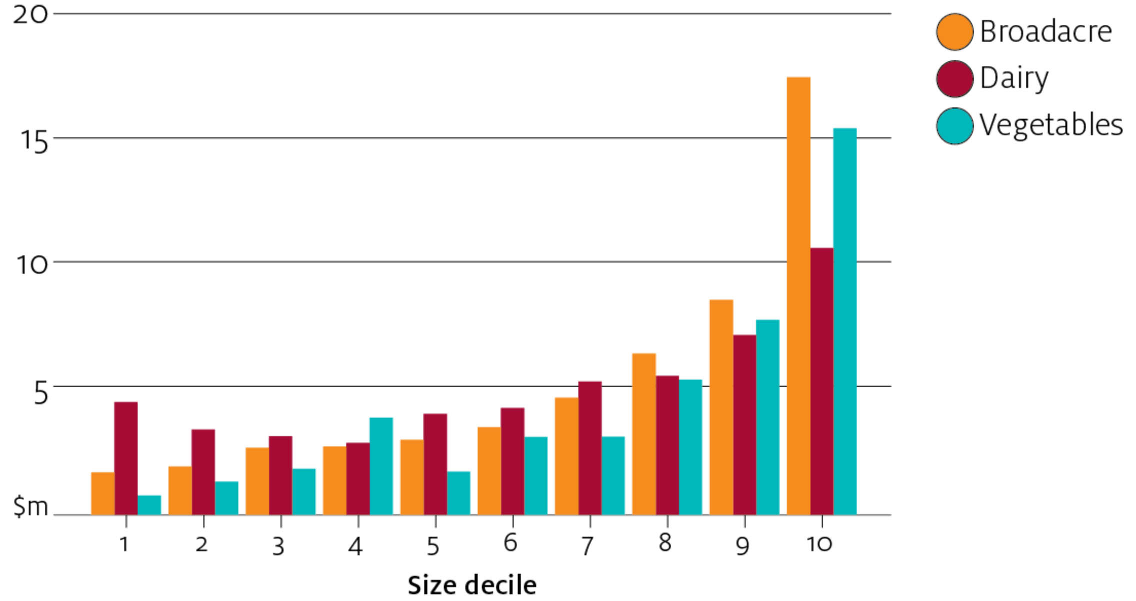


Source: ABARES Australian Agricultural and Grazing Industries Survey

In the beef industry, output structure with respect to farm size is characterised by a very large number of small farms producing small amounts of output. This is driven by the relatively small economies of scale that exist in the beef industry (Boult et al. 2018). Many small beef farms are located in areas with high rainfall and/or relatively close to major urban centres. This may discourage or prevent owners of these farms from expanding.

More capital is used by larger farms, particularly those in the largest size decile. In the broadacre industry, farms in the second-smallest size decile use around 14% more capital than those in the first size decile, and farms in the largest size decile use around twice as much capital as those in the ninth-largest size decile. This reflects a clustering of the very largest corporate farms in the top size decile for each industry. These farms operate relatively large land areas (accounting for the majority of farm capital) and tend to use large-scale, technologically advanced production systems that require a relatively high level of capital (Figure 3).

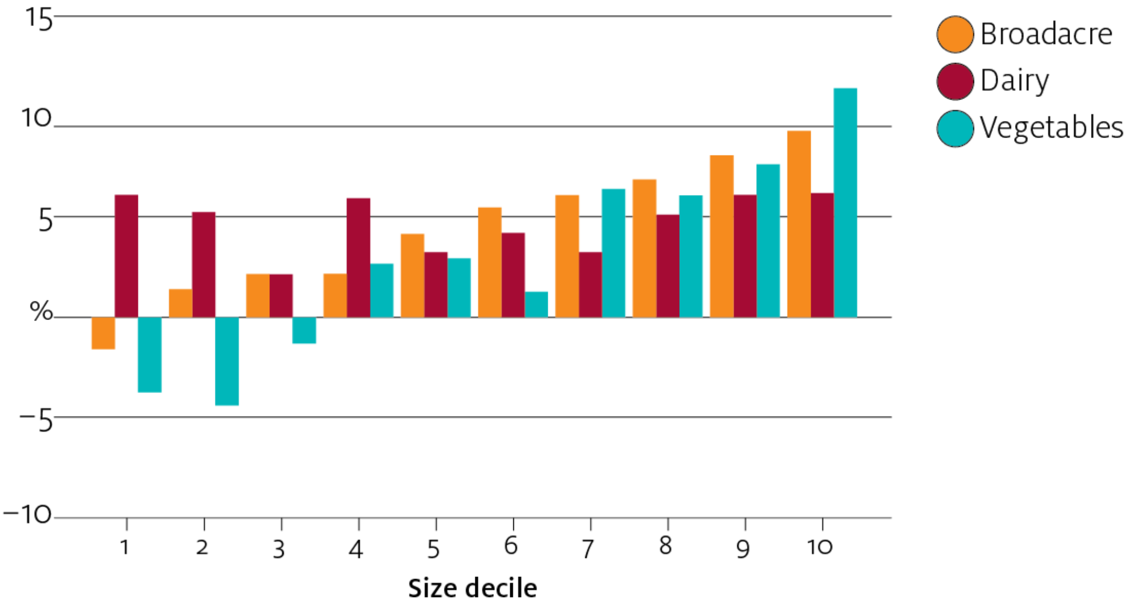
Figure 3 Total average capital, by industry, Australia, 2015–16 to 2017–18



Source: ABARES Australian Agricultural and Grazing Industries Survey, ABARES Australian Dairy Industry Survey, ABARES Survey of Australian Vegetable Growing Farms

Larger farms are more profitable than their smaller counterparts in absolute terms and per unit of capital used. In the broadacre industries, the average rate of return for the smallest size decile was –1.6%. The rate of return is increasingly higher for each next decile, through to a rate of return of 9.3% for the largest broadacre size decile. In the dairy industry, the rate of return was positive and relatively steady across the size deciles (Figure 4). The relatively similar rate of return across size deciles reflects the homogenous structure of many dairy farms.

Figure 4 Rate of return, by decile and industry, Australia, 2015–16 to 2017–18

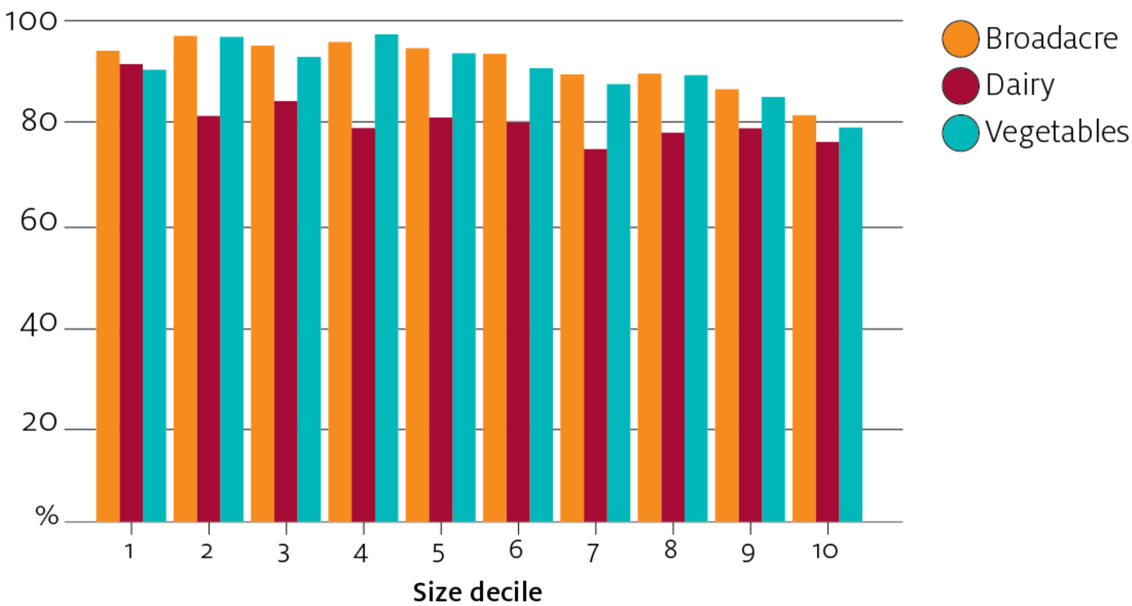


Source: ABARES Australian Agricultural and Grazing Industries Survey, ABARES Australian Dairy Industry Survey, ABARES Survey of Australian Vegetable Growing Farms

In the vegetable industry, the smallest 80% of vegetable farms have either relatively low or negative capital additions, indicating a low level of willingness for these farms to engage in significant expansion. Moreover, the rate of return for the smallest 30% of vegetable farms is negative. However, even on these nominally unprofitable farms, cash losses are relatively small—reflecting the significant role of owner labour in operating these farms. Owners of these farms may also supplement their income with off-farm sources.

Farm debt tends to increase with farm size in absolute terms and as a proportion of total capital (Figure 5). The greater profitability of larger farms generally allows owners to service more debt than for smaller farms. In the broadacre industry, the average equity ratio of farms in the smallest size decile is close to 100%, indicating a very low level of borrowing against farm business capital. Across all industries, average farm business equity ratio decreases as farm size increases, indicating increasingly higher levels of borrowing. This is likely driven by economies of scale, allowing larger farms to produce proportionally more output and receive a higher return per unit of input. Larger farms may also have lower equity ratios because they have used debt to fund expansion.

Figure 5 Farm business equity ratio, by decile and industry, Australia, 2015–16 to 2017–18



Source: ABARES Australian Agricultural and Grazing Industries Survey, ABARES Australian Dairy Industry Survey, ABARES Survey of Australian Vegetable Growing Farms

Farm managers may seek to expand their business operations because of the productivity and profitability advantages associated with larger-scale operations. Larger farms have more capacity to reduce their marginal costs through scale and a greater ability to invest in productivity-enhancing capital additions. As a result, farm performance varies markedly between farms of different size categories. The size structure of Australian farms will continue to be an important predictor of industry performance as the trend of fewer but larger farms continues to characterise Australian agriculture.

Statistical tables

Broadacre industries

Table 1 Broadacre farms, Australia, 2015–16 to 2017–18

Size decile	Output share (%)	Cash receipts ($)	Cash costs ($)	Profit ($)	Capital ($)	Net capital additions ($)	Rate of return (%)	Equity ratio (%)
1	0.9	48,985	51,560	–53,179	1,692,855	–11,803	–1.6	94.0
2	1.3	80,098	65,843	–38,662	1,931,857	–10,661	1.4	97.0
3	2.2	127,173	90,393	–22,402	2,681,141	–6,568	2.2	95.1
4	3.1	182,216	122,254	–8,721	2,731,780	6,573	2.2	95.8
5	4.0	241,728	163,875	9,060	2,993,731	50,341	4.2	94.6
6	5.4	325,323	210,852	27,503	3,503,130	10,430	5.5	93.4
7	7.8	466,226	304,471	92,196	4,676,806	41,643	6.1	89.3
8	11.1	667,394	420,046	154,584	6,438,767	104,432	6.9	89.5
9	17.3	1,038,939	676,712	281,725	8,587,664	204,239	8.1	86.4
10	47.1	2,818,379	1,896,537	847,090	17,481,985	529,091	9.3	81.2

Source: ABARES Australian Agricultural and Grazing Industries Survey

Table 2 Wheat and other crops farms, Australia, 2015–16 to 2017–18

Size decile	Output share (%)	Cash receipts ($)	Cash costs ($)	Profit ($)	Capital ($)	Net capital additions ($)	Rate of return (%)	Equity ratio (%)
1	0.8	94,422	83,215	–51,988	1,660,439	–120,021	0.2	88.3
2	2.2	222,804	163,586	–15,120	1,927,624	12,454	1.1	94.4
3	2.3	368,627	270,262	23,680	3,283,118	–34,963	6.3	84.2
4	4.2	517,773	383,690	91,518	3,646,214	15,034	8.7	86.0
5	5.3	646,682	443,702	123,204	4,850,447	164,022	6.5	81.4
6	6.9	851,366	572,756	204,136	6,446,779	85,080	7.5	84.8
7	9.7	1,183,999	811,175	292,869	7,652,998	318,731	8.3	82.3
8	13.5	1,643,430	1,179,669	426,733	10,079,278	417,098	10.3	81.7
9	18.6	2,307,239	1,571,167	624,674	12,360,159	488,813	8.8	80.4
10	36.6	4,499,572	3,019,785	1,467,101	20,857,001	843,130	10.7	76.3

Source: ABARES Australian Agricultural and Grazing Industries Survey

Table 3 Beef farms, Australia, 2015–16 to 2017–18

Size decile	Output share (%)	Cash receipts ($)	Cash costs ($)	Profit ($)	Capital ($)	Net capital additions ($)	Rate of return (%)	Equity ratio (%)
1	1.2	43,669	46,239	–51,453	2,178,365	–51,367	-3.2	96.3
2	1.3	59,608	55,850	–40,672	1,788,543	8,173	-1.2	98.3
3	2.2	86,651	71,923	–30,290	2,168,498	21,529	1.1	96.1
4	2.6	117,179	82,122	–25,142	3,342,710	5,734	1.3	97.9
5	3.4	140,018	94,815	–21,719	2,691,724	14,979	1.5	95.2
6	4.5	188,081	128,926	1,942	3,346,939	–16,890	1.7	95.9
7	5.8	242,456	164,067	33,470	4,063,193	21,393	3.0	94.1
8	9.1	378,535	228,357	67,848	5,103,609	62,424	4.9	93.5
9	14.2	614,649	393,302	144,772	7,401,147	67,746	5.7	91.7
10	55.9	2,361,878	1,514,906	755,806	20,667,011	326,102	7.5	86.3

Source: ABARES Australian Agricultural and Grazing Industries Survey

Table 4 Sheep farms, Australia, 2015–16 to 2017–18

Size decile	Output share (%)	Cash receipts ($)	Cash costs ($)	Profit ($)	Capital ($)	Net capital additions ($)	Rate of return (%)	Equity ratio (%)
1	2.0	56,551	54,762	–42,521	1,412,356	13,434	6.9	93.0
2	2.0	70,629	63,658	–71,352	1,733,105	4,205	7.0	95.2
3	3.1	114,195	73,943	–21,711	1,628,160	469	6.9	94.4
4	4.6	162,685	123,115	–17,097	2,318,058	–54,423	–0.3	90.4
5	6.7	217,087	147,316	11,430	2,466,673	140,203	4.2	96.3
6	7.3	251,887	180,520	14,157	2,488,303	39,292	8.8	92.9
7	9.7	312,338	194,232	25,948	3,033,337	–4,418	8.8	94.8
8	10.7	388,458	231,252	76,513	4,591,363	–11,278	5.0	92.7
9	18.2	600,802	358,144	134,303	5,345,182	71,960	6.4	91.8
10	35.8	1,260,433	783,905	383,874	10,215,223	127,853	10.3	88.4

Source: ABARES Australian Agricultural and Grazing Industries Survey

Table 5 Sheep–beef farms, Australia, 2015–16 to 2017–18

Size decile	Output share (%)	Cash receipts ($)	Cash costs ($)	Profit ($)	Capital ($)	Net capital additions ($)	Rate of return (%)	Equity ratio (%)
1	1.9	90,260	82,401	–31,542	2,066,819	716	2.4	94.6
2	2.9	168,670	93,070	–23,456	2,189,934	8,659	3.9	95.6
3	4.0	217,898	118,069	22,469	1,652,360	5,910	7.2	95.4
4	5.0	254,895	145,047	–15,534	3,660,628	44,843	2.3	98.1
5	6.9	305,621	223,294	–27,887	3,410,100	37,862	0.7	97.7
6	6.1	389,885	243,466	38,933	3,358,420	–57,262	9.4	90.6
7	9.0	480,412	300,755	94,482	5,066,791	116,493	7.5	90.2
8	11.7	633,848	410,714	144,856	5,865,707	150,366	11.6	86.3
9	16.5	874,147	569,041	226,042	10,360,990	36,560	8.8	87.8
10	35.9	1,971,383	1,336,819	542,692	16,710,364	147,225	10.4	86.9

Source: ABARES Australian Agricultural and Grazing Industries Survey

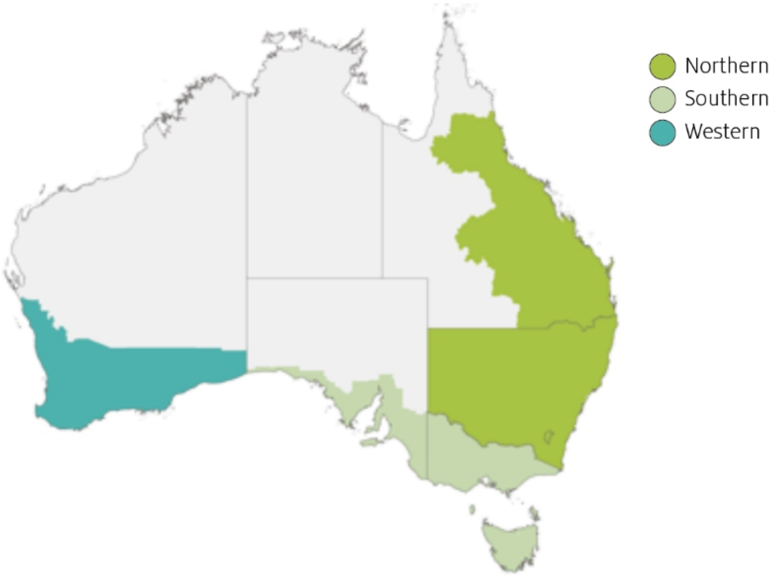
Table 6 Cropping–livestock farms, Australia, 2015–16 to 2017–18

Size decile	Output share (%)	Cash receipts ($)	Cash costs ($)	Profit ($)	Capital ($)	Net capital additions ($)	Rate of return (%)	Equity ratio (%)
1	0.9	54,851	46,653	–47,232	1,271,052	22,396	–4.9	95.9
2	1.7	130,586	104,836	–49,489	1,981,653	8,845	0.9	94.8
3	2.9	219,539	152,940	8,705	2,354,238	27,468	5.0	94.0
4	4.2	318,142	214,522	12,288	3,024,986	65,358	4.0	90.8
5	6.0	428,842	245,455	92,331	3,847,289	34,108	5.3	90.3
6	8.2	570,163	351,633	141,128	4,789,896	56,606	5.8	91.0
7	9.4	724,237	485,783	119,147	7,630,496	106,927	4.9	88.7
8	13.7	931,054	589,727	219,813	6,556,960	233,366	6.7	84.3
9	17.1	1,304,284	833,178	398,448	8,327,931	265,017	10.9	84.2
10	35.9	2,704,795	1,876,389	789,655	15,952,805	823,334	9.6	79.8

Source: ABARES Australian Agricultural and Grazing Industries Survey

Broadacre regional differences

Map 1 Grains Research and Development Corporation regions



Source: Grains Research and Development Corporation

Table 7 Wheat and other crops farms, Western region, 2015–16 to 2017–18

Size decile	Output share (%)	Cash receipts ($)	Cash costs ($)	Profit ($)	Capital ($)	Net capital additions ($)	Rate of return (%)	Equity ratio (%)
1	1.7	189,876	118,762	–8,354	2,183,635	–101,054	1.1	97.5
2	2.4	287,055	222,353	11,401	2,532,255	3,019	2.1	95.1
3	2.9	380,561	286,927	5,433	4,791,840	89,308	0.7	85.8
4	4.8	492,445	337,151	102,703	3,871,075	32,673	4.7	95.1
5	4.3	615,827	354,063	213,106	4,469,891	–20,082	5.4	98.5
6	6.4	787,690	482,844	172,758	6,513,214	104,930	5.7	88.8
7	8.7	1,087,045	707,906	340,568	5,731,419	126,368	6.9	77.8
8	13.0	1,560,531	1,156,297	331,178	7,439,086	601,723	6.2	77.7
9	19.7	2,363,857	1,642,658	543,927	10,250,453	512,663	6.1	79.6
10	36.0	4,397,559	2,931,240	1,425,661	16,979,312	450,983	11.7	76.1

Source: ABARES Australian Agricultural and Grazing Industries Survey

Table 8 Wheat and others crops farms, Northern region, 2015–16 to 2017–18

Size decile	Output share (%)	Cash receipts ($)	Cash costs ($)	Profit ($)	Capital ($)	Net capital additions ($)	Rate of return (%)	Equity ratio (%)
1	1.0	71,162	70,212	–51,872	2,113,957	7,884	9.9	94.3
2	1.9	138,229	103,878	–34,674	2,011,451	4,965	4.3	95.2
3	2.8	217,965	166,385	–25,550	2,468,403	36,828	2.9	96.3
4	3.5	278,203	192,490	–15,439	3,658,239	46,755	4.0	94.9
5	4.9	374,506	227,044	35,784	3,714,169	24,946	8.9	91.7
6	6.9	522,788	378,441	74,801	4,672,754	122,849	7.3	81.8
7	8.9	676,539	417,031	139,547	6,248,790	110,027	7.0	86.3
8	11.3	860,534	545,501	192,469	7,458,068	137,104	8.3	85.7
9	17.3	1,301,502	909,845	329,534	10,218,484	299,485	10.0	83.0
10	41.7	3,248,226	2,304,497	913,740	19,375,129	731,067	10.9	77.1

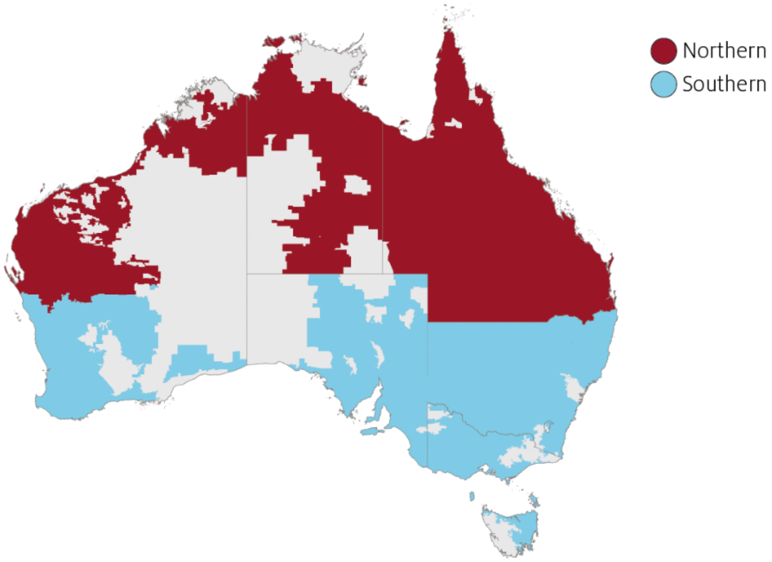
Source: ABARES Australian Agricultural and Grazing Industries Survey

Table 9 Wheat and other crops farms, Southern region, 2015–16 to 2017–18

Size decile	Output share (%)	Cash receipts ($)	Cash costs ($)	Profit ($)	Capital ($)	Net capital additions ($)	Rate of return (%)	Equity ratio (%)
1	1.0	55,923	58,430	–54,768	1,114,875	–56,748	-6.3	87.3
2	2.1	131,365	109,735	–58,501	2,102,257	8,041	3.1	96.2
3	3.0	185,040	127,447	16,253	2,660,240	20,869	1.8	91.5
4	3.7	234,027	170,122	4,730	3,469,215	61,763	3.5	92.3
5	4.7	301,855	172,983	41,556	2,995,288	50,073	4.9	94.2
6	6.9	417,807	274,813	71,539	4,208,967	92,807	5.6	90.1
7	9.3	588,657	392,677	129,343	5,138,499	75,629	6.5	88.7
8	12.4	778,716	530,114	158,461	8,414,483	140,126	5.8	91.4
9	18.4	1,139,874	738,941	332,245	8,775,563	199,407	9.4	84.6
10	38.6	2,400,288	1,600,725	810,132	17,532,045	637,612	9.0	85.5

Source: ABARES Australian Agricultural and Grazing Industries Survey

Map 2 Australian beef cattle industry, Northern and Southern regions



Note: Regions based on aggregations of ABS statistical local areas.
Source: Meat & Livestock Australia

Table 10 Beef and other crops farms, Northern region, 2015–16 to 2017–18

Size decile	Output share (%)	Cash receipts ($)	Cash costs ($)	Profit ($)	Capital ($)	Net capital additions ($)	Rate of return (%)	Equity ratio (%)
1	0.6	35,399	51,441	–50,461	1,766,854	6,143	-2.0	87.3
2	1.0	65,976	67,491	–42,241	2,358,190	34,643	-1.2	96.6
3	1.4	92,765	83,816	–26,382	2,402,289	9,774	0.0	91.0
4	2.3	154,447	127,233	–30,240	3,666,675	16,656	2.9	97.5
5	3.4	219,997	140,285	–7,255	3,987,593	38,941	3.0	94.7
6	4.2	309,259	196,845	60,525	4,490,182	–14,325	5.0	90.2
7	6.3	430,101	234,305	148,532	6,265,245	51,717	5.6	93.0
8	8.8	592,444	384,083	132,649	8,004,021	–29,137	5.2	89.3
9	14.0	949,495	535,019	329,412	11,537,127	237,716	5.4	91.0
10	58.1	3,988,874	2,520,314	1,229,842	31,844,906	296,526	7.2	83.2

Source: ABARES Australian Agricultural and Grazing Industries Survey

Table 11 Beef and other crops farms, Southern region, 2015–16 to 2017–18

Size decile	Output share (%)	Cash receipts ($)	Cash costs ($)	Profit ($)	Capital ($)	Net capital additions ($)	Rate of return (%)	Equity ratio (%)
1	2.4	49,203	44,927	–50,780	2,447,058	–77,400	–3.5	99.6
2	1.6	56,336	60,174	–60,196	1,245,404	11,741	–2.6	99.3
3	3.5	84,754	61,545	–18,036	2,107,263	11,456	2.6	98.5
4	4.2	112,711	65,222	2,516	3,785,164	930	1.7	99.5
5	5.1	131,121	81,555	–40,106	2,280,294	9,232	0.3	91.9
6	5.6	151,673	118,986	–17,467	3,426,229	21,570	0.3	95.6
7	7.2	199,107	115,513	19,142	2,897,347	–34,222	3.7	98.4
8	8.6	240,786	179,788	31,793	3,661,090	–12,449	2.2	93.2
9	15.3	408,514	284,880	28,841	5,003,859	128,857	3.7	94.5
10	46.4	1,244,380	842,302	394,400	11,516,216	294,332	9.0	89.4

Source: ABARES Australian Agricultural and Grazing Industries Survey

Dairy and vegetable industries

Table 12 Dairy farms, Australia, 2015–16 to 2017–18

Size Decile	Output share (%)	Cash receipts ($)	Cash costs ($)	Profit ($)	Capital ($)	Net capital additions ($)	Rate of return (%)	Equity ratio (%)
1	3.5	249,808	255,115	–88,613	4,503,714	–107,535	6.1	91.4
2	3.4	322,657	303,579	–90,902	3,403,050	–458,994	5.3	81.0
3	5.2	429,598	361,358	42,662	3,141,031	17,630	2.1	84.0
4	6.1	525,293	417,984	89,562	2,869,924	82,315	5.9	78.6
5	8.3	619,838	490,900	59,186	4,035,408	92,467	3.2	80.7
6	7.7	750,856	642,379	99,224	4,272,390	170,571	4.2	79.8
7	11.6	900,491	745,714	139,337	5,326,397	74,478	3.2	74.4
8	11.7	1,065,465	865,840	240,171	5,548,585	124,846	5.1	77.7
9	16.0	1,349,841	1,076,767	260,910	7,181,805	154,107	6.1	78.6
10	26.6	2,234,372	1,852,170	466,225	10,659,758	166,882	6.2	75.9

Source: ABARES Australian Dairy Industry Survey

Table 13 Vegetable farms, Australia, 2014–15 to 2016–17

Size decile	Output share (%)	Cash receipts ($)	Cash costs ($)	Profit ($)	Capital ($)	Net capital additions ($)	Rate of return (%)	Equity ratio (%)
1	0.3	43,371	32,336	–36,020	767,865	1,080	–3.7	90.3
2	0.7	96,972	83,001	–59,359	1,327,370	1,768	–4.4	96.9
3	1.1	146,254	118,049	–43,293	1,842,122	9,156	–1.3	92.8
4	2.1	263,351	189,320	4,334	3,882,274	6,179	2.7	97.3
5	2.6	338,317	259,878	–8,791	1,728,316	5,842	2.9	93.5
6	3.5	467,283	334,245	22,646	3,109,096	–14,597	1.3	90.6
7	4.5	638,427	431,019	96,703	3,122,751	–47,985	6.4	87.4
8	7.1	923,581	635,525	183,663	5,392,624	–156	6.1	89.2
9	12.8	1,718,322	1,289,740	307,418	7,784,495	131,567	7.6	84.8
10	65.3	8,796,635	7,094,937	1,572,289	15,435,915	356,558	11.4	78.7

Source: ABARES Survey of Australian Vegetable Growing Farms

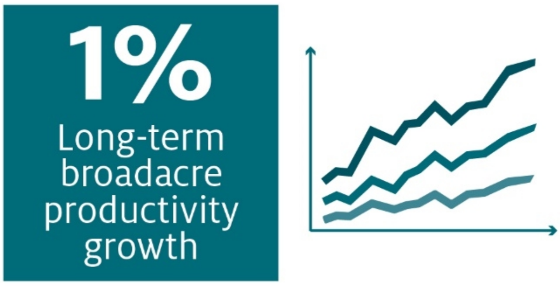
References

Boult, C, Valle, H, Zhao, S, & Jackson, T 2018, Productivity in Australia's broadacre and dairy industries, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra, September.

Jackson, T & Shafron, W 2018, 'Disaggregating farm performance statistics by size', in Agricultural commodities: March quarter 2018, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

Jackson, T, Hatfield-Dodds, S & Zammit, K, 2018, ‘Snapshot of Australian agriculture, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

Productivity of Australian broadacre and dairy industries, 2017–18



Agricultural productivity

Long-term productivity growth in the broadacre industries averaged 1.0% per year, while dairy industry productivity growth was 1.6% per year.

Christopher Boult and Will Chancellor

Summary

- Over the period 1977–78 to 2017–18, average annual productivity growth in the broadacre sector was 1.0%. From 1978–79 to 2017–18, average annual productivity growth in the dairy sector was 1.6%.
- In 2017–18 the ABARES broadacre productivity index declined sharply by 12.2%, reversing the previous increase of 9.1% in 2016–17. This largely reflects fluctuating seasonal conditions and commodity prices over the past two years, including the impact of drought across eastern Australia.

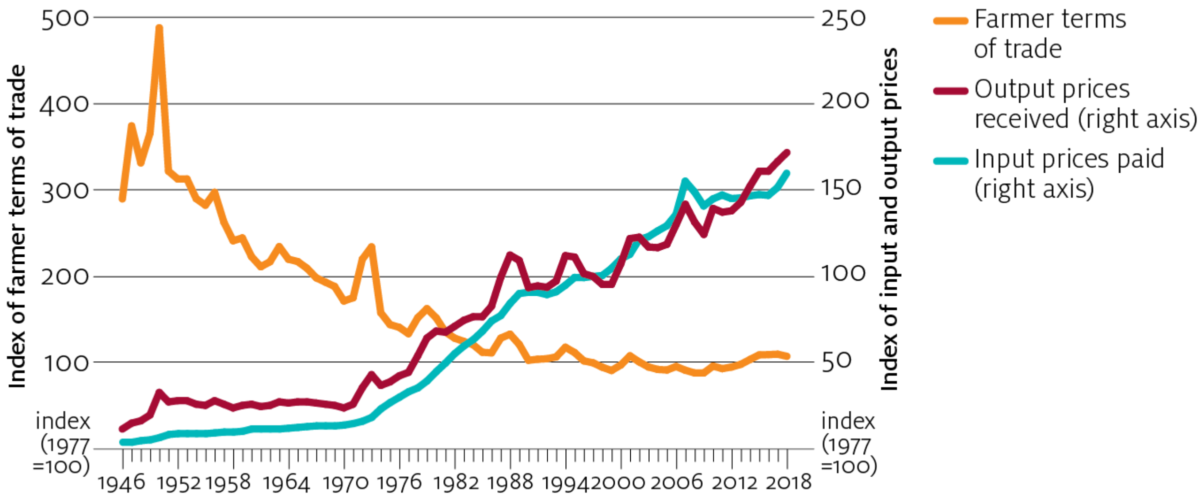
Introduction

Productivity is an important measure of industry performance. For Australian agriculture, productivity reflects long-term changes in the efficiency with which farmers use land, labour, capital and intermediate inputs (for example, chemicals, fodder and purchased services) to produce outputs such as crops, meat, wool and milk. At the farm level, an improvement in productivity is generally achieved when outputs (for example, tonnes of wheat) increase relative to inputs used (for example, labour hours, capital, fuel, seed and fertiliser). Productivity is a ratio of outputs generated relative to inputs used. Any improvement in this ratio translates to an improvement in productivity. ABARES generates annual indexes of total factor productivity (TFP) using a growth accounting approach (Zhao, Sheng & Gray 2012). See Sheng and Jackson (2015) for a full description of the ABARES productivity methodology.

Total factor productivity is an indicator of underlying farm business efficiency. Short-term variations in TFP can be volatile and often reflect changes in seasonal conditions and other temporary factors, rather than permanent productivity improvements. Long term measures of TFP are preferred, as the measure captures improvement in technical progress, scale, management practices and other measures of efficiency.

Productivity is an important determinant of profitability, and is therefore a useful measure in farm management. This relationship between productivity and profitability is based on improving the ratio of inputs used relative to outputs generated—demonstrated in Figure 1. Since the 1940s, the need to improve agricultural productivity has been spurred on by declining farmer terms of trade. From 1946 to 2018, the prices farmers were paying for their inputs generally increased at a faster rate than the prices received for their outputs —thereby impacting profitability. By improving productivity and producing 'more with less', farmers are able to remain profitable despite falling farmer terms of trade.

Figure 1 Farmer terms of trade, 1946 to 2018



Note: Terms of trade index reflects prices received versus prices paid for all agricultural industries.
Source: ABARES

Farm managers play a pivotal role in improving their own farm productivity. Farmers require industry knowledge and a broad range of skills to navigate prevailing seasonal conditions, emerging technologies and price movements. The ability to make use of information, adapt to changing conditions, manage risks, adopt technology and adjust their business when it is advantageous to do so demonstrates a high level of management skill. This allows farmers to optimise efficiency and produce maximum output from a given set of inputs, leading to higher productivity.

This article provides updates of ABARES productivity statistics to include data for 2017–18 and summarises some of the previous research on the drivers of agricultural productivity.

Drivers of agricultural productivity growth

Lifting productivity growth at both the individual farm level and the broader industry level depends on external factors and farm drivers. Technological progress is one important driver that can generate improvements in productivity. However, large farms have historically benefited from technological progress more than smaller farms due to their financial capacity for investment.

Short-term measures of agricultural productivity are sensitive to climate variability. The significant impact of climate on cropping productivity is demonstrated by Hughes, Lawson and Valle (2017), who found evidence of a significant deterioration in climate conditions for cropping over the past 15 to 20 years, particularly in southern Australia. Productivity shocks in the cropping industry during the mid 1990s and 2000s were driven by prevailing seasonal conditions.

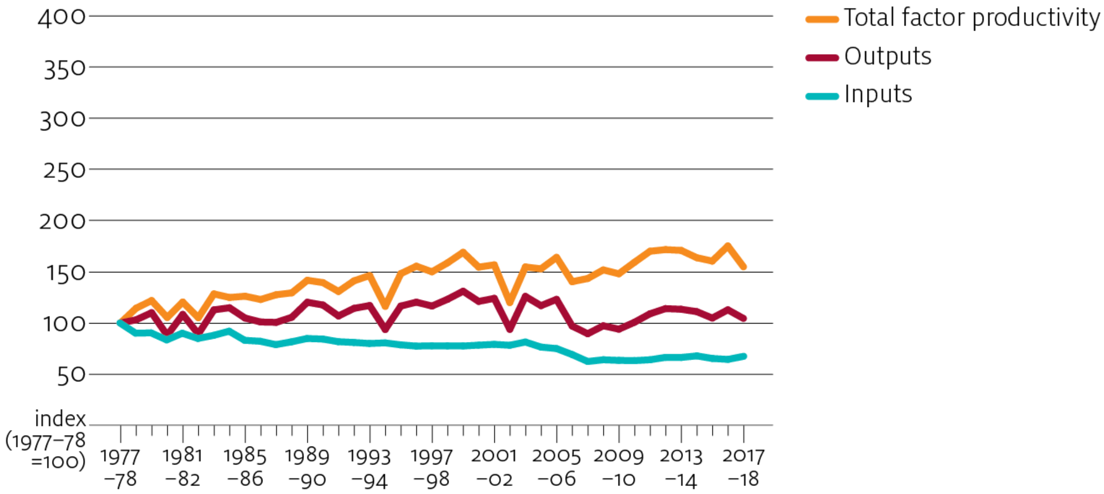
Policy reform is also likely to have affected agricultural productivity. The removal of marketing and price support mechanisms contributed directly and indirectly to productivity growth in the broadacre industries (Gray, Leith & Davidson 2014). These reforms led to structural change through the amalgamation of farms, improvements in risk management and changes in the mix of agricultural commodities produced. This altered the allocation of resources between farms, with more efficient producers tending to gain a greater market share over time (Sheng, Jackson & Gooday 2016).

Public and private investment in research, development and extension (RD&E) has also contributed to agricultural productivity growth in Australia (Sheng, Gray & Mullen 2011). In 2014–15 RD&E funding in the rural sector was $3.3 billion, of which around half was private RD&E investments (Millist, Chancellor & Jackson 2017). RD&E funding grew in real terms by 2.6% per year over the 10 years to 2015–16. Farmers have captured developments in technology and knowledge by investing in higher-yielding, pest and disease-resistant crop varieties, superior harvesting techniques, and livestock genetics. Other drivers of farm productivity include farm size, management skill, financial capacity, regulation, infrastructure and seasonal conditions.

Broadacre productivity

Productivity growth in the broadacre industries averaged 1.0% per year between 1977–78 and 2017–18, primarily as a result of declining input use and modest output growth (Table 2, Figure 2). Total input use in the broadacre industries declined between 1977–78 and 2017–18 at an average annual rate of 0.9% per year. Over the same period, broadacre output increased by 0.1% per year. Short term estimates of productivity are more volatile—mostly because of changing seasonal conditions. In 2016–17 favourable conditions saw a 9.1% annual increase in broadacre productivity, driven largely by increases in output. However, deteriorating seasonal conditions in 2017–18 drove a 12.2% annual decline in broadacre productivity.

Figure 2 Total factor productivity, output and input, all broadacre industries, Australia, 1977–78 to 2017–18



Source: ABARES Australian Agricultural and Grazing Industries Survey

Between 1977–78 and 2017–18 a decline in total input use occurred in beef, sheep and mixed crop–livestock industries, but not in the cropping industry (Table 1). The pattern of change in specific inputs (land, labour, capital, materials and services) also varied between industries. For example, all industries used less labour in 2017–18 than in 1977–78 and most reduced the inputs of land (except cropping) and capital (except beef). However, use of materials increased significantly in cropping (3.9% per year) and moderately in beef (1.9% per year) and mixed crop–livestock (0.5% per year). This suggests that production in these industries has become more heavily reliant on the use of intermediate inputs such as chemicals, fertilisers, seeds, fuel and electricity.

Table 1 Broadacre growth in input use, average annual change, by industry, Australia, 1977–78 to 2017–18

Inputs	All broadacre (%)	Cropping (%)	Beef (%)	Sheep (%)	Mixed crop–livestock (%)
Land	–1.0	1.1	–0.2	–2.9	–1.5
Labour	–2.1	–0.9	–0.7	–3.2	–2.9
Capital	–1.6	–0.4	0.3	–3.7	–3.0
Material	1.7	3.9	1.9	–0.6	0.5
Services	–0.6	1.0	0.3	–2.4	–1.7
Total inputs	–0.9	1.1	–0.1	–2.9	–1.8

Source: ABARES Australian Agricultural and Grazing Industries Survey

Table 2 Total factor productivity, output and input growth, broadacre industries, Australia, 1977–78 to 2017–18

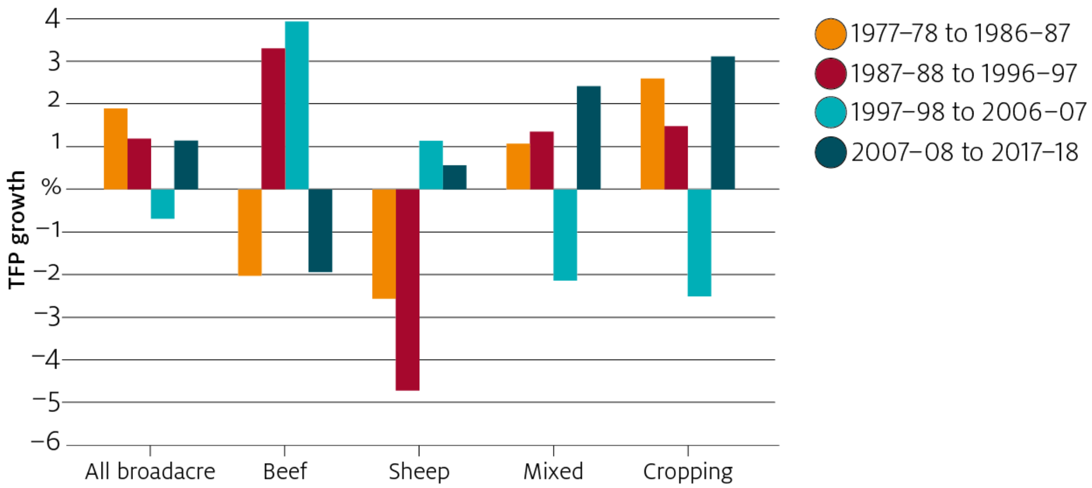
Industry	Growth rate between 1977–78 and 2017–18 (%)	Year-on-year growth rate in 2016–17 (%)	Year-on-year growth rate in 2017–18 (%)
All broadacre			
Total factor productivity	1.0	9.1	–12.2
Output	0.1	7.7	–7.5
Input	–0.9	–1.4	4.7
Cropping			
Total factor productivity	1.5	16.8	–13.2
Output	2.6	19.5	–20.8
Input	1.1	2.7	–7.6
Mixed crop–livestock			
Total factor productivity	0.9	20.1	–11.2
Output	–0.9	13.2	–8.6
Input	–1.8	–6.9	2.5
Sheep			
Total factor productivity	0.3	3.4	–17.5
Output	–2.6	1.4	2.5
Input	–2.9	–2.0	20.0
Beef			
Total factor productivity	1.0	–8.0	6.4
Output	0.9	–7.7	11.4
Input	–0.1	0.3	5.1

Note: Care should be taken when interpreting this data because single year agricultural productivity estimates are susceptible to volatility induced by climate and seasonal conditions.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Three key trends can be identified from the varying productivity growth rates across broadacre industries (Table 2). First, the cropping industry has had higher average productivity growth than livestock industries over the long term, averaging 1.5% per year between 1977–78 and 2017–18, compared with mixed crop–livestock (0.9%), beef (1.0%) and sheep (0.3%). Higher productivity growth in the cropping industry could be a result of more rapid developments in cropping technologies and reallocation of resources towards crop production (Mullen 2007; Sheng et al. 2016).

Second, the difference in productivity growth rates between cropping and livestock industries is narrowing (Figure 3). This can be attributed to a slowdown in the productivity growth of the cropping industry since the late 1990s (Sheng, Mullen & Zhao 2011), productivity improvement in the beef industry between 1988–89 and 2000–01 (Figure 3) and increased productivity growth in the sheep industry between 2000–01 and 2017–18. The declining trend of sheep industry productivity slowed after the removal of the wool reserve price scheme in 1991 and became positive in the years after 2000–01. This improvement in productivity can be explained by industry consolidation and shifts by farmers from wool production to cropping and sheep meat production.

Figure 3 Total factor productivity growth, average annual change, by broadacre industry, Australia, 1977–78 to 2017–18



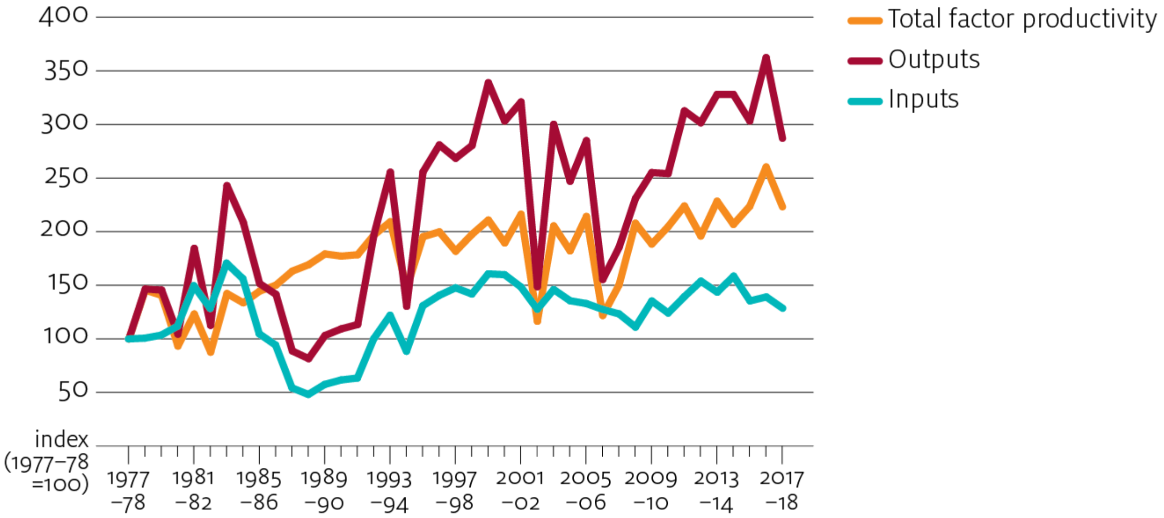
Source: ABARES Australian Agricultural and Grazing Industries Survey

Third, between 1977–78 and 2017–18 the mixed crop–livestock industry experienced modest productivity growth of 0.9% per year on average. The increase in productivity in this industry was a result of a fall in output (–0.9% per year) and a greater decline in the use of inputs (–1.8% per year). In the past two decades mixed crop–livestock farms have tended to specialise in either crop or livestock enterprises (McKenzie 2014). This structural change has shifted inputs away from this industry and into specialised crop and livestock production.

Cropping

Productivity for cropping specialists grew on average by 1.5% per year between 1977–78 and 2017–18. This was driven by strong output growth (2.6% per year) relative to input use growth (1.1% per year). Sharp declines in output (and TFP) tend to correspond with unfavourable seasonal conditions (Table 2, Figure 4).

Figure 4 Total factor productivity, output and input, cropping industry, Australia, 1977–78 to 2017–18



Source: ABARES Australian Agricultural and Grazing Industries Survey

Jackson (2010) and Knopke, O'Donnell and Shepherd (2000) attributed strong productivity growth in the cropping industry in the 1980s and 1990s to developments in technology such as larger machinery, new plant varieties, improved water management and a better understanding of harvesting and planning strategies. After the mid 1990s the strong productivity growth in cropping subsided. Sheng, Mullen and Zhao (2011) largely attribute this turning point in broadacre productivity to climate factors and stagnating R&D investment. Climate factors were also identified by Hughes, Lawson and Valle (2017) as having a significant effect on productivity. In particular, crop farms were found to be heavily affected by climate variability and drought, which in turn impacted productivity.

Cropping industry output has grown strongly since 1977–78, whereas input use remained relatively stable. From 1977–78 to 2017–18, labour inputs have tended to decline, whereas capital and intermediate inputs have tended to increase. Between 1977–78 and 2017–18 cropping farms have become larger, with average farm sowing areas increasing nearly threefold. Material inputs including fertiliser, fuel, crop chemicals and seed have increased by an average of 3.9% per year. Improved understanding of cropping systems, including plant physiology and determinants of soil fertility, has expanded the use of fertiliser and crop chemicals (especially nitrogen and soil ameliorants such as lime and gypsum).

Increases in material, services, and land inputs have been offset partially by falls in labour and capital inputs (Table 1). However, between 1977–78 and 2017–18 total input growth in the cropping industry increased by 1.1% per year on average—the only broadacre industry to record an increase in average annual total input growth. Additionally, the cropping industry was the only industry to record an increase in land input, suggesting a shift in land use towards cropping and away from livestock and mixed broadacre production.

The cropping industry consists of three distinct regions—southern, northern and western (GRDC 2015). Productivity growth in the cropping industry was strong across all regions, with inter-regional productivity differences driven by structural and climatic differences. Between 1977–78 and 2017–18 productivity growth was strongest in the southern region at 1.9% per year. The northern and western regions recorded growth at 1.4% and 1.3% per year respectively.

Table 3 Total factor productivity, output and input growth, cropping industry, by GRDC region, Australia, 1977–78 to 2017–18

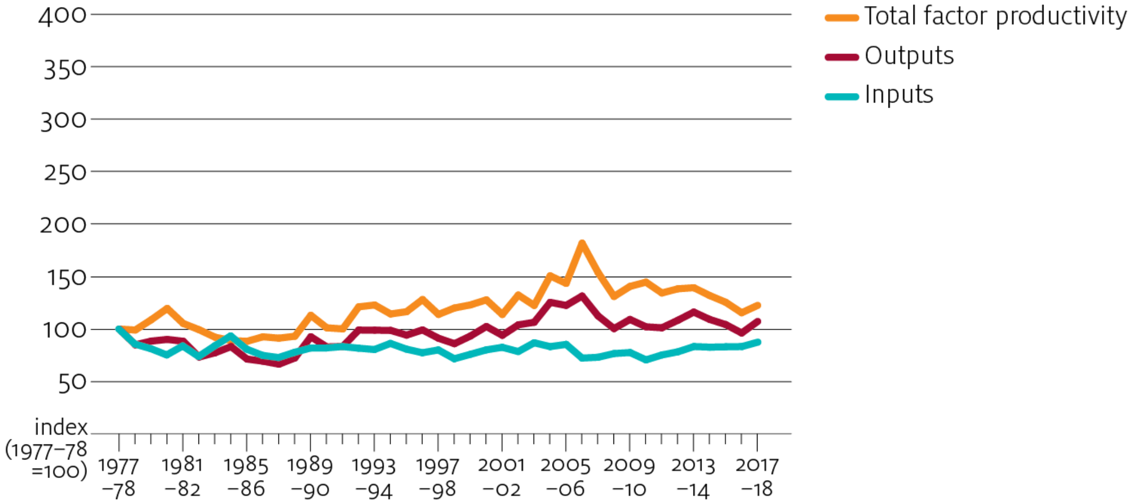
Region	TFP (%)	Output (%)	Input (%)
Northern	1.4	1.9	0.5
Southern	1.9	2.8	0.8
Western	1.3	3.6	2.3

Note: Grains Research and Development Corporation regions.
Source: ABARES Australian Agricultural and Grazing Industries Survey

Beef

Beef productivity growth averaged 1.0% per year between 1977–78 and 2017–18. Output increased by 0.9% and inputs declined by 0.1% per year (Table 2, Figure 5). Productivity improvements in this industry were partly realised through improved pastures, herd genetics and disease management, which lowered mortalities and increased branding rates (calves marked as a percentage of cows mated) (Jackson, Dahl & Valle 2015). Between 1977–78 and 2017–18 average productivity growth in the beef industry (1.0% per year) remained lower than the productivity growth rate for the cropping industry (1.5% per year), despite outpacing that of the sheep industry (0.3% per year).

Figure 5 Total factor productivity, output and input, beef industry, Australia, 1977–78 to 2017–18



Source: ABARES Australian Agricultural and Grazing Industries Survey

Labour input use in the beef industry declined by an average of 0.7% per year between 1977–78 and 2017–18. This was the smallest decline in labour input use of any broadacre industry. Additionally, the beef industry was the only broadacre industry to record an increase in capital input between 1977–78 and 2017–18 (0.3% per year).

Climate, pastures, industry infrastructure and proximity to markets vary significantly for beef enterprises in northern and southern Australia. These factors have contributed to differences in production systems such as in herd structure and farm operations. Beef farms in the southern region face a more varied climate and are more sensitive to drought conditions. This can lead to increased feed costs and destocking and restocking cycles that affect output growth. Beef farms in the southern region are also smaller and less profitable. This is likely to contribute to lower average productivity growth (Jackson & Valle 2015).

Between 1977–78 and 2017–18 productivity growth was higher for northern beef farms (1.0% per year) compared with their southern counterparts (0.7% per year) (Table 4). Output growth was similar for the northern and southern regions, at an average of 0.9% per year for northern beef farms and 1.1% per year for southern beef farms. The primary difference between the two regions was a result of reduced input use in the north (-0.2% per year) and increased input use in the south (0.4% per year), particularly of fertiliser and chemicals.

Table 4 Total factor productivity, output and input growth, beef industry, by region, Australia, 1977–78 to 2017–18

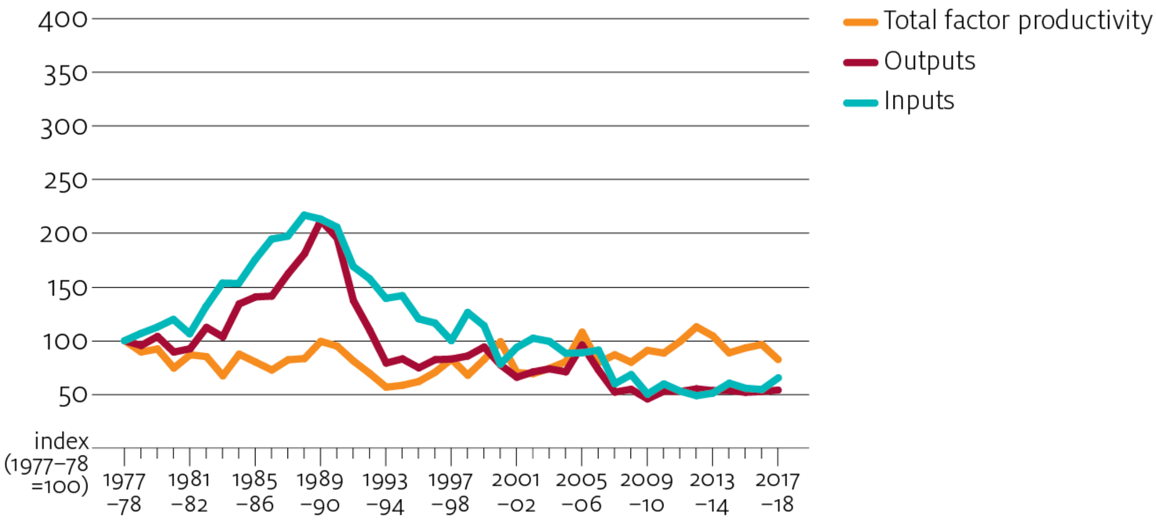
Region	TFP (%)	Output (%)	Input (%)
Northern	1.0	0.9	–0.2
Southern	0.7	1.1	0.4

Source: ABARES Australian Agricultural and Grazing Industries Survey

Sheep

Productivity growth in the sheep industry averaged 0.3% per year between 1977–78 and 2017–18 (Figure 6, Table 2). The Australian sheep industry has undergone significant adjustment since the early 1990s, when price support mechanisms for wool were removed. Many farmers shifted their enterprise mix from wool to cropping, resulting in lower sheep numbers and reduced use of all the five categories of inputs (labour, capital, land, materials and services). Sheep numbers were further reduced by farmers destocking their properties during periods of drought.

Figure 6 Total factor productivity, output and input, sheep industry, Australia, 1977–78 to 2017–18



Source: ABARES Australian Agricultural and Grazing Industries Survey

Long run sheep industry productivity differed for farms of different sizes (Table 5). Small and medium farms both experienced corresponding declines in their outputs and inputs, achieving average annual productivity growth of 0.0% from 1977–78 to 2017–18. Large sheep farms did however experience an increase in productivity on 0.9% per year with inputs decreasing by more than outputs over this same period.

Table 5 Total factor productivity, output and input growth, sheep industry, by size, Australia, 1977–78 to 2017–18

Farm size category	TFP (%)	Output (%)	Input (%)
Small	0.0	-3.1	-3.1
Medium	0.0	-3.3	-3.3
Large	0.9	-1.6	-2.5

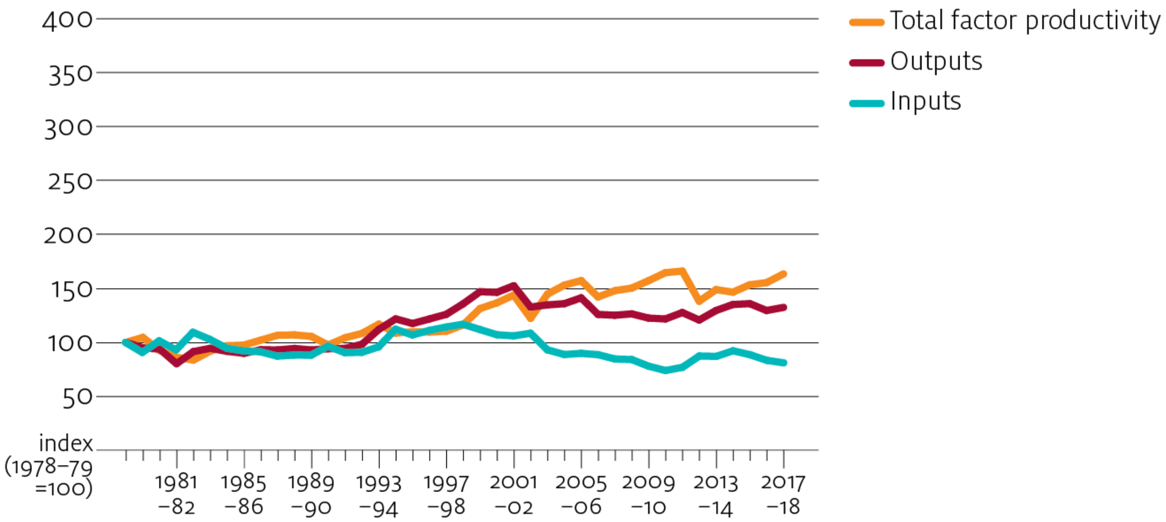
Note: Farm size categories—Small: total cash receipts $0 to $200,000, medium: total cash receipts $200,001 to $500,000, large: total cash receipts greater than $500,000

Source: ABARES Australian Agricultural and Grazing Industries Survey

Dairy

Productivity growth in the Australian dairy industry averaged 1.6% per year between 1978–79 and 2017–18 (Figure 7). This was driven by output increasing by an average of 1.2% per year and input use declining by an average of 0.4% per year. The decline in input use in the dairy industry has been driven by declines in the use of labour (-2.4% per year), capital (-1.4% per year), land (-1.2% per year) and services (-0.3% per year). These falls have been offset by increases in the inputs of materials (3.9% per year).

Figure 7 Total factor productivity, output and input, dairy industry, Australia, 1978–79 to 2017–18



Source: ABARES Australian Dairy Industry Survey

The drivers of productivity growth in the dairy industry were substantially different after deregulation reforms were implemented in 2000. Throughout the 1980s and 1990s many dairy farms transitioned to more intensive production systems. This reduced labour and land requirements but increased material inputs such as fertiliser and supplementary feed (Ashton et al. 2014). Productivity improvements during this period were driven by output increasing faster than input use as a result of farmers adopting new technologies such as rotary dairies, artificial insemination and improved pastures (Harris 2011).

In the 2000s many smaller farms exited the dairy industry following deregulation — a decline in total output followed. However, productivity growth during this period was driven by input use declining faster than output because resources such as land, labour and capital shifted towards the most efficient farms. In particular, deregulation appears to have facilitated the movement of resources from farms using the year-round production system, in which calving and milk production are spread evenly throughout the year, to those using the seasonal production system, in which production periods are more synchronised with pasture availability. This resource reallocation effect boosted industry productivity at a time when on-farm technological progress was slowing (Sheng, Jackson & Gooday 2016).

References

Ashton, D, Cuevas-Cubria, C, Leith, R & Jackson, T 2014, Productivity in the Australian dairy industry: pursuing new sources of growth, ABARES research report 14.11, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra, September.

Gray, EM, Leith, R & Davidson, A 2014, 'Productivity in the broadacre and dairy industries' in Agricultural commodities: March quarter 2014, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

GRDC 2015, Our grains industry, Grains Research and Development Corporation, Canberra, accessed 13 February 2017.

Harris, D 2011, *Victoria's dairy industry: an economic history of recent developments*, report prepared for the Department of Primary Industries, Victoria and Dairy Australia Ltd, Melbourne, October.

Hughes, N, Lawson, K & Valle, H 2017, Farm performance and climate: Climate-adjusted productivity for broadacre cropping farms, Canberra, April.

Jackson, T 2010, Harvesting productivity: a report on the ABARE–GRDC workshops on grains productivity growth, ABARE research report 10.5 prepared for the Grains Research and Development Corporation, Australian Bureau of Agriculture and Resource Economics, Canberra, April.

Jackson, T, Dahl, A & Valle, H 2015, 'Productivity in Australian broadacre and dairy industries' in Agricultural commodities: March quarter 2015, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

Jackson, T & Valle, H 2015, 'Profitability and productivity in Australia's beef industry' in Agricultural commodities: March quarter 2015, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

Knopke, P, O'Donnell, V & Shepherd, A 2000, Productivity growth in the Australian grains industry, ABARE research report 2000.1 for Grains Research and Development Corporation, Australian Bureau of Agricultural and Resource Economics, Canberra.

McKenzie, F 2014, 'Trajectories of change in rural landscapes—the end of the mixed farm?' in J Connell and R Dufty-Jones (eds), *Rural change in Australia*, Ashgate Publishing Ltd, Farnham.

Millist, N, Chancellor, W, & Jackson, T 2017, Rural research, development and extension investment in Australia, ABARES research report 17.11, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra.

Mullen, J 2007, Productivity growth and the returns from public investment in R&D in Australian broadacre agriculture, *Australian Journal of Agricultural and Resource Economics,* vol. 51, pp. 351–84, accessed 16 February 2017.

Sheng, Y, Gray, E & Mullen, J 2011, Public investment in R&D and extension and productivity in Australian broadacre agriculture, ABARES conference paper 11.08 presented to the Australian Agricultural and Resource Economics Society, 9–11 February 2011, Melbourne.

Sheng, Y, Mullen, J & Zhao, S 2011, A turning point in agricultural productivity: consideration of the causes, ABARES research report 11.4 for the Grains Research and Development Corporation, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra, May.

Sheng, Y & Jackson, T 2015, A manual for measuring total factor productivity in Australian agriculture, ABARES technical report 15.2, Canberra, October

Sheng, Y, Davidson, D, Fuglie, K & Zhang, D 2016, Input substitution, productivity performance and farm size, *Australian Journal of Agricultural and Resources Economics*, vol. 60, pp. 327–47, accessed 16 February 2017.

Sheng, Y, Jackson, T & Gooday, P 2016, Resource reallocation and its contribution to productivity growth in Australian broadacre agriculture, *Australian Journal of Agricultural and Resource Economics*, vol. 61, iss. 1, pp. 56–75, accessed 16 February 2017.

Zhao, S, Sheng, Y & Gray, E 2012, 'Measuring productivity of the Australian broadacre and dairy industries: concepts, methodology and data', in KO Fuglie, SL Wang & VE Ball (eds), *Productivity growth in agriculture: an international perspective*, CABI, Wallingford.

Abbreviations

All values and prices are in nominal terms unless stated otherwise.

Small discrepancies in totals are generally caused by rounding. Zero is used to denote nil or a negligible amount.

$m	million dollars (Australian)
€	euro
£	pound sterling
¥	yen
A$	dollar (Australian)
ABARE	Australian Bureau of Agricultural and Resource Economics
ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ABS	Australian Bureau of Statistics
ANZSIC	Australian and New Zealand Standard Industrial Classification
BAE	Bureau of Agricultural Economics (now ABARES)
BRS	Bureau of Rural Sciences (now ABARES)
c	cent (Australian)
CIS	Commonwealth of Independent States
cif	cost, insurance and freight
cw	carcase weight
DM	deutschmark
ECU	European currency unit
EVAO	estimated value of agricultural operations
FAO	Food and Agriculture Organization of the United Nations
fas	free alongside ship
fob	free on board
fot	free on truck
GL	gigalitres (1,000,000,000 litres)
ha	hectare (2.471 acres)
kg	kilogram (2.20462 pounds)
kL	kilolitre (1,000 litres)
kt	kilotonne (1,000 tonnes)
L	litre (1.761 pints)
lb	pound (454 grams)
na	not available
nec	not elsewhere classified
nei	not elsewhere included
nfd	not further defined
m3	cubic metre (1.307 cubic yards)
ML	megalitre (1,000,000 litres)
Mt	megatonne (1,000,000 tonnes)
sw	shipped weight
t	tonne (1,000 kilograms)
USc	cent (United States)
US$	dollar (United States)
USDA	United States Department of Agriculture

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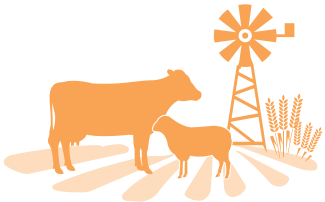
Agricultural commodities

March quarter 2019

$58b
Value of production in 2018–19



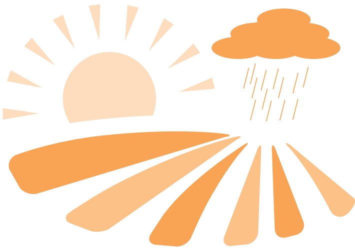
Agricultural overview

The value of farm production is forecast to decline by 4% in 2018–19, driven mainly by lower production of grains, oilseeds and pulses.

3.7%
Global economic growth in 2018

Economic overview

Global economic growth to slow to 3.4% by 2024.



Seasonal conditions

Global production conditions generally favourable. Unfavourable autumn rainfall outlook for northern Australia.

↑1%
to **US$242/t**[a]
in 2019–20

Wheat

Wheat prices to rise marginally due to lower global supply.

↑3%
to **US$228/t**[b]
in 2019–20

Coarse grains

Barley prices to rise due to falling global coarse grain stocks.

a US no. 2 hard red winter, fob Gulf. **b** France feed barley, fob Rouen.

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Agricultural commodities

March quarter 2019

↑2%
to **US$443/t**[c]
in 2019–20

Oilseeds

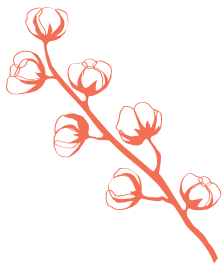
Canola prices to remain largely unchanged as world supply broadly aligns with demand.

↑4%
to **USc 13/lb**[d]
in 2019–20

Sugar

Sugar prices to rise due to lower world production.

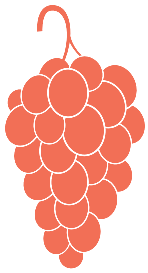
↓12%
to **USc 77/lb**[e]
in 2019–20



Cotton

Cotton prices to fall due to high stock levels and competition from synthetics.

↑3%
to **$661/t**[f]
in 2019–20



Wine

Demand from China for Australian wine to support wine grape prices.

↑3%
to **$11.7 billion**[g]
in 2019–20

Horticulture

Growing fruit and nuts production to increase horticulture value.

c Europe rapeseed, fob Hamburg. **d** Intercontinental Exchange, nearby futures, no. 11 contract (October to September). **e** Cotlook 'A' index. **f** Intercontinental Exchange, nearby futures, no. 11 contract (October to September). **g** Gross value of horticulture production.

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Agricultural commodities
March quarter 2019

↓3%
to **430 Ac/kg**[a]
in 2019–20

Beef and veal
Australian cattle prices to fall due to higher global production and export market competition.

↓1%
to **715 Ac/kg**[b]
in 2019–20

Sheep meat
Lamb prices to fall only slightly from historical highs because of strong saleyard competition.

↓7%
to **1,636 Ac/kg**[c]
in 2019–20

Wool
Wool prices to fall as higher volumes come to market.

↓2%
to **46 Ac/L**[d]
in 2019–20

Dairy
Milk prices to fall due to increased production by major competitors.

↑4%
to **$3.3 billion**[e]
in 2019–20

Fisheries and aquaculture
Salmonids and rock lobster are forecast to drive growth in fisheries and aquaculture production value.

a Australian weighted average saleyard price of beef cattle. **b** Australian weighted average saleyard price of lamb. **c** Eastern Market Indicator price, clean equivalent. **d** Australian average farmgate milk price. **e** Value of production.

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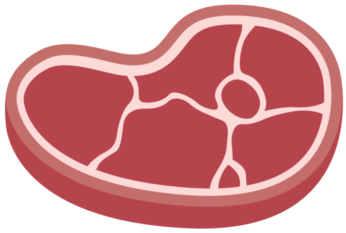
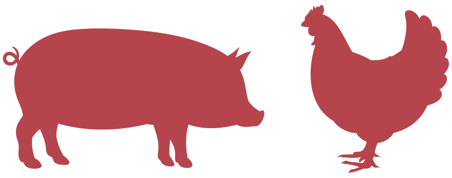
Agricultural commodities

March quarter 2019



Meat consumption

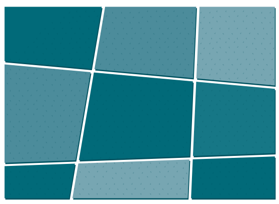
Analysis of global meat consumption trends.



Pig and chicken

Pig and chicken meat production growth to slow in 2018–19 and 2019–20 due to high prices for domestic feed grains.

47%
Output from the largest 10% of broadacre farms



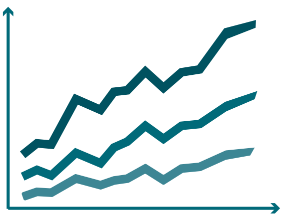
Disaggregating farm performance by size

Farm performance varied significantly for farms of different sizes.

Non-tariff measures

Over the past 25 years, non-tariff measures have become increasingly important to Australia's agricultural trade.

1%
Long-term broadacre productivity growth



Agricultural productivity

Long-term productivity growth in the broadacre industries averaged 1.0% per year, while dairy industry productivity growth was 1.6% per year.

↓18%
to **$173,000 per farm** in 2018–19

Farm performance

Average farm cash incomes fall in 2018–19. Large variations across regions and industries.

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