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Department of Agriculture, Water and the Environment
GPO Box 858 Canberra ACT 2601
Telephone 1800 900 090
Web awe.gov.au

To the memory and legacy of Mr David Mobsby for his unwavering dedication and innovation to ABARES commodity research and analysis.

Agricultural overview

Andrew Cameron, Charley Xia and Rohan Nelson

Record value of production for 2020–21, but exports falling

The gross value of agricultural production is forecast to reach a record $66 billion in 2020–21, boosted by Australia's second-biggest winter crop on record. Significantly larger harvests in every Australian state are forecast to result in a 59% increase in the gross value of grains, oilseeds and pulses compared with the 2019–20 season. The gross value of livestock production is forecast to fall 8% due to falling slaughter, despite record high prices for cattle and sheep.

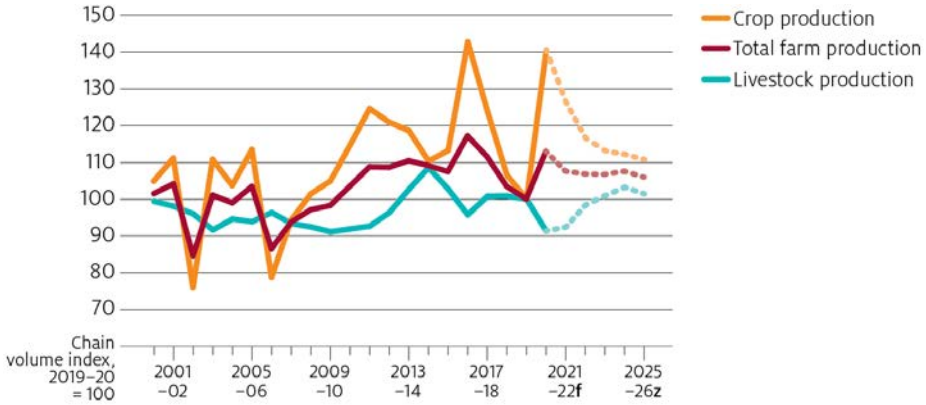
Exports are forecast to fall 4% to $46 billion in 2020–21 – the third consecutive year of falling export earnings. This is mostly due to lower livestock and livestock product exports as herd and flock rebuilding leads to lower slaughter and meat production. The value of crop exports is forecast to increase sharply in line with record production, up 12% to $24 billion.

Value of production down and exports up in 2021–22

In 2021–22 the gross value of agricultural production is forecast to fall from record highs to $63.3 billion. Cropping regions will benefit from residual soil moisture and replenished water storages, but production is unlikely to match that of 2020–21. New South Wales and Victoria are estimated to have harvested their largest ever winter crops in 2020–21 – a feat unlikely to be repeated next season. Rebuilding of cattle and sheep numbers will also reduce slaughter. Prices are forecast to fall for most commodities – apart from natural fibres, which will begin to recover from sharp falls in 2020 in the wake of COVID-19. Australia's agricultural exports are forecast to grow 6% in 2021–22, driven by higher cotton, wool and dairy exports.

Over the medium term to 2025–26 the gross value of production is forecast to remain above $60 billion (in nominal terms). The livestock sector is expected to enter a period of rebuilding at the same time as prices are forecast to ease from record levels. Broadacre and irrigated crop production will remain highly dependent on variable seasonal conditions. Crop production is forecast to sit between recent record highs (2016–17 and 2020–21) and drought-affected lows (2018–19 and 2019–20). Horticulture is forecast to continue steadily growing to reach a record 21% of agriculture's gross value by 2025–26.

Australian agricultural production, chain volume measures, 2000–01 to 2025–26



f ABARES forecast. **z** ABARES projection.
Source: ABARES

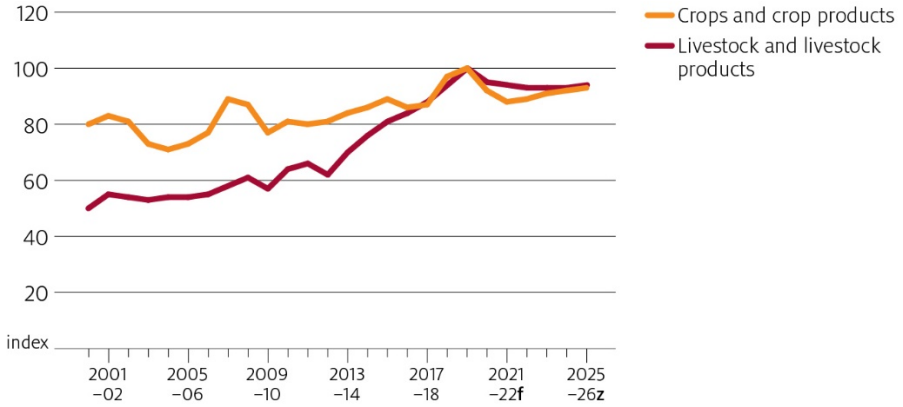
Agriculture adapts well to COVID-19 but faces future growth challenges

The agricultural sector has navigated the COVID-19 pandemic relatively well. Recovery from drought and external demand for red meat have dominated the impacts on sector performance, despite the challenges posed by labour shortages, border closures and lockdowns.

Australia has successfully delivered the second-largest winter crop on record, with few reports of disruptions to harvest. Despite a lack of seasonal harvest workers and working holiday makers, prices for horticultural products have not yet recorded significant price increases. This demonstrates that Australia's agricultural sector and downstream supply chains are resilient and adaptable, and again confirms that Australia is one of the most food secure countries in the world.

Over the medium term, agriculture will continue to face challenges and opportunities. China's expected recovery from African swine fever and restructuring of its pig industry are expected to ease global demand for red meat, lowering prices from their current record levels. Prices for crop and crop products are forecast to fall in 2021–22 before resuming trend growth. Despite recent tariffs on barley and wine, China is still expected to remain Australia's most significant agricultural trading partner. These developments, along with macroeconomic and production uncertainties, will provide the backdrop for a likely more difficult environment in which to grow trade value. Using existing market access and recognising the role of market diversification as a risk management strategy will be important to ensure export growth.

Australian crop and livestock export prices, 2000–01 to 2025–26



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

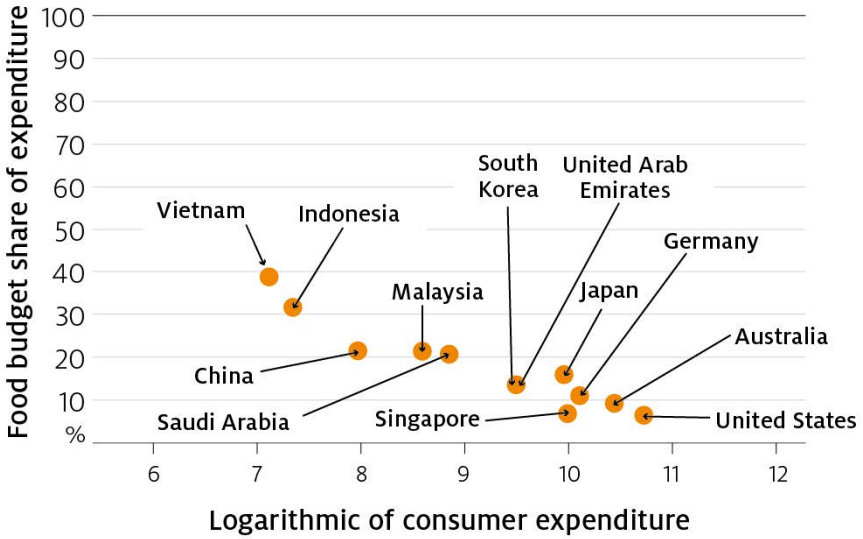
The sector is not expected to increase the total volume of agricultural production over the medium term. The volume of production, while variable year-to-year, has been fairly stable over the decade to 2020–

21. Australia's highly variable climate will continue to dictate the fortunes of the sector year-to-year and longer term. Recognising this key source of uncertainty, ABARES has expanded the use of seasonal climate scenarios to produce medium-term forecasts (see Box).

Demand for Australian agricultural goods less affected by pandemic

Throughout the COVID-19 pandemic, the impacts of containment measures have been cushioned by the low income responsiveness of demand for food staples, and the small share food makes up in the budgets of advanced economy households. The demand prospects for Australia's agricultural exports remain good despite the lingering adverse effects on incomes of COVID-19 containment measures. Early in the pandemic, panic buying caused temporary supply disruptions, which were largely corrected within 1 to 2 months. This was followed by lockdowns and a transfer of consumption from eating out to meals prepared at home. Unprecedented levels of income support in many countries has also dampened the effects of the pandemic on consumer demand.

Food budget share of consumer expenditure and expenditure per person, 2018



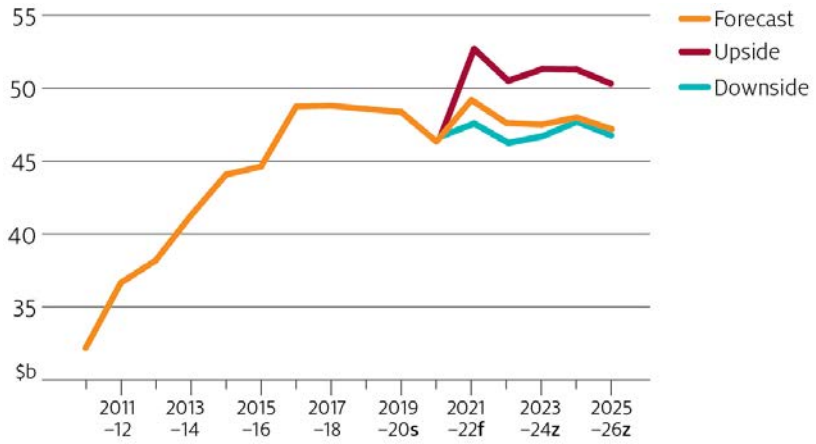
Note: Food budget only includes food expenditure at home. Consumer expenditure comprises personal expenditure on goods and services.
Sources: USDA Economic Research Service based on annual household expenditure data from Euromonitor International

Scenario analysis shows upside potential

Scenario-based forecasts suggest that Australian agriculture has more upside potential than downside over the medium term. Projections for the gross value of production developed under the upside and downside scenarios range from $66 billion to $58 billion in 2025–26 (nominal terms), compared with the $60.3 billion forecast. Realising this upside would require more favourable seasonal conditions combined with faster than expected recovery from COVID-19 globally. This would result in larger crop harvests and higher crop and livestock prices than forecast. Projections for the value of agricultural exports in

2025–26 range from around $50 billion to $46 billion (nominal terms), compared with $47.2 billion forecast. In the downside scenario, a combination of a weaker Australian currency and increased livestock turn-off limits overall reductions in gross value of production and exports.

Value of agricultural exports under different scenarios, 2010–11 to 2025–26



f ABARES forecast. **s** ABARES estimate. **z** ABARES projection.

Supply chains adjust through a turbulent year

Farmers' terms of trade have improved

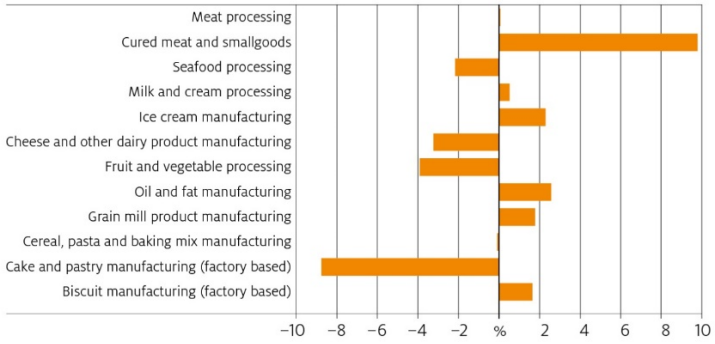
The farmers' terms of trade index (a measure of the prices received by farms for agricultural goods sold relative to prices paid for inputs) has improved during 2020–21. It is forecast to be 3.3 index points higher in 2020–21 than in 2018–19 prior to the pandemic. Lower energy prices resulting from COVID-19 lockdowns drove down costs for chemicals, fertilisers and fuel in 2019–20. Fodder and seed prices are also forecast lower in 2020–21 due to improved seasonal conditions.

At the same time, higher livestock prices resulting from African swine fever's effects in China and restocking demand in Australia increased prices received, improving the terms of trade measure. Broadacre farm cash incomes are projected to increase by 18% to an average of $184,000 a farm in 2020–21.

Food manufacturers affected by drought and lockdowns

Food manufacturers faced more challenging conditions during 2020. Prices for cakes and pastries fell noticeably over 2020 because demand from cafes and restaurants dwindled as a result of lockdowns. Fruit and vegetable processors also saw output prices fall, as better seasons after drought resulted in higher production and lower prices. Input prices for vegetables were flat, but fruit and nut prices for manufacturing rose during the first half of 2020. To date, there have been only small increases in fruit and vegetable prices for manufacturers and consumers, despite the challenges faced by some producers in securing harvest labour.

Annual price change for output of food manufacturing industries, 2020

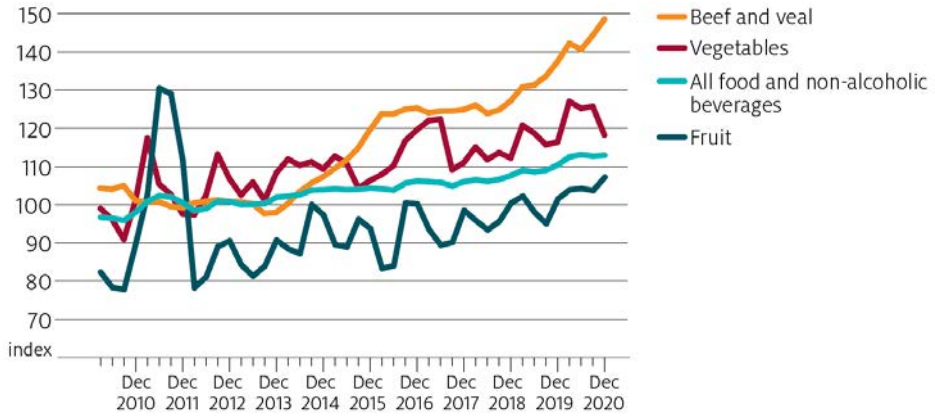


Source: ABS Producer Price Indexes

Domestic consumers saw price rises for red meat, COVID-19 impacts muted

Food prices have risen marginally above trend during the pandemic. Food price rises in 2020 have been largely driven by red meat rather than fruit and vegetables. Red meat prices have risen due to post-drought restocking competition for animals and increased international demand for protein as a result of African swine fever.

Australia consumer prices for food, March 2010 to December 2020

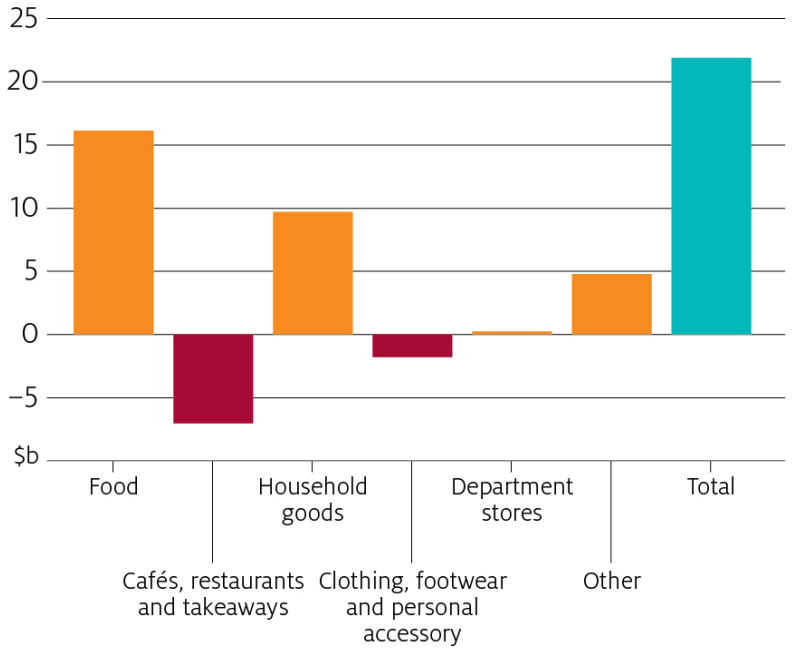


Note: Cyclone Yasi affected fruit and vegetable prices in 2011.
Source: ABS Consumer Price Index

Changes in retail spending favour food during pandemic

Some surprising trends in household consumption have emerged. Expenditure associated with travelling and social gatherings formed a significant proportion of household spending before the pandemic. In some advanced economies (including Australia), this has been redirected to precautionary savings, grocery purchases and household goods. In some countries, overall food spending has increased as consumers spend more on food retailing than they previously did on eating out. With the food services sector in many countries heavily affected by lockdowns, this has shifted the composition of food consumption in restaurants to more easily prepared food consumed at home.

Changes in annual retail turnover in Australia, 2020



Source: ABS

Medium-term forecasts now using expanded scenario approach

In this edition of *Agricultural commodities*, ABARES has expanded the use of scenarios for medium-term agricultural forecasts. The purpose of moving to scenario based forecasts is to better explain the factors driving Australia's agricultural markets. This approach was first introduced in March 2020 (see Seasonal climate scenarios for medium-term agricultural forecasts) and aims to use more realistic medium-term assumptions that take into account Australia's highly variable and changing climate. In light of the unprecedented uncertainty introduced by the ongoing COVID-19 pandemic, this edition combines more advanced climate scenarios with post-COVID-19 scenarios of global macroeconomic recovery.

The forecasts presented in this publication have been derived from 3 types of scenario:

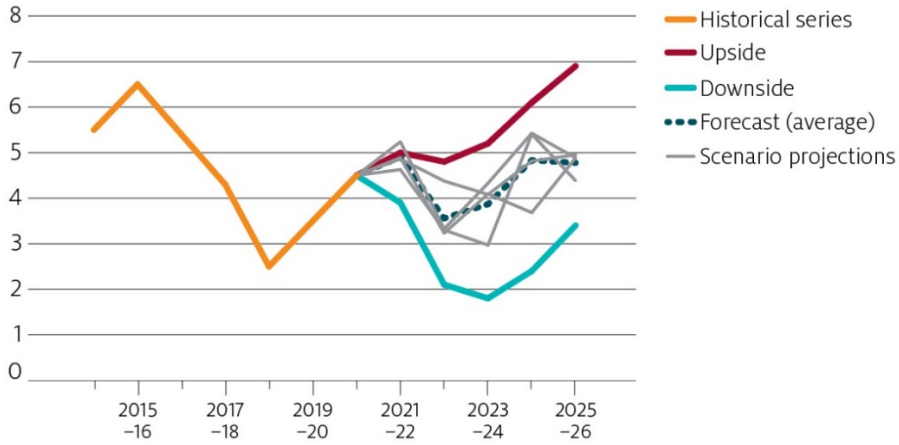
- 'neutral' scenarios use a sequence of climatic and macroeconomic assumptions that form ABARES view on the range of most likely outcomes
- an 'upside' scenario which assumes a more favourable sequence of climatic outcomes combined with a faster macroeconomic recovery
- a 'downside' scenario which assumes a less favourable sequence of climatic outcomes combined with a slower than expected macroeconomic recovery.

Most of the market analysis in this publication concerns the average of the neutral scenarios, unless explicitly noted. These are termed the forecast. The full range of projections are based on the macroeconomic assumptions outlined in the Economic overview, combined with 4 seasonal climate scenarios outlined in Seasonal conditions. These forecasts are presented in the tables in each chapter and are available for download in the associated data products. This approach is similar to the ensemble technique used by forecasters like the Bureau of Meteorology when forecasting climate drivers such as the El Niño Southern Oscillation (ENSO) – albeit highly simplified. An illustrative example is shown in Figure 1.

Except where explicitly noted, production in other countries, consumer demand and prices are assumed not to be meaningfully affected by the various neutral scenarios used. The upside and downside scenarios are assumed to have some effects on these variables. Scenario analysis was not extended to the input components of the farmers' terms of trade estimates.

Both the upside and downside scenarios are designed to combine sequences of events that are considered less likely to occur than the neutral scenarios, but which are plausible enough to warrant exploring their likely effects on markets.

Figure 1 Illustrative example of medium-term scenario-based forecasts



Source: ABARES

The 4 climate sequences that form the neutral scenarios each assume the same seasonal conditions for the first year of the projection period (2021–22), based on an analysis of the climate conditions most likely to follow a La Niña event (Table 1). No reliable seasonal climate forecasts are available for the 4 years between 2022–23 and 2025–26, requiring assumptions to be made about the conditions most likely to be experienced. A drying trend means a high probability of decile 3 to 4 rainfall in the wheat-sheep zone in most years. Analysis of the climatic record indicates that the wheat-sheep zone is likely to experience at least one very dry year (decile 1 to 2 rainfall) over the 4 years of the projection period and is much less likely to experience the recurrence of a wet year like 2020–21 (see Seasonal conditions).

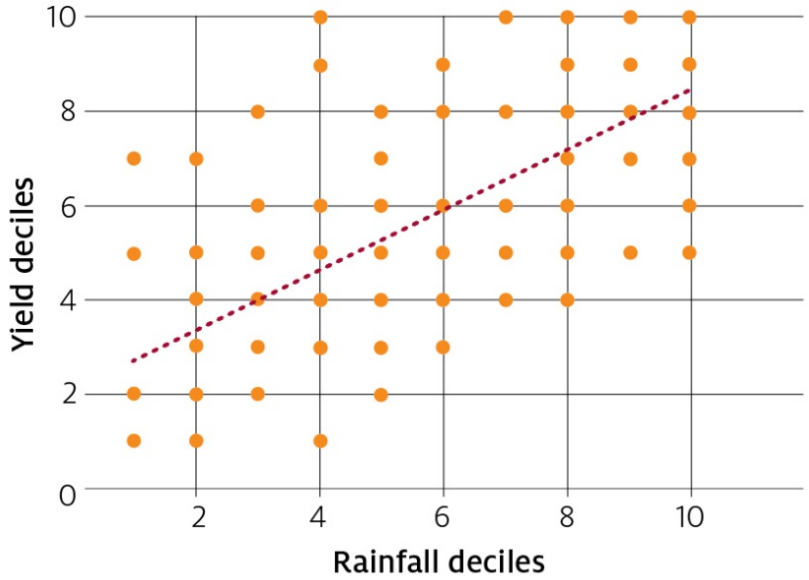
Table 1 Rainfall decile range assumptions used in medium-term forecasts

	Neutral climate scenarios					
Year	Scenario A	Scenario B	Scenario C	Scenario D	Upside scenario	Downside scenario
2021–22	5 to 6	5 to 6	5 to 6	5 to 6	7 to 8	1 to 2
2022–23	1 to 2	3 to 4	3 to 4	3 to 4	1 to 2	3 to 4
2023–24	3 to 4	1 to 2	3 to 4	3 to 4	3 to 4	3 to 4
2024–25	3 to 4	3 to 4	1 to 2	3 to 4	3 to 4	3 to 4
2025–26	3 to 4	3 to 4	3 to 4	1 to 2	3 to 4	1 to 2

Note: Wheat-sheep zone rainfall deciles. Rainfall deciles based on rainfall records from 1910 to 2018.

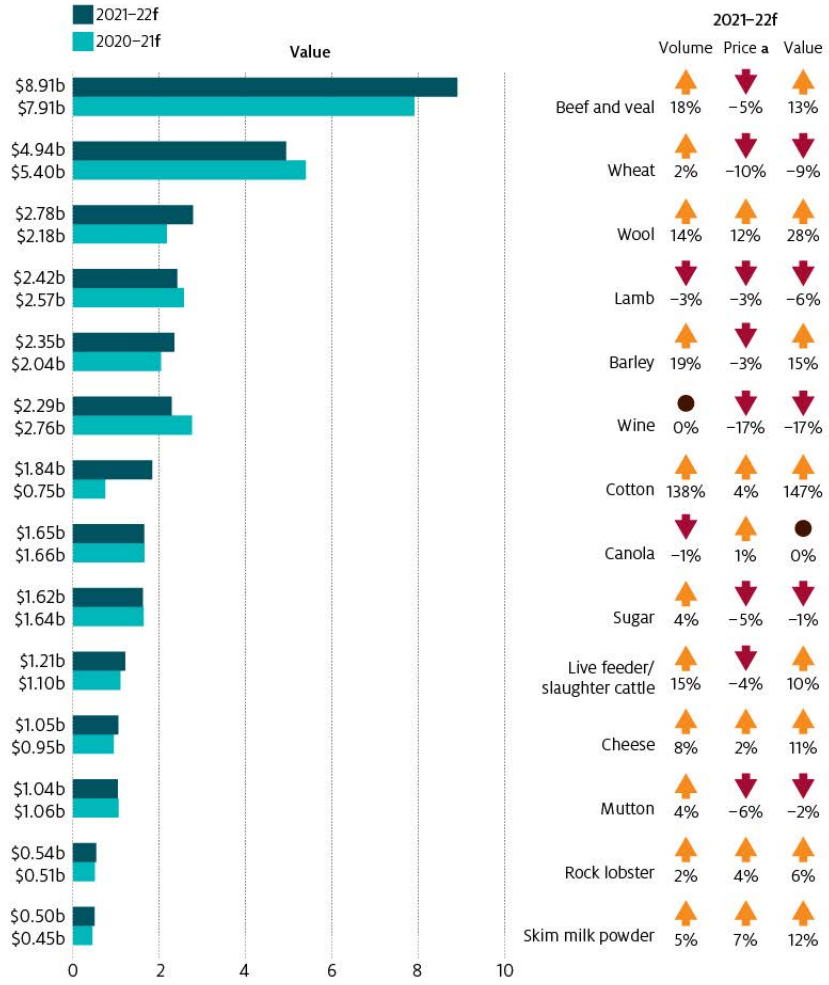
Production outcomes are then forecast using these climate scenarios. Production outcomes are not necessarily tightly linked to rainfall inputs, as shown in Figure 2. Each forecast also considers additional factors such as the persistence of soil moisture from season-to-season, crop rotations, pasture management, responses to price incentives and technology trends. Export forecasts additionally consider the influence of domestic use and inventories, as well as the macroeconomic environment.

Figure 2 Rainfall deciles vs winter crop yield deciles, east-coast, 1980–81 to 2018–19



Notes: Chart displays growing season rainfall deciles for the wheat-sheep zones of Queensland, New South Wales and Victoria compared to the winter crop yield deciles for crops harvested between 1980–81 to 2018–19. Each point displays the combination for each state for each year. Rainfall deciles based on rainfall records from 1910 to 2018. Yield deciles based on the period 1980–81 to 2018–19. Winter crops include wheat, barley, canola, chickpeas, faba beans, field peas, lentils, linseed, lupins, oats, safflower and triticale. Growing season periods used are March to September for Queensland, April to October for New South Wales and May to November for Victoria.
Source: ABARES

Major Australian agricultural commodity exports



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

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

Category	unit	2018–19	2019–20 s	2020–21 f	2021–22 f	2022–23 z	2023–24 z	2024–25 z	2025–26 z
Exchange rate	US$/A$	0.72	0.67	0.75	0.75	0.74	0.74	0.74	0.74
Australian export unit returns a									
Agriculture	index	95.4	100	93.7	91.0	91.1	91.9	92.3	93.1
real **b**	index	98.2	102	93.7	89.6	88.3	87.5	86.1	85.0
Value of exports									
Agriculture	A$m	48,584	48,369	46,346	49,195	47,612	47,509	47,993	47,201
real **b**	A$m	50,038	49,160	46,346	48,468	46,187	45,221	44,786	43,078
Crops	A$m	22,770	21,437	24,115	25,335	23,180	22,118	22,051	21,838
real **b**	A$m	23,451	21,788	24,115	24,960	22,486	21,053	20,577	19,930
Livestock	A$m	25,814	26,931	22,231	23,860	24,432	25,391	25,942	25,363
real **b**	A$m	26,587	27,372	22,231	23,508	23,700	24,168	24,209	23,148
Fisheries products	A$m	1,530	1,411	1,344	1,351	1,367	1,412	1,448	1,484
real **b**	A$m	1,575	1,434	1,344	1,331	1,326	1,344	1,351	1,355
Gross value of production c									
Farm	A$m	60,945	61,088	65,881	63,259	60,575	60,886	61,170	60,340
real **b**	A$m	62,769	62,087	65,881	62,324	58,761	57,955	57,083	55,070
Crops	A$m	30,018	27,582	34,990	31,628	29,196	28,881	28,815	28,612
real **b**	A$m	30,917	28,033	34,990	31,161	28,322	27,490	26,889	26,113
Livestock	A$m	30,927	33,506	30,891	31,631	31,379	32,005	32,355	31,728
real **b**	A$m	31,852	34,054	30,891	31,163	30,439	30,464	30,193	28,957
Fisheries products	A$m	3,219	3,062	2,936	3,057	3,243	3,334	3,427	3,521
real **b**	A$m	3,316	3,112	2,936	3,012	3,146	3,173	3,198	3,214
Forestry products	A$m	2,753	2,420	2,353	1,771	2,037	2,358	2,617	2,836
real **b**	A$m	2,836	2,460	2,353	1,744	1,976	2,245	2,442	2,588
Volume of production d									
Farm	index	103.4	100.0	112.9	107.6	106.8	106.6	107.5	105.9
Crops	index	106.4	100.0	140.5	126.4	116.6	113.2	112.2	110.8
Livestock	index	100.8	100.0	91.3	92.4	98.4	100.9	103.2	101.4
Forestry	index	154.1	130.5	127.4	98.4	111.9	128.5	141.5	152.4
Production area and livestock numbers									
Crop area									
grains, oilseeds and pulses	’000 ha	20,865	18,732	23,701	23,172	22,345	22,040	22,024	21,822
Sheep	million	65.8	62.7	65.3	67.5	69.5	70.8	71.7	72.0
Cattle	million	24.7	23.4	24.0	24.3	24.4	24.4	24.4	24.6
Farm sector									
Net cash income e	A$m	18,280	20,656	23,795	21,153	17,877	17,274	16,751	15,562
real **b**	A$m	18,828	20,994	23,795	20,840	17,342	16,442	15,632	14,203
Net value of farm production g	A$m	7,997	10,167	13,097	10,240	6,747	5,920	5,171	3,750
real **b**	A$m	8,237	10,333	13,097	10,089	6,545	5,635	4,825	3,422
Farmers’ terms of trade h	index	94.2	100.0	97.5	96.9	92.7	92.2	91.0	90.2

a Base: 2019–20 = 100. **b** In 2020–21 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 1994–95 = 100. **s** ABARES estimate. **z** ABARES projection.
Sources: ABARES; ABS; RBA

Economic overview

Matthew Howden, Robert Curtotti and Harrison Coe

Executive summary

This overview explores the implications of the recovery phase of the COVID-19 pandemic on demand for Australia's agricultural products. Significant uncertainty surrounds the outlook for the global economy, with potential for upside and downside outcomes. Because of this uncertainty, ABARES has prepared 2 alternative macroeconomic scenarios in addition to the macroeconomic assumptions that underpin the commodity forecasts. The scenarios are based on those presented in the International Monetary Fund's January 2021 World Economic Outlook Update. Each scenario has different implications for demand for Australia's agricultural exports.

Following a turbulent 2020, the global economy has entered 2021 with indications of a return to growth. However, the strength of the recovery remains uncertain and uneven. Economies that fared better in containing COVID-19 are assumed to recover more quickly than those still experiencing widespread community transmission.

Consumption of agricultural products has remained strong during the pandemic, but consumption patterns have changed for some categories of food and apparel. This will affect future demand of agricultural products. Food and fibre demand is assumed to grow fastest in emerging and developing economies.

The upside and downside scenarios present alternative pathways for the global economic recovery. The upside scenario assumes a faster economic recovery, resulting in stronger demand for commodities and generally higher prices for agricultural commodities. The downside scenario assumes extended delays in containing COVID-19, which weakens demand for Australia's agricultural exports and results in lower prices for higher-quality exports.

In Australia, economic growth is assumed to be relatively subdued due to the effects of COVID-19 related shutdowns during mid-2020. In 2021–22 growth is assumed to rebound strongly to 4% as the drag from the pandemic is offset by a resurgence in business and consumer confidence and government expenditure. The Australian dollar is assumed to average US75 cents in 2020–21 and 2021–22.

Global economy to exit recession in 2021

The outbreak of COVID-19 in 2020 triggered the largest global recession in over 100 years, with global economic growth contracting by 3.7% in 2020. Global economic growth is assumed to be 5.3% in 2021 and 4.1% in 2022.

The economic recovery will be uneven across economies. Economies that fared better in containing COVID-19 are assumed to recover more quickly, because containment measures can be lifted earlier (in some cases these measures have already been removed). At February 2021 mass vaccination programs were already underway in many economies and it is likely they will continue for much of 2021.

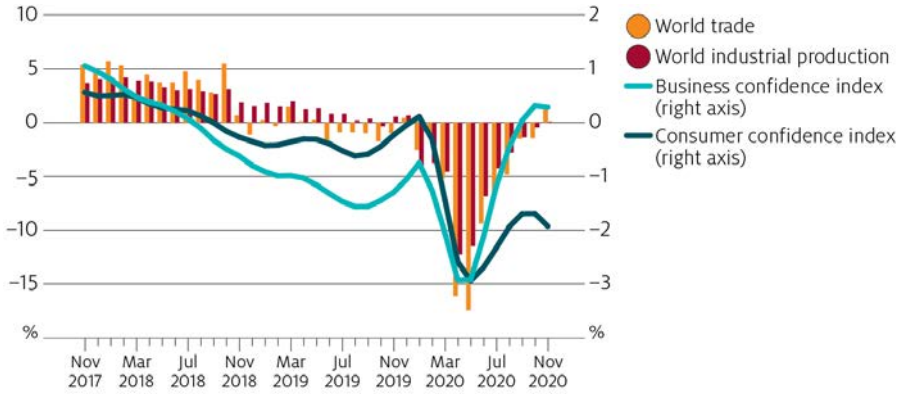
Between 2023 and 2026 global growth is assumed to moderate to average 3.4%.

Global economic activity slowed in 2020 because of COVID-19

Despite stronger than expected growth in the second half of 2020, the global economy contracted by 3.5% in annual terms. As a result, significant output gaps – the difference between an economy's actual and estimated potential GDP – have emerged. These will weigh on growth over the outlook period.

In 2020, COVID-19 caused significant disruptions to economic activity as lockdowns, social distancing and other health measures were introduced in an attempt to contain the pandemic. Continued lockdowns have weakened business and consumer confidence, and altered consumption patterns. These disruptions slowed global merchandise trade and industrial production growth during the middle of the year.

Selected leading indicators, growth rates, November 2017 to November 2020



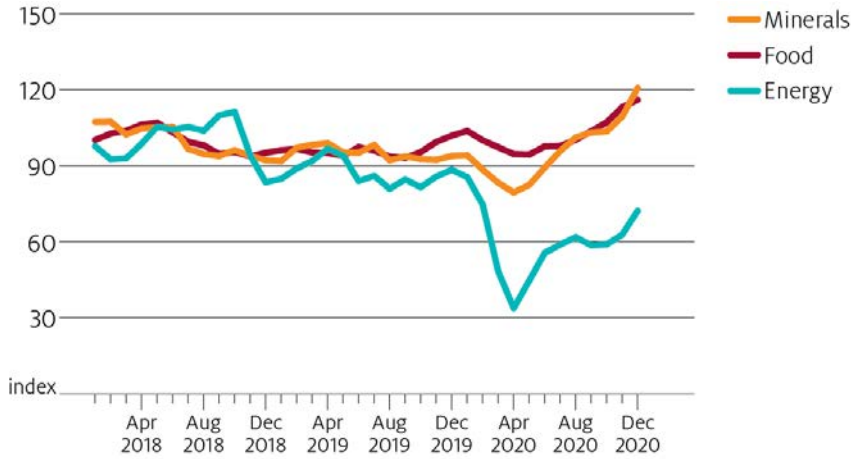
Note: Growth rates compared with same period in previous year.
Sources: Netherlands Bureau for Economic Policy Analysis; OECD

Governments and central banks deployed unprecedented levels of fiscal and monetary support during 2020. Despite this, consumption and investment have remained subdued because of rolling lockdowns and prevailing uncertainty about the pandemic. During the second half of 2020, confidence improved as faster progress was made in the development and approval of vaccines. However, rising infection rates and subsequent lockdowns in some European and North American countries weakened confidence in late 2020 and early 2021.

Commodity prices generally fell during mid-2020 as economies went into lockdown. Energy prices fell sharply because international travel restrictions reduced demand for fuel. Mineral prices also fell, as lockdowns interrupted construction projects. Food prices were relatively unchanged during the first half of 2020 because food consumption patterns remained broadly stable.

Commodity prices recovered towards the end of the year, driven by a combination of factors. Mineral prices increased due to increased demand from economies commencing large-scale infrastructure projects designed to stimulate economic recoveries. Energy prices rose, reflecting lower production among OPEC countries and increased demand as travel restrictions were relaxed. Food prices also increased, due to unfavourable seasonal conditions in the United States (which limited exportable supplies) and disruptions to international travel that increased global transportation costs for air freighted food exports.

International commodity prices, January 2018 to December 2020



Note: Index base 2018 = 100.
Source: World Bank International Commodity Price index

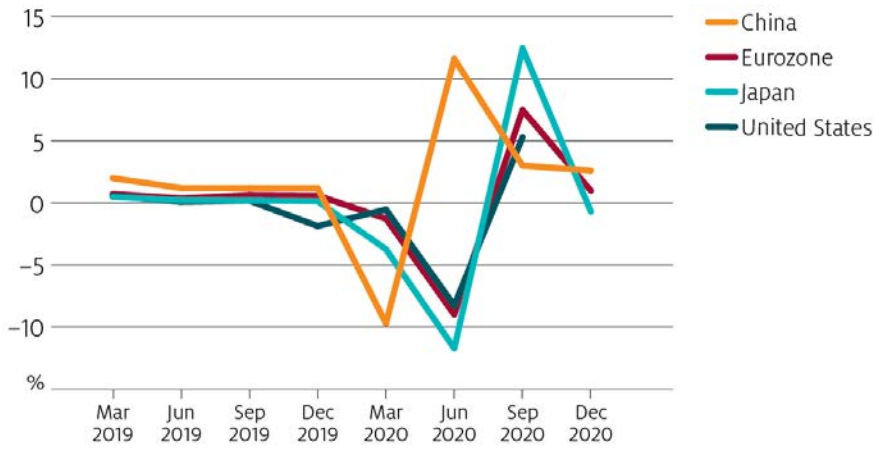
Consumption of agricultural products has remained strong during the pandemic, but consumption patterns have changed for some categories of food and apparel. Because of prolonged lockdowns, consumption of food at home has increased relative to consumption outside of home. This has led to greater demand for base food products and less demand for luxury food items. Activity in the food services sector – a large market for luxury food products through restaurants, travel and accommodation catering – remains severely reduced in early 2021. The trend towards working from home has also resulted in lower demand for high-end apparel, which has affected international fibre markets. The extent to which these trends will persist over the medium term remains unclear.

Short-term recovery will be uneven

In 2021 economic activity is assumed to rebound strongly across all regions. Growth in advanced economies is assumed to be 4.4% in 2021 and 3.0% in 2022. In emerging and developing economies, growth is assumed to be 5.9% in 2021 and 4.8% in 2022.

In 2021 the assumed economic recovery will be contingent on progress in containing community transmission of COVID-19. A resurgence of infections in the eurozone and United States during late 2020 resulted in economic growth slowing during the December quarter. In economies where infection rates have remained low, such as Australia, China and New Zealand, economic activity has recovered sooner, following the safe removal of social distancing measures.

Economic growth, selected economies, March 2019 to December 2020



Note: Japanese December quarter 2020 data unavailable at time of publication.
Source: OECD

Outbreaks that began in late 2020 will continue to hinder growth in affected economies in early 2021. Growth is assumed to rebound during the second half of 2021, as infection rates fall and mass-vaccination programs progress. Economies that have had to endure prolonged lockdowns are assumed to recover more slowly, due to factors such as higher unemployment and bankruptcies. Economies that have been able to re-open sooner will not feel these effects as strongly.

In 2022 it is assumed that falling community infection rates will mean more economies will be able to safely re-open. This will provide a boost to both business and consumer confidence, leading to increased economic growth. International travel is assumed to be gradually reintroduced, as economies remove border restrictions. This will lead to increased trade and allow a recovery in international tourism, which will provide a boost to growth in tourism-dependant economies – including Australia.

In economies with high infection rates, controlling COVID-19 is assumed to take several years. Mass-vaccination programs will help reduce community transmission, but other health measures are assumed to be required. Implementing these measures will likely take longer in emerging and developing economies because of less-resourced health systems and limited access to vaccines. In some regions, adequate coverage of vaccination programs is unlikely to be achieved until at least late 2022. This will weigh on economic growth in these economies, as the effects of the virus will continue to disrupt economic activity until containment measures can be safely lifted.

Medium-term recovery also uncertain and uneven

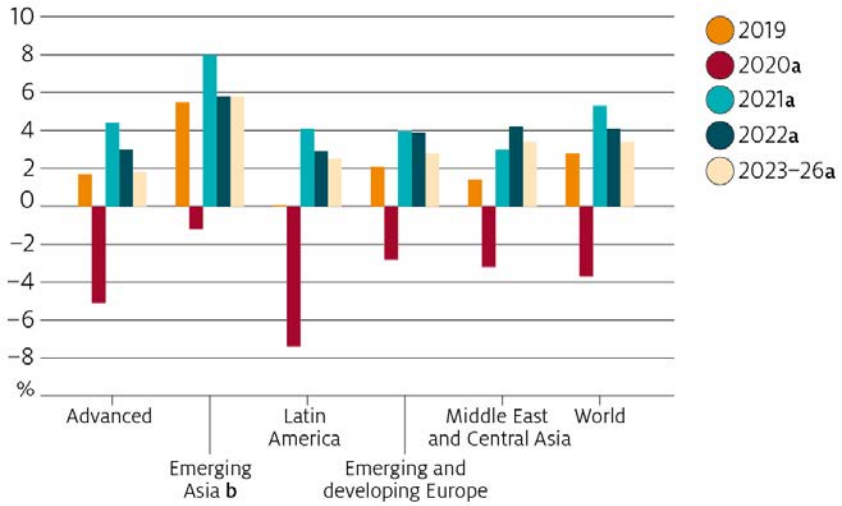
Significant uncertainty surrounds the medium-term outlook for the global economy. Global economic growth is assumed to average 3.4% between 2023 and 2026. This is in line with the medium-term assumptions presented in the International Monetary Fund's October 2020 World Economic Outlook. Upside and downside scenarios around this set of assumptions are described in the Alternative macroeconomic scenario box.

Recovery over the medium term is expected to be uneven between regions, with emerging economies projected to grow faster than advanced economies. Emerging Asia is assumed to grow faster than regions such as Latin America and emerging and developing Europe. Through the outlook period, economic activity is assumed to remain below pre-COVID-19 levels across all geographical regions and significantly below pre-COVID-19 levels in advanced economies.

Growth in advanced economies is assumed to slow gradually over the medium term to average 1.8% by 2026. This compares to the average growth of 2.1% achieved by these economies in the 5 years preceding the pandemic. Over the short term, economic activity in these economies is assumed to be lower than before COVID-19 due to failed businesses, higher unemployment and other structural factors. Medium-term growth prospects are also assumed to be constrained by demographic factors, such as ageing populations and slowing population growth.

In emerging and developing economies, growth is assumed to average 4.5% between 2023 and 2026. These economies will face challenges related to structural changes stemming from the pandemic. They will also be more exposed to other factors, including weaker commodity prices (especially relevant for oil producing economies that derive revenue from exports) and softer external demand (for those economies engaged in global manufacturing supply chains). China is the largest economy in this group and its ongoing economic transition away from manufacturing and export-driven growth to consumption-based growth is the main driver of this slowdown over the medium term.

Economic growth prospects, selected regions, 2019 to 2026



a ABARES assumptions. **b** includes China.
Sources: ABARES; International Monetary Fund; The Treasury

Alternative macroeconomic scenarios

Because of uncertainty regarding the economic recovery, ABARES has prepared 2 alternative macroeconomic scenarios based on those presented in the IMF's January 2021 World Economic Outlook Update. The pace of economic recovery from the COVID-19 pandemic is central to these scenarios and depends on the effective containment and treatment of the virus. Climate factors also play an important role in determining prices for agricultural commodities. Alternative climate scenarios are presented in Seasonal conditions.

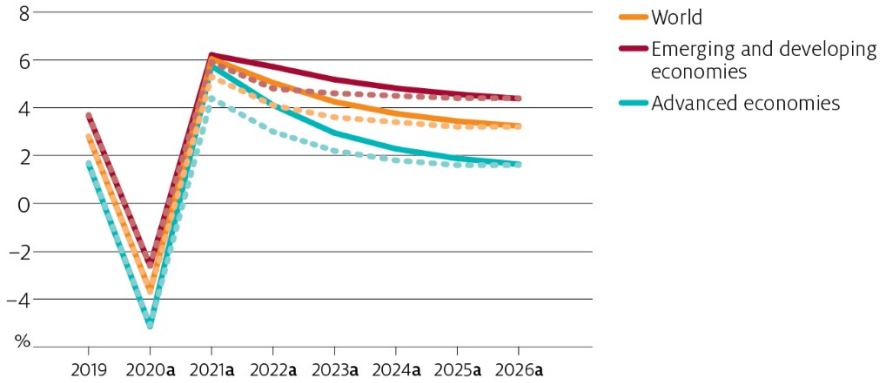
The strength and timing of the economic recovery has implications for Australia's agricultural sector. In the upside scenario, a faster global economic recovery is assumed to support demand for both agricultural and non-agricultural commodities (including metallurgical coal and iron ore), leading to higher commodity prices. A slower recovery is assumed for the downside scenario, leading to weaker demand for commodities and lower prices.

These alternative scenarios will influence Australia's agricultural sector through their impact on demand and the competitiveness of Australian products in international markets. A stronger recovery will lead to faster income growth and an assumed increase in demand for Australia's agricultural products, whereas a slower recovery will result in subdued demand.

Upside scenario

The upside scenario assumes a faster and stronger economic recovery, driven by accelerated progress in vaccination programs as well as effective contact-tracing and isolation programs. These developments will boost business and consumer confidence and contribute to recoveries in consumption and investment. Improved business confidence and strong private demand will encourage firms to invest in both capital and labour, which will in turn lead to higher employment. Globally, stronger demand will stimulate a faster recovery in trade and the removal of travel restrictions will benefit tourism sectors.

Upside scenario, growth rates of major economic regions, 2019 to 2026



a ABARES assumption.
Note: Dotted line indicates growth rate assumptions for commodity forecasts
Sources: ABARES; International Monetary Fund

In 2021 faster economic growth is assumed in advanced economies and in emerging and developing economies. Advanced economies are assumed to grow the most during 2021. This largely reflects earlier access to vaccines and more comprehensive health infrastructure, allowing COVID-19 related measures to be removed sooner. An assumed delay in deploying vaccines to emerging and developing economies means that growth peaks in 2022. Over the medium term, growth is assumed to moderate for all economies.

Rising global incomes are assumed to drive stronger demand for Australian agricultural commodities in the upside scenario, but the strength of this demand would be partially offset by an appreciation of the Australian dollar in the short term. This appreciation would reduce the competitiveness of some price-sensitive agricultural commodities in international markets. The Australian dollar is assumed to depreciate towards the end of 2022 and into 2023. This is partly because the demand for bulk commodities is assumed to weaken over the medium term, as major projects near completion. Global supply of these commodities is expected to increase over the same period.

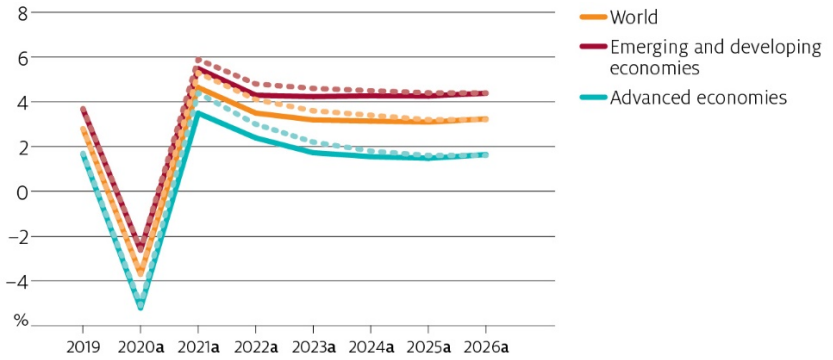
Downside scenario

The downside scenario assumes that the pandemic takes longer to contain than in the baseline assumptions. In the downside scenario, efforts to contain the pandemic – including vaccines – are not as effective as hoped or take longer than expected to become effective. This leads to continued outbreaks and prolonged lockdowns, which further weigh on business and consumer confidence. The likely delayed delivery of vaccines will mean that health sectors are strained for longer, elevating the risk of worse health outcomes and further constraining the economic recovery. Drawn-out lockdowns are assumed to contribute to increased bankruptcies, elevating the reliance on fiscal support packages to care for the unemployed.

Despite the slower recovery, fiscal support packages in advanced economies are assumed to be reduced at a relatively early stage because of concerns over mounting public debt. The withdrawal of this support – especially employment subsidies – is assumed to lead to a fall in incomes and consumption, both directly and indirectly via rising unemployment.

The combination of potential unequal access to vaccines (driven by supply shortages) and inequality of income (in part driven by the withdrawal of fiscal support) is assumed to lead to some social unrest in some countries. This further impedes the global recovery.

Downside scenario, growth rates of major economic regions, 2019 to 2026



a ABARES assumption.
Note: Dotted line indicates growth rate assumptions for commodity forecasts Sources: ABARES; International Monetary Fund; The Treasury

The drag on economic growth in the downside scenario is assumed to be strongest in 2021. As the pandemic is brought under control during 2022 and 2023, the drag on growth is assumed to weaken. However, growth in this scenario is assumed to remain lower over the entire outlook period.

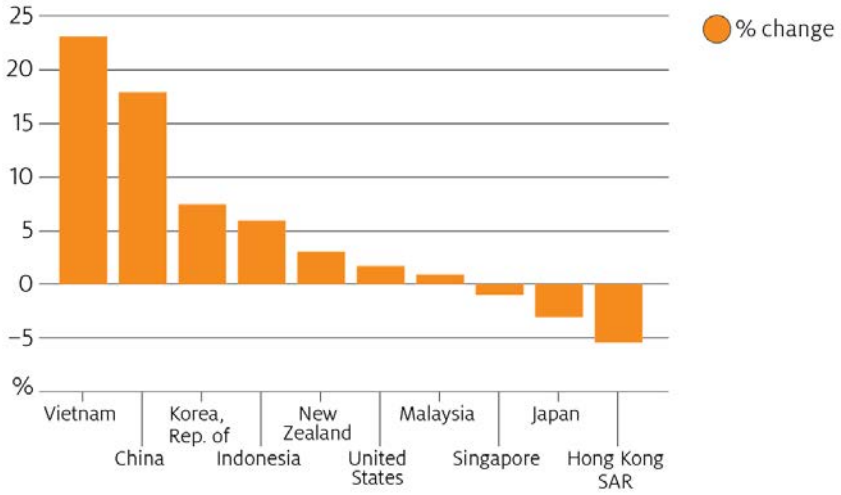
The outlook for the Australian dollar under the downside scenario assumes a depreciation during 2021–22 and 2022–23, reflecting lower bulk commodity demand and higher levels of uncertainty. From 2023–24 to 2025–26 the dollar is assumed to appreciate modestly, in line with reduced global uncertainty and improved economic conditions.

Income still driving demand for agriculture

Income growth, measured by gross domestic product per person, is a useful indicator of demand for agricultural products.

In 2020 global incomes contracted by 5.5%. This contraction was most severe in emerging and developing economies, where incomes contracted by 6.4%. In advanced economies, incomes fell by 6.1%. Despite these declines, incomes in most of Australia's major trading partners remained above the 10-year average to 2020 (in real purchasing power parity terms). This helped maintain demand for Australia's agricultural exports over the year.

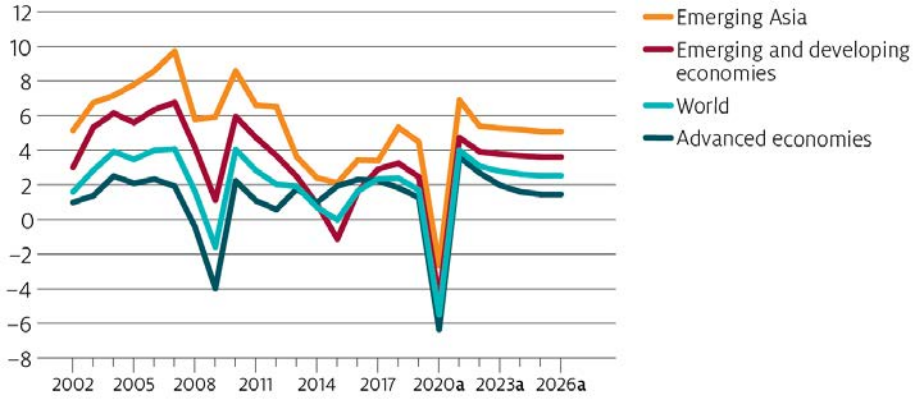
Change in average income per capita, Australia's major agricultural trading partners, 10-year average to 2020 and 2020



Notes: Major agricultural trading partners based on value of agricultural trade during 2019–20.
Sources: ABARES; Australian Bureau of Statistics; International Monetary Fund; United Nations Population Division

In 2021 income growth is assumed to rebound strongly in all regions. Growth is assumed to be especially strong in emerging Asia (which includes some of Australia's major agricultural trading partners), where incomes are assumed to grow at 6.9% in 2021. Over the medium term, income growth in all regions is assumed to decelerate back to trend growth rates.

Income growth rates, selected regions, 2002 to 2026



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

In the upside scenario, an assumed faster recovery would strengthen demand for agricultural commodities and may lead to increased prices for higher-value agricultural exports, such as premium meats, fresh fruit, vegetables and high-value wines. In the downside scenario, an assumed slower recovery would subdue income growth over the outlook period and likely weaken demand for Australia's agricultural exports, resulting in lower prices for higher-quality exports.

Favourable prospects for Australia's economic recovery

In 2020–21 Australian economic activity is assumed to be relatively unchanged as the effects of COVID-19 related shutdowns drag on growth. In 2021–22 growth is assumed to rebound strongly to 4% due to the drag from the pandemic being offset by a resurgence in business and consumer confidence and government expenditure.

The Australian economy has performed better than expected since the onset of the pandemic and much better than some other advanced economies. In its February 2021 Statement on Monetary Policy the Reserve Bank of Australia indicated that the Australian economy had begun to recover in the second half of 2020, much earlier than expected. Despite the weaker than expected economic shock caused by the pandemic, the economy is expected to remain below potential growth over the short term, due to the persistence of higher unemployment than seen before COVID-19. This assumes that any further lockdowns required over the short term will be at a local level and that COVID-19 infections remain very low.

Domestic demand for Australia's agricultural products is expected to remain relatively strong in 2020–21 and over the remaining outlook period. The prevailing low incidence of COVID-19 infections in Australia has allowed businesses to reopen earlier than in other economies. This has supported a recovery in the food services sector. In 2021–22 increased movement of people will drive a recovery in the domestic travel, accommodation and food services sectors, which will support demand for higher-value agricultural products.

Around 30% of Australian agricultural production is consumed domestically and the agricultural sector is working to increase exposure to the domestic economy. A number of initiatives are already underway, including the Great Australian Seafood campaign and the buy Australian beef and lamb, and fruit, vegetable and nut campaigns. Although in their early stages, these campaigns suggest a willingness and agility of the industry to explore new options for increasing consumption.

The main risk to the short-term outlook for the Australian economy is a resurgence of COVID-19, which would necessitate prolonged and widespread lockdowns. This outcome would be in line with the ABARES downside scenario, in which vaccines are less effective in reducing infections either because of new viral strains or a slow vaccine rollout. Extended lockdowns from community outbreaks would dampen the recovery of the services sector. Under this scenario the agricultural sector would be relatively well placed, since it was less affected during 2020 than other areas of the economy.

In the upside scenario, the national vaccine rollout is assumed to effectively and quickly control COVID-19 in the community. Activity in the Australian services sector decreased significantly in 2020 because of measures to combat the spread of COVID-19. As they are rolled back, the services sector is assumed to recover more strongly over the medium term, especially in the domestic and international travel industries. Agricultural performance is also assumed to improve, when the removal of international travel restrictions allows for the resumption of temporary migration programs, including the Pacific labour mobility, seasonal worker and working holiday maker programs. Workers under these programs have historically made up a significant proportion of the casual and contract workforce on Australian farms.

Australian economic growth to stabilise over medium term

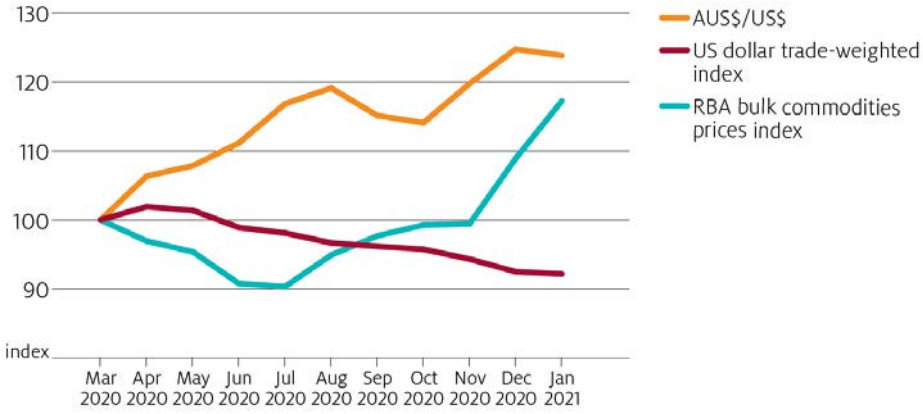
From 2022–23 to 2025–26 economic growth is assumed to average about 3%. Economic growth in Australia is assumed to recover because of private consumption growth, increased public and private investment and the continuation of accommodative monetary and fiscal policy. Sustained export demand is also assumed to contribute positively to growth over the outlook period.

The potential influence of the factors underlying the upside and downside scenarios wane over the medium term since most risks identified in the scenarios are assumed to manifest in the short term. In the upside scenario, bulk commodity prices are assumed to gradually decline over the medium term, reflecting falling demand and increased supply. The removal of travel restrictions, following the elimination of the virus within the region, should allow for a resumption in migration, which will support population growth and strengthen domestic economic growth. On the downside, prolonged COVID-19 outbreaks would mean partial travel restrictions remain in place until late in the outlook period. This would weigh on population growth and result in weaker economic growth over the medium term.

Australian dollar to rise in short term before easing over medium term

The Australian dollar is assumed to average US75 cents for 2020–21, a 12% appreciation compared with 2019–20. Rising iron ore prices and a broad-based depreciation of the US dollar are contributing to this appreciation. These factors are assumed to provide support for the dollar in the short term, resulting in the exchange rate remaining at US75 cents in 2021–22.

US trade-weighted index, bulk commodity prices and Australian dollar, March 2020 to January 2021



Note: Indexes rebased to March 2020.
Sources: ABARES; Reserve Bank of Australia; St Louis Federal Reserve

The exchange rate of the Australian dollar has a large influence on the export returns of agricultural products and on the cost of Australia's agricultural exports to consumers in foreign markets. The negative effect of the higher dollar on farm profitability in 2020–21 has been moderated by a combination of factors. These factors include favourable seasonal conditions, which have boosted production and hence revenue, and lower input costs, particularly for imported inputs such as fuel and fertiliser. The decline in international crude oil prices during 2020–21 is assumed to help bolster farm profitability in 2020–21 and 2021–22.

For the remainder of the outlook period, a slight depreciation of the exchange rate is assumed to occur, averaging US74 cents for 2022–23 to 2025–26. The stable exchange rate over this period is assumed to

result from a reduction in global uncertainty as COVID-19 is brought under control and prices for bulk commodities decline.

The upside and downside scenarios have implications for the exchange rate. In the upside scenario, the Australian dollar is assumed to appreciate more strongly as a result of sustained high prices for bulk commodities and a broad-based depreciation of the US dollar, because of optimistic investors turning towards investment in emerging economies. In the downside scenario, increasing global uncertainty drives investors to safe haven assets like the US dollar and subdued demand causes commodity prices to fall. This leads to a depreciation of the Australian dollar, which would make Australian exports more competitive in some markets.

Key world macroeconomic assumptions

Category	unit	2019	2020 a	2021 a	2022 a	2023 a	2024 a	2025 a	2026 a
Economic growth									
World b	%	2.8	-3.7	5.3	4.1	3.6	3.4	3.2	3.2
Advanced economies	%	1.7	-5.1	4.4	3.0	2.2	1.8	1.6	1.6
United States	%	2.2	-3.4	5.1	2.5	2.3	1.9	1.8	1.8
Japan	%	0.7	-5.1	3.1	2.4	1.2	1.0	0.6	0.6
Eurozone	%	1.3	-7.2	4.2	3.6	2.2	1.7	1.4	1.4
Germany	%	0.6	-5.4	3.5	3.1	1.8	1.3	1.2	1.2
France	%	1.5	-9.0	5.5	4.1	2.3	1.9	1.7	1.7
Italy	%	0.3	-9.2	3.0	3.6	1.7	0.9	0.9	0.9
United Kingdom	%	1.5	-10.0	4.5	5.0	1.9	1.7	1.6	1.6
Korea, Rep. of	%	2.0	-1.1	3.1	2.9	2.9	2.6	2.4	2.4
New Zealand	%	2.2	-6.1	4.4	2.6	2.6	2.5	2.5	2.5
Singapore	%	0.7	-6.0	5.0	2.6	2.6	2.5	2.5	2.5
Taiwan	%	2.7	0.0	3.2	2.1	2.1	2.1	2.1	2.1
Emerging and developing economies	%	3.7	-2.6	5.9	4.8	4.6	4.5	4.4	4.4
Emerging Asia	%	5.5	-1.2	8.0	5.8	6.0	5.9	5.7	5.7
South-East Asia **c**	%	4.9	-3.8	5.2	6.0	5.5	5.4	5.2	5.2
China **d**	%	6.1	2.3	8.1	5.6	5.7	5.6	5.5	5.5
India	%	4.7	-8.0	11.5	6.8	7.6	7.4	7.2	7.2
Latin America	%	0.0	-7.4	4.1	2.9	2.7	2.5	2.5	2.5
Middle East and Central Asia	%	1.4	-3.2	3.0	4.2	3.6	3.3	3.3	3.3
Eastern Europe	%	2.1	-2.8	4.0	3.9	3.0	2.8	2.6	2.6
Russian Federation	%	1.3	-3.6	3.0	3.9	2.1	2.0	1.8	1.8
Ukraine	%	3.2	-7.2	3.0	3.2	3.4	3.8	4.0	4.0
GDP per person e									
Advanced economies	%	1.3	-6.4	3.6	2.7	2.0	1.6	1.4	1.4
Emerging and developing economies	%	2.5	-4.6	4.7	3.9	3.8	3.7	3.6	3.6
Emerging Asia	%	4.5	-2.6	6.9	5.4	5.3	5.2	5.1	5.1
South-East Asia **c**	%	3.8	-4.5	5.2	4.7	4.6	4.5	4.4	4.4
Inflation									
United States	%	1.8	1.2	1.8	1.9	2.0	2.0	2.0	2.0
Interest rates									
US prime rate **g**	%	5.3	3.5	3.3	3.3	3.3	3.3	3.3	3.3

a ABARES assumption. **b** Weighted using 2018 purchasing power parity (PPP) valuation of country gross domestic product by the IMF. **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; IMF; RBA; United Nations Population Division; US Bureau of Labor Statistics; US Federal Reserve

Key macroeconomic assumptions for Australia

Category	unit	2018–19	2019–20 s	2020–21 f	2021–22 f	2022–23 z	2023–24 z	2024–25 z	2025–26 z
Economic growth	%	2.2	-0.2	0.0	4.0	3.0	3.0	3.0	3.0
Inflation	%	1.6	1.3	1.6	1.5	1.6	1.9	2.0	2.3
Interest rates **b**	% pa	3.8	2.7	2.3	2.3	2.8	3.3	3.5	3.5
Exchange rate	US$/A$	0.72	0.67	0.75	0.75	0.74	0.74	0.74	0.74
Trade–weighted index **c**	index	61.5	58.5	62.8	61.8	61.5	60.4	60.1	59.8

a ABARES assumption. **b** Large business weighted–average variable rate on credit outstanding. **c** Base: May 1970 = 100. **f** ABARES forecast. **s** ABARES estimate. **z** ABARES projection.

Sources: ABARES; ABS; RBA

Seasonal conditions

Matthew Miller and Rohan Nelson

Seasonal conditions

Record global crop production despite impact of La Niña. Favourable growing conditions continue across eastern and northern Australia.

Key points

- Global crop and pasture production conditions continue to be generally favourable for agriculture despite mixed climatic conditions in some countries.
- Global climate outlooks indicate that average to above average rainfall is slightly more likely between March and May 2021 for most of the world's major grain- and oilseed-producing regions.
- The 2020–21 La Niña appears to have peaked in October to November 2020 as a moderate strength event. La Niña conditions are less likely to persist in 2021–22 or recur over the outlook period to 2025–26.
- In Australia, summer rainfall has benefited 2020–21 production prospects of dryland crops in eastern Australia. Rainfall has been sufficient to maintain average to above average pasture production and support livestock restocking.
- Over the medium-term, conditions for agriculture in Australia are most likely to be adequate but not highly favourable, with a high likelihood of at least one dry year over the next 5 years.

Climate, agronomy and world prices

Prices for many of Australia's most important agricultural commodities are set in world markets. Accurately forecasting price requires an understanding of interactions between demand and supply in world markets. The climate and agronomic conditions faced by producers in importing countries influence the demand for Australia's exports. The climate and agronomic conditions faced by producers in exporting countries influence the competition that Australian exporters face in world markets. Australia's ability to take advantage of export opportunities over the medium term is influenced by climate and agronomic conditions across Australia's agricultural regions.

In this publication, Australia's most important importers and competitors in world markets are analysed in detail for each commodity. For example, we look at how the climate and agronomic conditions faced by farmers in Europe and India affect the demand for Australia's canola and pulse exports. Australia competes in global wheat markets with exports from the Argentina, Black Sea region of the Russian Federation, the European Union and the United States. Conditions for pasture production affect Australian beef exports, which compete in world markets with exports from the United States and Brazil.

Pasture growth is also important. Pastures and rangelands underpin global meat and milk production and are a critical resource for millions of people dependent on livestock for food security. The fodder that livestock are fed is what links them to land use, both directly via grazing and indirectly via traded grain or forage. Pasture, grain and forage growth are highly climate dependent.

Livestock fodder can be broken down into 4 commonly observed types:

1) Grain, which is usually fed as concentrates.
2) Grass for direct grazing and as silage.
3) Occasional feeds, such as cut-and-carry forages and legumes, and roadside grasses.
4) Stovers (fibrous crop residues).

Globally, livestock consume around 5 billion tonnes of feed biomass. Ruminants consume the bulk of feed at around 4 billion tonnes compared with 1 billion tonnes by pigs and poultry.

Overall, grasses comprise some 50% (2.5 billion tonnes) of the biomass used by livestock, followed by grains at 30% (1.5 billion tonnes). Given the strong reliance on pastures and rangelands to support livestock production it is important to monitor the impact of recent climatic condition on vegetation health. The FAO's Vegetation Health Index (VHI) uses vegetation health and the influence of temperature on plant conditions to illustrate the severity of drought.

The 3 broad categories of information available to understand global climate and agronomic conditions for agriculture are:

1) Conditions experienced during growing seasons to date help understand the production prospects for crops that have already been planted, and livestock production and feed demand in the coming months.
2) Climate and agronomic conditions 3 to 9 months into the future. A range of seasonal climate forecasts can be combined with logical inferences from current conditions and trends.
3) Over the medium term, there is much less predictive information to support forecasts for agricultural markets 2 to 5 years ahead. ABARES uses climate scenarios to help understand the uncertainty likely to affect agricultural markets over these time frames.

Global production conditions have been favourable despite La Niña impact

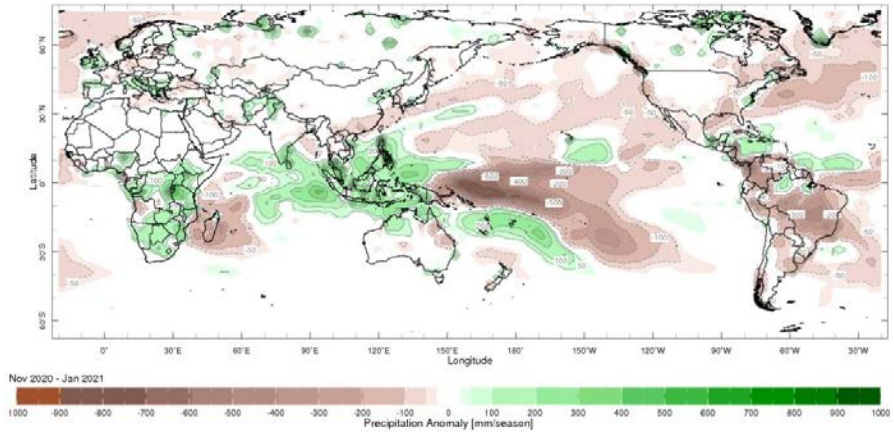
Global rainfall to date

Rainfall over the 3 months to 31 January 2021 was variable for much of the world's major grain and oilseed-producing regions. In the southern hemisphere, rainfall from November to January affects spring and summer crop development and yield prospects. Rainfall over the 3 months to 31 January 2021 was below average across parts of Argentina and much of Brazil. In Australia, the late forming La Niña resulted in variable rainfall. Below average rainfall across Queensland affected crop development and yield prospects for grain sorghum.

In the northern hemisphere, November 2020 to January 2021 rainfall is important for the planting and early development of winter wheat and canola crops before entering dormancy. Rainfall was generally below average across parts of southern China, northern Europe, Mexico, the south of the Russian Federation and the United States. In contrast, rainfall was above average across north-eastern China, India, parts of southern Europe and South-East Asia, and the United Kingdom. Rainfall and temperature determine snow cover extent. Snow cover provides insulation for young plants, protecting them

from extreme fluctuations in air temperatures. It also builds soil moisture for the upcoming spring.

World precipitation anomalies, November 2020 to January 2021



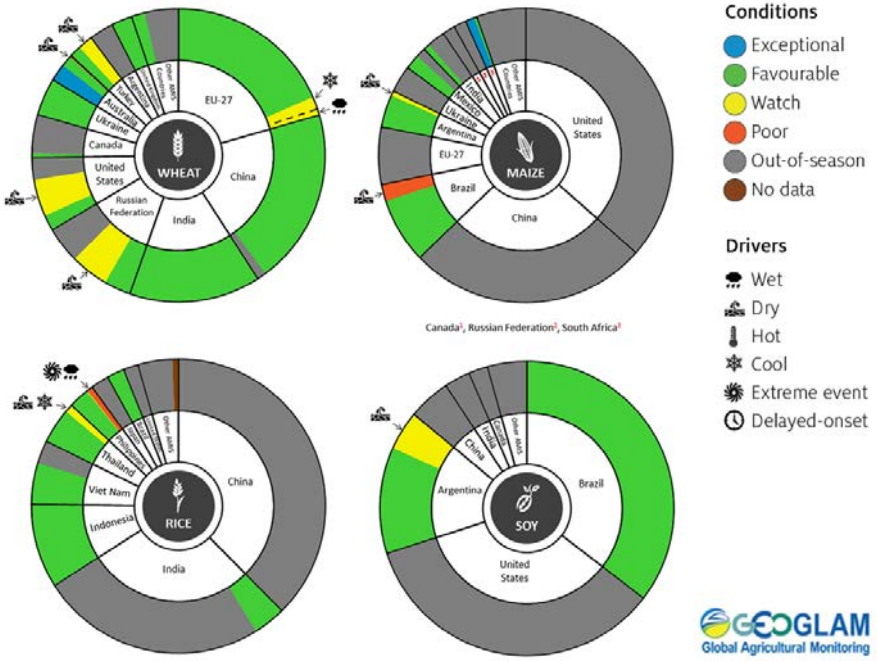
Notes: World 3-month seasonal precipitation anomalies are in units of mm/season, based on precipitation estimates from the NOAA Climate Prediction Center's Climate Anomaly Monitoring System Outgoing Precipitation Index dataset. Precipitation estimates for November 2020 to January 2021 are compared with rainfall recorded for that period during the 1979 to 2000 base period.
Source: International Research Institute for Climate and Society

Crop conditions

Global crop production conditions continue to be favourable despite mixed climatic conditions across parts of Argentina, Brazil, the Russian Federation, Turkey and the United States. Generally favourable global growing conditions are expected to result in record levels of corn and soybean production in 2020–21 (see Coarse grains and Oilseeds). Mixed growing conditions have reduced expected global wheat production in 2020–21, but record levels of production are still forecast (see Wheat). Meanwhile, favourable growing conditions are expected to increase global rice production year-on-year in 2020–21.

For commodity-by-commodity assessments of the global crop production conditions, see ABARES Weekly Australian climate, water and agricultural update for 18 February 2021.

Crop conditions, Agricultural Market Information System countries, 28 January 2021

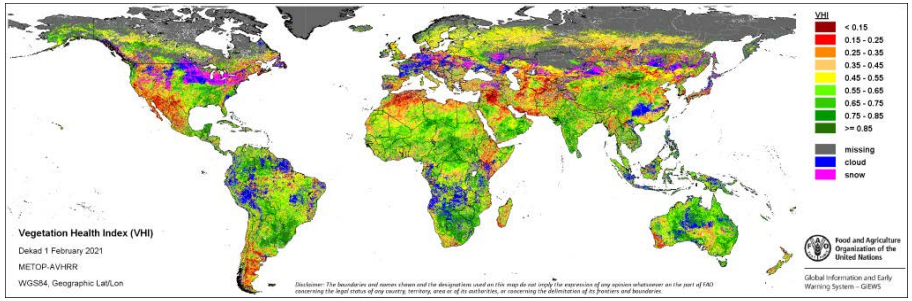


Notes: At 28 January 2021, wheat conditions in Australia were 'exceptional' in New South Wales, 'favourable' in Victoria, South Australia and Western Australia, and 'poor' in Queensland. Average refers to the average conditions over the past 5 years. Exceptional conditions are much better than average at the time of reporting. Favourable conditions range from slightly lower to slightly better than average at reporting time. Poor crop conditions are well below average. Crop yields are likely to be more than 5% below average.
Source: Agricultural Market Information System

Pasture and rangeland conditions

Analysis of the Vegetation Health Index (VHI) for the first 10-day period in February 2021 indicates poor vegetation condition across parts of northern and eastern Africa, in southern Argentina, across parts of western and central Australia, western Asia, northern and eastern Brazil, parts of northern Europe, northern Mexico, and the west of the United States. This is partly due to dryness and drought conditions in some areas. Poor vegetation health is likely to reduce the availability of grass for direct grazing, and increase the reliance on other fodder such as feed grains to supplement livestock diets and maintain production. This is likely to lead to increased domestic feed grain consumption in affected areas and will possibly constrain exportable supplies of grain.

World vegetation health indexes, 1 to 10 February 2021



Note: The FAO's Vegetation Health Index (VHI) is a composite index, combining the Vegetation Condition Index (VCI) and the Temperature Condition Index (TCI). The TCI assumes that high temperatures tend to cause a deterioration in vegetation conditions. A decrease in the VHI would, for example, indicate relatively poor vegetation conditions and warmer temperatures, signifying stressed vegetation conditions. Over a longer period, this would be indicative of drought.
Source: FAO

Global climate outlook mixed for the remainder of 2020–21

The climate outlook is for average to above average rainfall between March and May 2021 for most of the world's major grain- and oilseed-producing regions. The lingering 2020–21 La Niña event is expected to result in below average rainfall for western Asia, southern Brazil, parts of China and the southern and western United States.

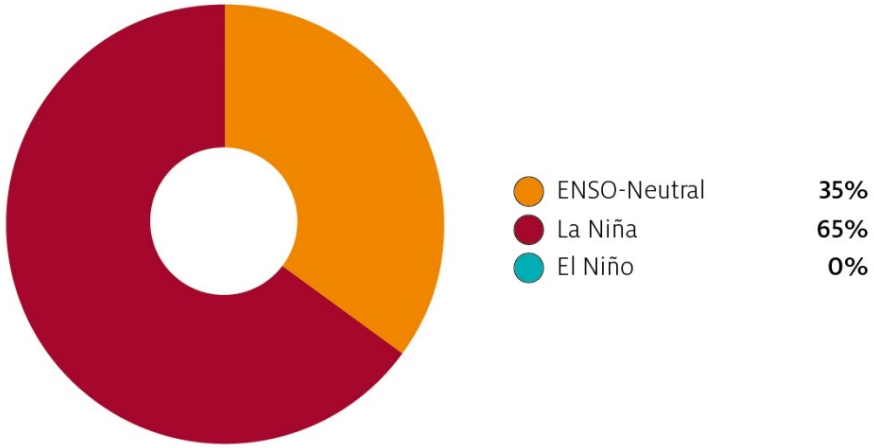
This below average rainfall outlook follows recent dry conditions in parts of Brazil and is likely to adversely affect the development of spring and summer crops, including soybeans and corn. Dry conditions have also slowed the planting of winter wheat in the northern hemisphere. If dry conditions continue in the northern hemisphere as crops exit dormancy in spring 2021, this is likely to constrain production in the Russian Federation and the United States.

For country assessments of the climate outlook and potential impact on production conditions, see ABARES Weekly Australian climate, water and agricultural update for 18 February 2021.

2020–2021 La Niña appears to have peaked

According to oceanic and atmospheric indicators, the 2020–21 La Niña appears to have peaked in October to November 2020 as a moderate strength event. The latest forecasts from the World Meteorological Organization Global Producing Centres of Long Range Forecasts and expert assessment indicate a 65% probability that La Niña conditions will persist from February to April 2021.

Estimated El Niño–Southern Oscillation (ENSO) probabilities, February to April 2021



Source: World Meteorological Organization

In April to June 2021 there is a 70% probability for La Niña will transition to neutral conditions, according to model predictions and expert assessment. The likelihood for La Niña conditions continuing through the 3-month period is estimated to be about 30%, and the likelihood of an El Niño is near-zero.

The outlook for the second half of 2021 remains relatively uncertain. Model predictions differ considerably on whether ENSO-neutral conditions will remain, La Niña conditions will persist or redevelop, or El Niño conditions will develop.

World wheat production at record levels despite the effects of La Niña

Drought conditions associated with the 2020–21 La Niña event affected Argentina's main wheat-producing regions at the critical flowering and grain-filling stages of development. The Buenos Aires Grain Exchange and the US Department of Agriculture (USDA) subsequently reduced forecasts of the Argentine 2020–21 wheat harvest to a 5-year low of around 17.5 million tonnes, 12% lower than 2019–20. A shortfall in Argentine and Pakistani production this season is likely to be more than offset by favourable wheat harvests in Australia and Canada, and higher than expected production in Kazakhstan. However, the Russian and United States winter wheat crops entered dormancy struggling with dry conditions that may reduce grain production in 2021.

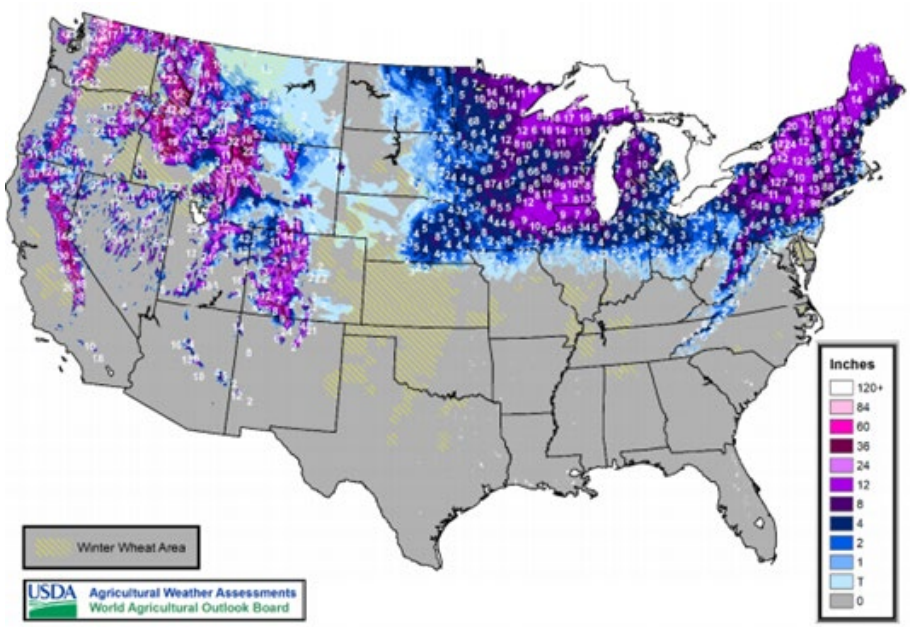
Impacts of the La Niña on world wheat supply in 2021–22 yet to be determined

The US hard red winter wheat crop entered its dormant stage of growth in late November/December with the second lowest crop condition score in the past 20 years. Although the 2021 crop is only in the early stages of crop development, dry conditions in the US Southern Plains due to the influence of the La Niña climate event continue to threaten yield prospects.

The US crop also experienced record low temperatures associated with an intense winter storm event. On 15 and 16 February 2021 temperatures fell as low as minus 15˚C to 20˚C across most of Texas and were even lower in Oklahoma and Kansas. These are the 3 main producing states. The record low temperatures are likely to have damaged the dormant US winter wheat crop. The 2020–21 La Niña event has also contributed to dryer than normal soil conditions. This increased the frost risk to plants because soil moisture typically slows cooling. The wheat crop's growing point is still below ground at this time of the year, so soil temperatures are more critical than air or land surface temperatures. Heavy snowfall may help mitigate some damage to the crop. But some plant damage seems likely, given the length of time the crop has already been exposed to extremely low temperatures with little to no snow cover.

Very low temperatures in February are not unusual but the snow cover that usually protects wheat crops against such events is unusually low this year. According to the USDA's Weekly Weather and Crop Bulletin published on 9 February 2021, snow cover was minimal across much of the US Southern Plains. The impact of this possible 'winter-kill' event will become clearer when the wheat crop breaks dormancy in mid- to late March 2021.

US winter wheat snow cover, 9 February 2021



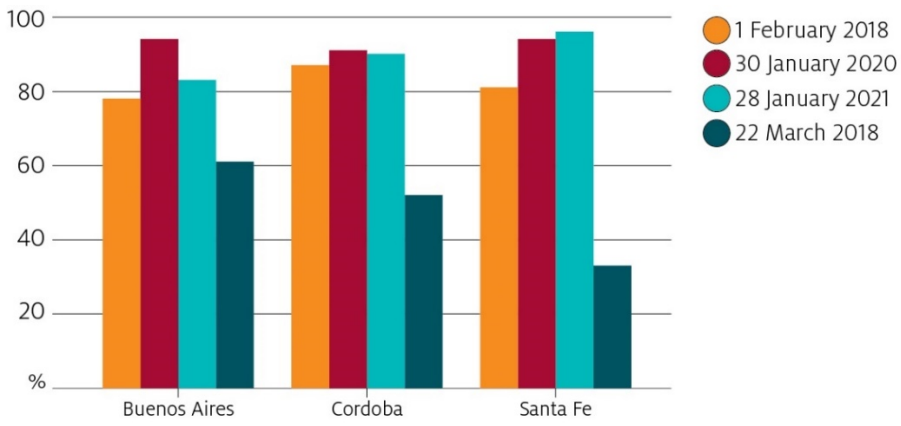
Note: Snow analysis and data are provided by the National Operational Hydrologic Remote Sensing Center
Source: World Agricultural Outlook Board, US Department of Agriculture

Favourable production prospects for oilseeds in South America despite La Niña

Production conditions for soybeans have been mixed in Argentina over the spring 2020 planting season (September to November). Drought affected the crop planted early in October, but recent rainfall supported generally favourable conditions for crops planted in December. Above average rainfall in January went against the general dry trend caused by La Niña conditions. This provided much-needed moisture to crops, which at 28 January 2021 were mostly in good condition.

According to data from the Argentine Ministry of Agriculture at 28 January 2021 a high proportion of soybean crops were in good or very good condition in Buenos Aires, Cordoba and Santa Fe (83%, 90% and 96% respectively). Those 3 provinces account for three-quarters of the country's planted area to soybeans. That compares with 94%, 91% and 94% in the same week last year. Recent rainfall and an improved rainfall outlook mean that the 2020–21 crop is likely to avoid the production losses that were seen during the 2017–18 La Niña event. During the same week in 2018, only 78%, 87% and 81% of soybean crops in the 3 provinces were in good or very good condition. Seven weeks later, the scores had plunged by about a third after an abnormally hot and dry period, and the resulting harvest was among the worst on record.

Argentine soybean crop condition (proportion of the crop rated good or very good)



Source: Argentine Ministry of Agriculture

In Brazil, more typical summer rainfall has returned following La Niña-induced dryness during the spring 2020 (September to November) planting season. The increased rainfall has come just as the majority of the country's soybean crop is setting and filling pods, putting Brazilian farmers on track to harvest a record soybean crop, and easing concerns about South American soybean supplies. Leading market analysts are estimating the 2020–21 Brazilian soybean crop at around 132 million tonnes, eclipsing the previous record of 126 million tonnes produced in 2019–20.

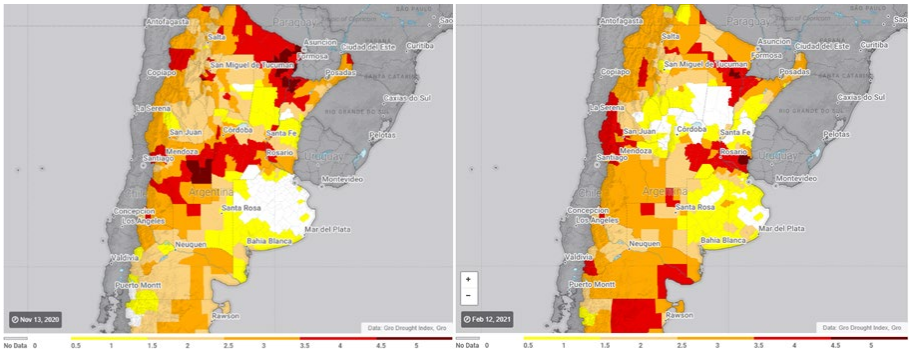
The recent rains will help finish the 2021 Brazilian soybean crop, but the wet conditions are delaying harvest. Late sowing due to dry conditions had already delayed harvest by around 2 weeks. Harvesting has also been made difficult by staggered germination and varying levels of crop maturity within paddocks.

Record corn production expected in 2021–22 despite La Niña impacts in South America

Global production of corn affects Australia's global markets for feed grain (barley and wheat) and canola in biofuel markets. Argentina is the world's third-largest exporter of corn, and production forecasts have been revised downward due to dryness and drought during the spring 2020 planting season.

A lack of sufficient soil moisture in the country's primary production regions of Cordoba, Santa Fe and Entre Rios delayed the planting of early corn. Recent rainfall has improved production prospects in Cordoba, but in the province of Buenos Aires production conditions have deteriorated. These adverse production conditions have led the Buenos Aires Grain Exchange to revise down their production estimate for 2020–21. Argentine growers are now expected to harvest 46 million tonnes of corn, which is 11% lower than 2019–20 production.

Drought index for Argentina, 13 November 2020 and 12 February 2021



Note: The Gro Drought Index (GDI) is processed at the district level and measures drought severity on a scale from 0 or no drought to 5 or severe drought. GDI provides fully automated, high-resolution measurements of droughts worldwide and is based on a Gro machine-learning model that updates daily with 46 separate environmental and climate inputs.
Source: Gro Intelligence

The late soybean harvest in Brazil is expected to constrain global corn supply in 2021–22. Brazil's safrinha (second) corn crop is planted after the soybeans have been harvested and represents about 75% of total corn production. With planting delayed by as much as a month, some corn will be planted well outside the ideal seeding window. This increases production risk because it pushes the crop further into the drier autumn months of April and May and delays exports.

Australian agricultural production conditions for the remainder of 2020–21

This analysis of rainfall, production conditions and the climate outlook forms the basis of ABARES forecasts of Australian agricultural production for 2020–21.

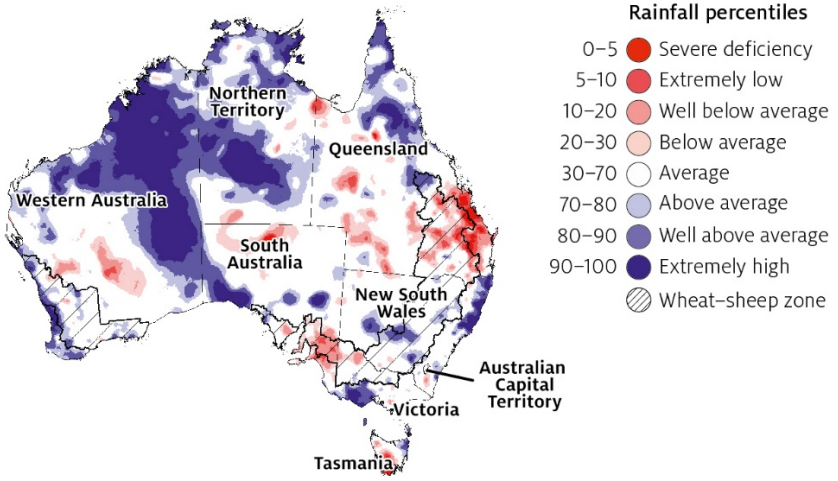
Recent rainfall and production conditions

Following a wet spring across much of Australia, rainfall continued to be average to extremely high between November 2020 and January 2021 in key production regions. This rainfall supported average to above average pasture growth across south-eastern and northern Australia, and above average summer crop growth in New South Wales.

However, rainfall was not favourable for agriculture in all of Australia's important agricultural regions. November 2020 rainfall was well below average in most summer cropping regions in Queensland and northern New South Wales. This had the advantage of facilitating the harvest of winter crops, but the disadvantage of restricting the area planted to summer crops. It is also likely to have reduced the yield potential of summer crops planted early in the season, particularly in Queensland. Following low November rainfall totals, substantial December rainfall was favourable for summer crop planting and growth. Average to above average January 2021 rainfall likely further increased the production prospects and yield potential of summer crops planted later in the season.

Significant December rainfall across most of northern and eastern Australia provided conditions for above average pasture growth, and—by reducing the need to purchase feed—increased incentives for livestock restocking. Despite below average January rainfall across parts of northern Australia, rainfall totals and stored soil moisture have been sufficient to maintain average to above average pasture production and encourage farmers to restock.

Rainfall percentiles, Australia, 1 November 2020 to 31 January 2021



Notes: Rainfall for November 2020 to January 2021 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

Irrigated crops

The seasonal drawdown from reservoir storages in the Murray–Darling Basin appears to have slowed in early 2021. At 9 February 2021 the volume of water held in storage was around 13,600 GL, or around 54% of total capacity. This was 5,600 GL or 76% more than at the same time last year. Increased dam storages offer favourable irrigated planting prospects in southern New South Wales (see Natural fibres).

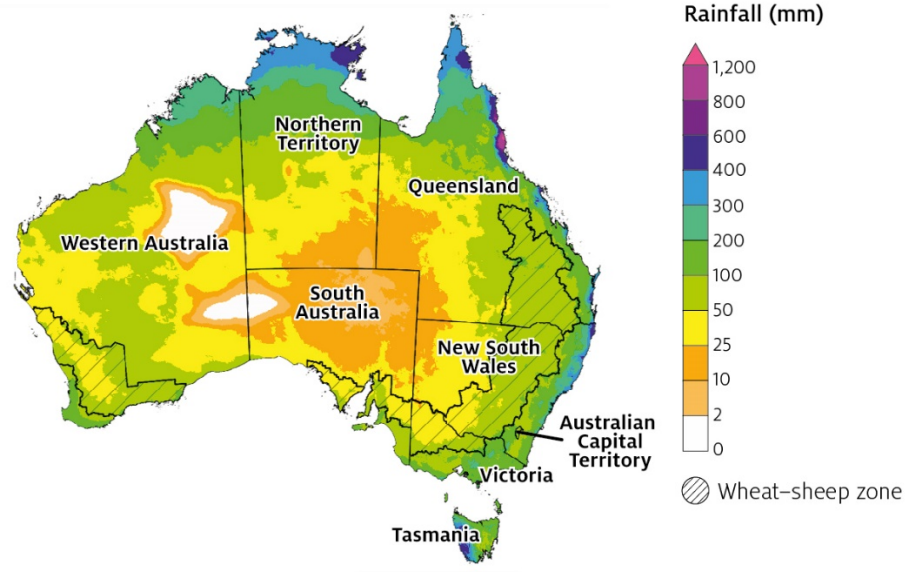
For more recent and detailed assessments of agricultural production conditions, see ABARES Weekly Australian climate, water and agricultural update.

Average or better rainfall likely across northern and eastern Australia

According to the Bureau of Meteorology's climate outlook for March to May 2021 (published on 11 February 2021), there is a high chance of recording close to average March to May rainfall in 2021 across northern Australia and parts of eastern, western and southern Australia. If realised, this rainfall is likely to support average pasture growth in northern Australia and average summer crop production in parts of northern and south-western Queensland and western New South Wales.

Across most remaining cropping regions, there is a 50% chance of recording close to average March to May rainfall in 2021. With average or better levels of soil moisture across most cropping regions, this rainfall is likely to be sufficient to support close to average crop and pasture production as the summer cropping season ends. By recharging soil moisture profiles, rainfall is also expected to support close to average crop and pasture production as winter crop sowing begins. Forecast rainfall may not be sufficient to support average crop production in Queensland cropping regions where soil moisture levels are below average.

Rainfall totals with a 75% chance of occurring, Australia, March to May 2021



Source: Bureau of Meteorology

Most likely climate scenarios to 2025–26

A lack of seasonal climate forecasts beyond the current year means that ABARES has to make assumptions about the likely climate conditions in years 2 to 5 of the medium-term projections published in March each year.

In this edition of *Agricultural commodities*, ABARES has expanded the use of climate scenarios for its medium-term agricultural forecasts. The purpose of moving to scenario forecasts is to better explain the factors driving Australia's agricultural markets. This approach was first introduced in March 2020 (see Seasonal climate scenarios for

medium term agricultural forecasts) and aims to use more realistic medium-term assumptions that take into account Australia's highly variable and changing climate. This edition utilises more refined climate scenarios based on an analysis of the most likely climate conditions over the 5 years to 2025–26.

For the upcoming 5-year projection period we have some knowledge of the production conditions likely to be experienced during year 1. Following a late-forming but moderate La Niña event in 2020–21, production outcomes for 2021–22 are more likely to be average to above average due to residual soil moisture, above average pasture biomass and an accumulation of fodder (grain and hay) on farms.

The climate conditions likely to be experienced in years 2 to 5 of the medium-term forecasts depend to some extent on the conditions experienced during 2020–21. This means that climate scenarios in ABARES March 2021 medium term forecasts are different to those used in March 2020.

Long-term declines in rainfall mean that the climate conditions most likely to be experienced from year to year over the medium term are below the historical average (with around decile 4 rainfall most likely). However, the variability of Australia's climate means that it is reasonable to expect that at least one year in years 2 to 5 of the medium-term projections will revert to drought conditions, with decile 1 or 2 rainfall. A return to wetter than normal conditions is less likely in years 2 to 5 but is possible.

Likely scenarios for underlying climate drivers in 2021–22 are:

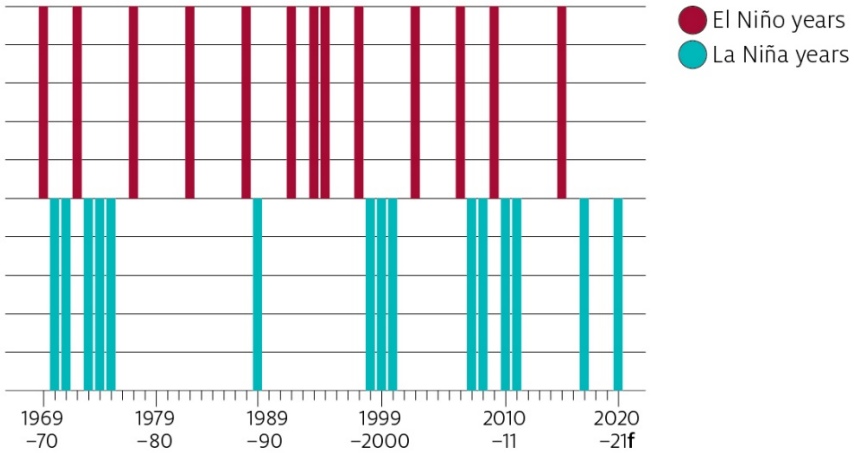
- neutral year – most likely, and most climate models favour this scenario
- multi-year La Niña develops – low probability, with only one half of all La Niña events on record lasting for 2 or 3 years
- El Niño develops in 2021–22 – very low probability, with only 15% of all La Niña events since 1970 having been directly followed by an El Niño event.

Likely scenarios over the remainder of the projection period 2022–23 to 2025–26 are:

- neutral years – most likely outcome in most years, with 24 out of 52 years since 1969–70
- El Niño – likely to occur at least once, having occurred every 3 to 5 years since 1969–70
- La Niña – least likely, having occurred every 3 to 7 years since 1969–70.

For a more detailed explanation of climate scenarios in ABARES medium-term agricultural forecasts see Agricultural overview.

Phases of the El Niño–Southern Oscillation, 1969–70 to present



f ABARES forecast.
Source: Bureau of Meteorology

Wheat

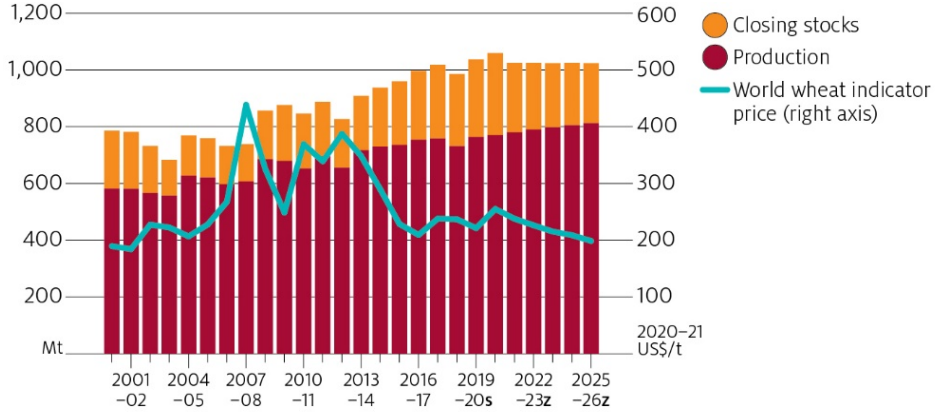
Amelia Brown

Prices to fall and ease further over the medium term

The world wheat indicator price is forecast to average lower at US$250 per tonne in 2021–22, down from US$255 per tonne in 2020–21. Lower prices are forecast to result from higher production in Argentina, the European Union, Ukraine and the United States and a fall in import demand following a surge in 2020 as a result of COVID-19 uncertainty.

World consumption is forecast to increase to a new record in 2021–22. Demand is expected to continue increasing over the medium term in line with population growth, changing diets and rising incomes as economies recover from the impact of movement restrictions put in place to control COVID-19. However, prices are projected to fall gradually (in real terms) over the projection period to 2025–26 as world supply grows faster than demand. This assumes there are no significant shocks to global production over the projection period.

World wheat supply and price, 2000–01 to 2025–26



s ABARES estimate. **z** ABARES projection.
Sources: ABARES; International Grains Council; US Department of Agriculture

Medium-term scenarios for forecasts

Medium-term forecasts from 2022–23 to 2025–26 for Australian wheat are based on the average outcomes of 4 possible seasonal climate scenarios. A very dry season in the wheat-sheep zone is likely to occur in one of the 4 years. Each scenario places this dry season in a different year, with other years assumed to receive rainfall of around deciles 3 to 4. For a more detailed explanation see the Agricultural overview.

The range of outcomes forecast to result from each scenario are then averaged. Unless otherwise indicated, these average forecasts – or their ranges – are discussed in this note.

Upside and downside scenarios are also considered. The upside scenario combines a faster economic recovery from the COVID-19 pandemic with another high rainfall year in 2021–22. A very dry year is still assumed in 2022–23. Because it follows an assumed wetter year, negative effects on production are reduced. The downside scenario combines a slower than expected economic recovery with very dry years in 2021–22 and 2025–26.

Wheat demand to rise with population growth

World wheat consumption is forecast to increase in 2021–22 to a new record and continue to increase over the medium term to 2025–26. In recent decades, demand for staple foods such as wheat has increased in line with population growth, particularly in developing countries. World consumption of milling and feed wheat now accounts for 90% of total wheat use.

Because milling wheat has few substitutes, demand for wheat has not been significantly affected by COVID-19 containment measures. Lockdown measures imposed by many countries affected demand in the hospitality sector. However, this was largely offset by strong consumer demand for food staples such as bread, pasta and flour for home cooking.

A surge in demand from some major importers (Algeria, Bangladesh, China, Egypt and Indonesia) in the second half of 2020 and January 2021 reflects attempts to secure supplies in the face of subsequent COVID-19 outbreaks in the northern hemisphere. Demand for higher-value foods derived from wheat flour (biscuits, cakes and pastries) and animal products (meat and dairy products) may fall further as a result of further outbreaks of COVID-19 and the impact of containment measures on economic growth.

Demand for feed wheat is price sensitive because of competition from substitute feed grains (barley and corn). Stronger global demand for all feed grains, including wheat, has been affected by a recovery in Chinese feed demand. China's pig herd is rebuilding after the spread of African swine fever, and feed demand from its poultry and dairy sectors also continues to grow. Over the medium term, global feed grain demand is projected to continue to increase as a result of projected higher meat and dairy production. The rate of demand growth is uncertain because of uncertainty in the pace of global economic recovery from the impacts of COVID-19 containment measures (for alternative scenarios see the Economic overview).

World production to increase throughout the medium term

World wheat production is forecast to increase to a third consecutive record of around 780 million tonnes in 2021–22. This largely reflects a forecast return to average production in Argentina, the European Union and the United States after poor production in 2020–21.

Area planted to wheat in the European Union is forecast to increase by 7% to around 25.4 million hectares, mainly driven by increases in France and Germany. Seasonal conditions across the European Union are generally good. However, there is concern about excess rainfall in southern Europe and a lack of winter hardening against winterkill in south-eastern Europe. Production in 2021–22 is forecast to increase by 13%, rebounding from the drought-affected harvest of 2020–21. Over the medium term, area planted to wheat is forecast to remain relatively stable.

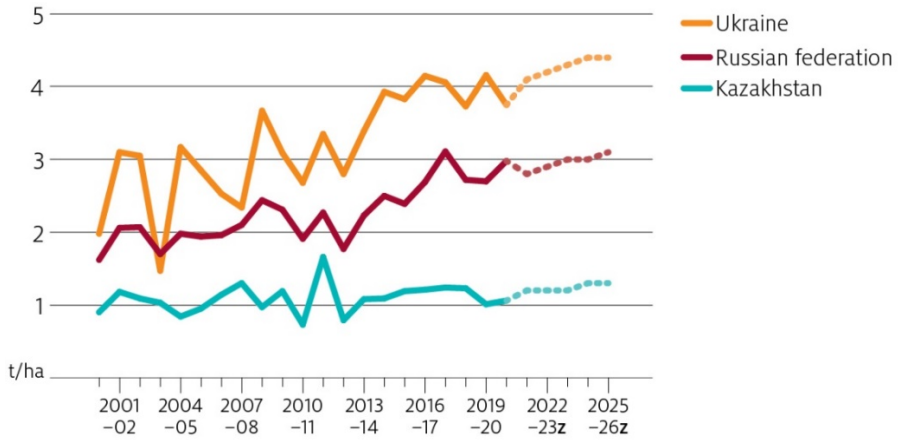
India is estimated to have planted a record 34.6 million hectares of wheat in 2021–22. The continued expansion in area planted is a result of mostly favourable seasonal conditions and high support prices. Indian Government support for wheat producers is expected to continue over the projection period, keeping area planted at high levels.

In the United States, sowing was complete by November 2020. Area planted increased by 5% from the record low of the previous season as a result of high wheat prices at the time of planting. The area planted to hard red winter wheat increased by 4% and soft red winter wheat by 12%. Dry conditions to date mean that spring rainfall will be critical in many states. An unusually cold freeze in mid-February may affect dormant crops. Over the medium term, the area planted to wheat is forecast to remain relatively stable.

In the Russian Federation, sowing of winter wheat was complete by late November 2020 and is estimated to be slightly lower than the previous year. Dry conditions in the south and minimal rainfall in the Volga and Central Federal districts at the time of planting may have a negative impact on yields. Recent heavy snowfall will benefit crops by insulating them from winterkill and replenish soil moisture in spring. In Ukraine, area planted is estimated to be lower in 2021–22. Lack of early season rainfall in some areas has affected the condition of now dormant wheat crops. Spring rainfall will be critical for Black Sea production.

Over the medium term, the area planted in the Black Sea region is forecast to remain relatively constant. Production is forecast to continue to grow as investment in infrastructure and agricultural technology boost productivity and yields.

Black Sea region average wheat yield, 2000–01 to 2025–26



z ABARES projection.
Source: International Grains Council; US Department of Agriculture

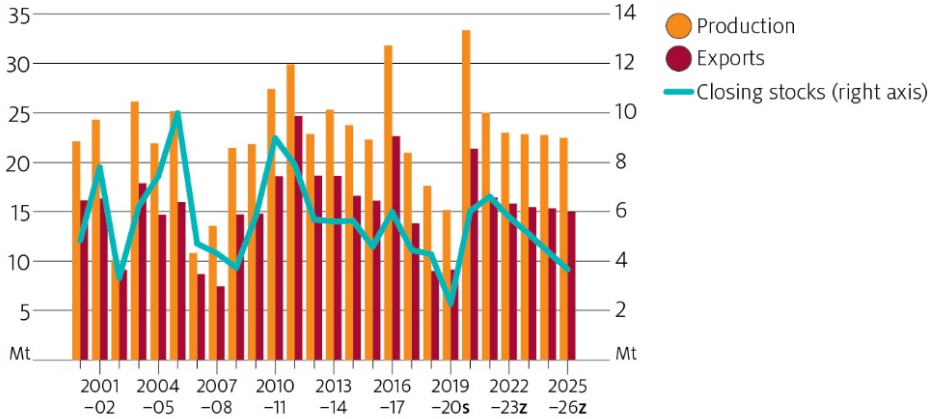
In other major producing regions such as Argentina, Australia, Canada and China the area planted to wheat is expected to remain relatively unchanged. Increased production in these areas will be the result of modest but steady productivity growth of around 1% per year.

Australian production to fluctuate with seasonal variability

Area planted to wheat in Australia in 2021–22 will largely depend on rainfall received between February and the end of autumn (May 2021). However, following a late-forming but moderate La Niña in 2020–21, production outcomes across much of the country for 2021–22 are more likely to be average to above average due to higher soil moisture levels at planting. Wheat production is forecast to fall in 2021–22 to around 25 million tonnes, reflecting a return to more average yields from the record highs achieved in 2020–21, particularly in New South Wales and Victoria.

Area planted to wheat generally accounts for over 50% of total winter cropping area, followed by barley at around 20% and canola at between 10% and 15%. The remaining area is planted to pulses and other crops. Over the medium term, the area planted to wheat is forecast to remain relatively stable and will be determined by seasonal conditions and the profitability of wheat relative to other winter crops.

Australian wheat production, exports and closing stocks, 2000–01 to 2025–26



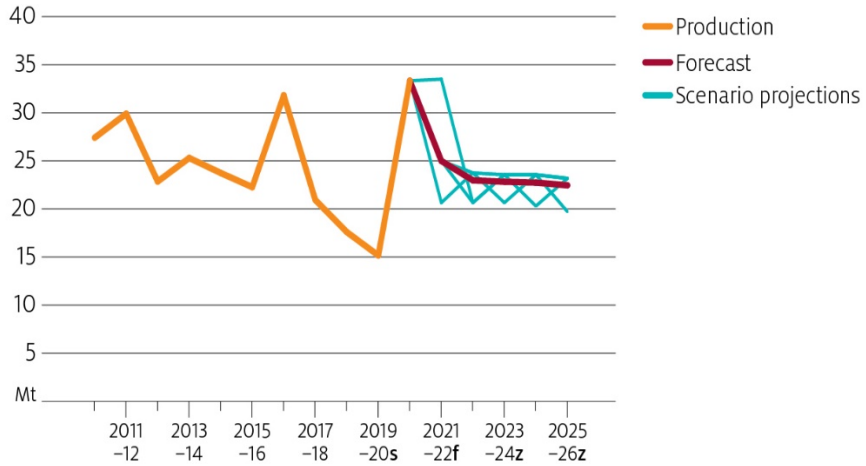
s ABARES estimate. **z** ABARES projection.
Sources: ABARES; ABS

Scenario analysis highlights uncertainty of supply

The upside scenario for wheat production would likely result in a new record. The area planted to wheat would increase from the high level planted in 2020–21 because of forecast high wheat prices combined with favourable soil moisture. Above average in-crop rainfall

(assuming it is evenly distributed across all states) would likely result in above average yields. In this scenario, Australian wheat production, exports, gross value of production (GVP) and closing stocks would be higher in 2021–22 than seen in the forecast. Wheat production is projected to be below average in 2022–23, followed by a return to average production for the remainder of the projection period.

Australian wheat production, 2010–11 to 2025–26



f ABARES forecast. **s** ABARES estimate. **z** ABARES estimate.
Sources: ABARES; ABS

In the downside scenario, 2021–22 wheat production, exports, GVP and closing stocks would be lower than the baseline. Closing stocks in 2025–26, although low, would be unlikely to reach the historically low level of 2019–20. This low level of stocks was the result of 3 consecutive years of below average production (2018–19 and 2019–20 were particularly low), combined with a surge in domestic feed demand. Australian wheat stocks are forecast to be replenished in 2020–21 as a result of estimated record production.

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 the widespread adoption of improved farming practices. However, seasonal conditions remain the most important influence on the variability of agricultural production from year to year. More variable climatic conditions are expected to increase the variability of wheat yields and production in the future. The breeding of drought-tolerant and higher-protein varieties, adoption of improved agronomic practices for conserving soil moisture and increased fertiliser application will result in productivity gains despite adverse changes in climate.

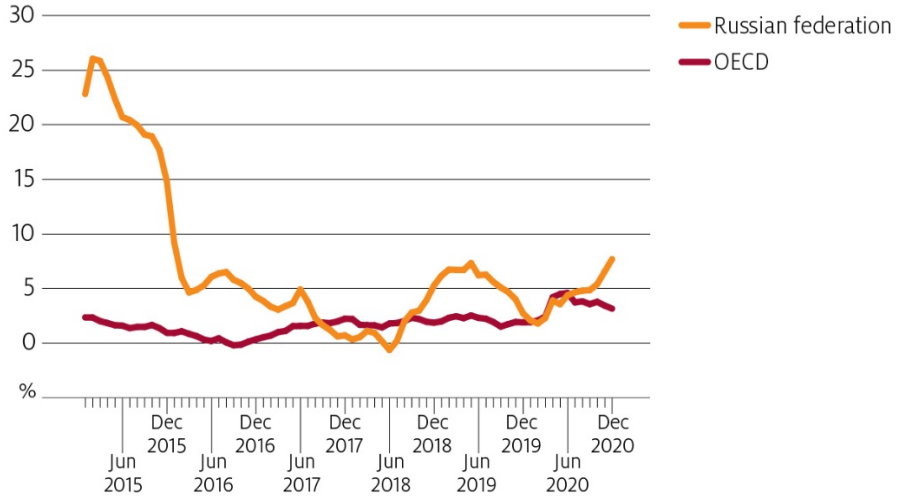
Changes in global supply are the key determinant of world wheat prices. The projection of declining real prices over the medium term assumes seasonal conditions in major producing countries will lead to roughly average production outcomes. However, increasingly variable climatic conditions mean that over the 5 years to 2025–26, one or more of the major producers is likely to experience well above or below average seasonal conditions. This will add variability to the projected trends in production, exports and world prices.

Russian export taxes

Despite estimates of record wheat production in 2020–21, Russia imposed a wheat export tax of 25 euros per tonne starting 15 February in an effort to stabilise domestic food inflation. This export tax rose to 50 euros per tonne on 1 March and is intended to stay in place until 30 June. Russia will also impose export taxes on

barley (10 euros per tonne) and corn (25 euros per tonne) from 15 March. In early February 2021, Russia announced it was setting a permanent formula-based export tax on barley, wheat and maize, effective as of 2 June 2021 The wheat tax will be 70% of the difference between the export price and US$200 per tonne. For example, if the export price is US$300 per tonne, the tax will be US$70. These taxes are on top of export quotas announced in 2020. Together, these trade restrictions will curtail the availability of Russian grains on the world market, providing an opportunity for grains from other countries, including Australia, to meet global import demand. There is some uncertainty about the impact of these taxes and how long they will be in place.

Food inflation growth rate, Russia and OECD, January 2015 to December 2020



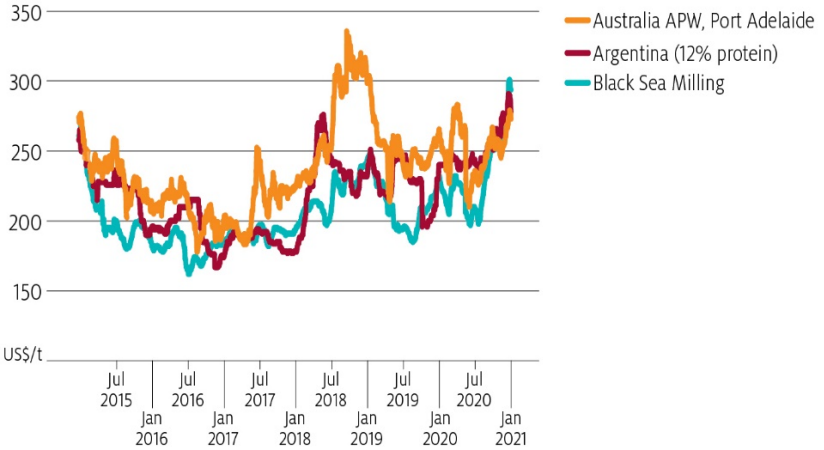
Source: OECD

Australian exports competitively priced on world markets

Australia is estimated to have produced the biggest wheat crop on record in 2020–21 as a result of favourable seasonal conditions, particularly in New South Wales, Victoria and South Australia. Australian marketing year exports (October to September) are forecast to more than double to 21 million tonnes. This is the highest since 2016–17 and 22% above the 10-year average to 2019–20.

During the drought, low supply, increased domestic use, and high costs associated with importing grain resulted in high Australian wheat prices and low exports. Australia's major markets in South-East Asia, particularly Indonesia (the world's second-largest wheat importer) sourced wheat from other origins, including Argentina and the Black Sea region, to satisfy their import demand. With a significant increase in supply in 2020–21, Australian wheat prices are now competitive compared with other origin wheat, providing an opportunity for Australia to regain market share in our traditional export markets.

World wheat prices, January 2015 to January 2021



Source: International Grains Council

Outlook for wheat

Marketing year	unit	2018–19	2019–20 s	2020–21 f	2021–22 f	2022–23 z	2023–24 z	2024–25 z	2025–26 z
World									
Area	million ha	215	217	223	220	221	221	221	221
Yield	t/ha	3.4	3.5	3.5	3.5	3.6	3.6	3.6	3.7
Production	Mt	731	764	771	780	790	798	805	813
Consumption	Mt	735	744	758	773	785	794	802	810
Closing stocks	Mt	265	285	286	293	298	302	305	308
Trade	Mt	171	188	190	186	190	192	196	198
Stocks-to-use ratio	%	36.0	38.3	37.7	38.0	38.0	38.0	38.0	38.0
Price **a**									
nominal	US$/t	233	220	255	250	245	240	238	233
real **b**	US$/t	240	223	255	245	236	227	220	211
Australia									
Area	’000 ha	10,402	10,210	12,985	12,500	12,325	12,250	12,200	12,050
Yield	t/ha	1.7	1.5	2.6	2.0	1.9	1.9	1.9	1.9
Production	kt	17,598	15,165	33,337	25,000	22,975	22,833	22,745	22,460
Domestic use	kt	9,120	8,719	8,287	7,996	8,035	8,105	8,174	8,244
Export volume	kt	8,981	9,132	21,362	16,446	15,808	15,443	15,342	14,962
Export value									
nominal	A$m	3,675	3,863	5,400	4,940	4,474	4,259	4,158	4,067
real **c**	A$m	3,785	3,927	5,400	4,867	4,340	4,054	3,880	3,712
Closing stocks	kt	4,273	2,295	6,014	6,611	5,782	5,105	4,373	3,666
Price **d**									
nominal	A$/t	395	372	310	305	307	301	298	292
real **c**	A$/t	407	378	310	301	298	286	278	266

a US no. 2 hard red winter wheat, fob Gulf. **b** In 2020–21 US dollars. **c** In 2020–21 Australian dollars. **d** Australian premium white no. 1 wheat, fob Adelaide, July–June. **f** ABARES forecast. **s** ABARES estimate. **z** ABARES projection.
Sources: ABARES; ABS; IGC; USDA

Coarse grains

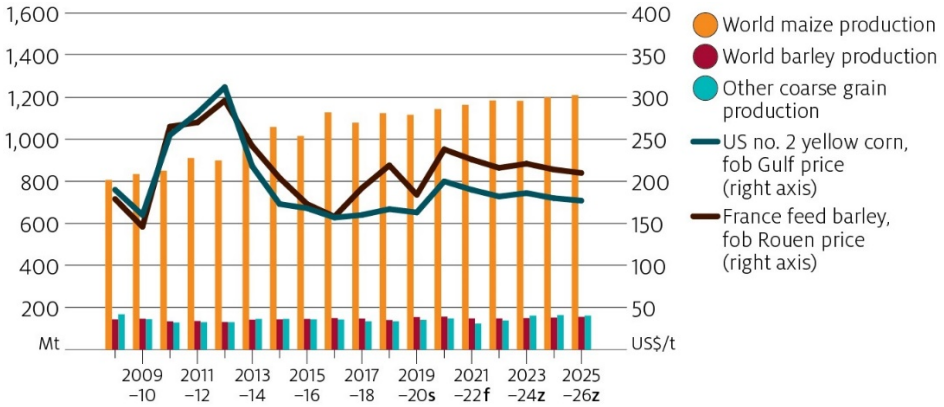
Peter Lock

Tight coarse grain supplies to support prices

The world indicator price for corn is expected to decrease by 5% to US$190 per tonne in 2021–22. World corn production is expected to increase in 2021–22, but consumption is expected to remain flat. World consumption of corn has been largely unchanged throughout the COVID-19 pandemic with decreasing industrial use offset by increasing demand for animal feed. Over the medium term to 2025–26, above average corn prices are expected to be driven by increasing demand for corn as animal feed and as an input to biofuel, combined with ongoing competition from soybeans for arable land.

The world indicator price for barley is expected to decrease by 2% to US$226 per tonne in 2021–22. World barley consumption is expected to fall at a faster rate compared with global production in 2021–22. Above average world barley prices are being supported by export controls imposed by the Russian Federation and Argentina, as well as by demand from China for barley sourced from countries other than Australia. Prohibitive import tariffs imposed by China on Australian barley in 2020 have reduced the pool of barley that is available to Chinese consumers from global markets. Over the medium term, ongoing strong demand by China is expected to continue to support global prices. The world indicator price is expected to remain elevated but fall from current levels to US$211 per tonne in 2025–26, as global supply chains adjust to China's shift in demand away from Australia towards the Black Sea Region, Europe and South America.

World coarse grain supply and prices, 2008–09 to 2025–26z



f ABARES forecast **s** ABARES estimate **z** ABARES projection.
Sources: ABARES; IGC; USDA

Australian coarse grain prices

Falling barley production to support domestic prices

Australian barley prices are expected to rise in 2021–22, increasing by 3% to $243 (US$182) per tonne because of falling domestic production and stable demand for exports. In the absence of any further external shocks and with relatively stable seasonal conditions, Australian barley prices are projected to increase by a further 4% to $252 (US$186) per tonne over the outlook period to 2025–26. Australian prices are also projected to remain below prices received

by major competitors because of restricted access to the Chinese animal feed and malt markets.

Increasing grain sorghum production to lead to lower prices

Australian grain sorghum prices are expected to fall by 6% to $300 (US$225) per tonne in 2021–22 because of the return to average seasonal production from drought-induced lows, and a fall in demand for animal feed due to increased pasture and fodder availability. Over the outlook period, domestic prices are projected to continue to fall to $253 (US$187) per tonne in 2025–26 as a result of increased competition with other feed grains in the domestic market and limited opportunities to expand exports.

Increasing competition between corn and soybeans to limit production growth

Global production of coarse grains is expected to fall by 1% to 1.4 billion tonnes in 2021–22.

US and Chinese corn production are at or near record levels. However, increasing competition from alternative crops, particularly soybeans, is expected to constrain area planted in 2021–22. Over the medium term, world corn production is expected to increase from 1.1 to 1.2 billion tonnes as a result of an increase in area planted. Growth in area planted to corn in China is expected to be constrained as a result of acreage subsidies for soybeans. Similarly US corn acreage is also expected to face strong competition from soybeans as a result of increasing demand for animal feed from China. The production outlook for corn is also predicated on a continuation of the current farm support measures in China and the United States. Any change in these measures would be expected to change the incentives influencing the split between corn and soybean production over the outlook period. A dry start to the 2020–21 summer in Argentina and Brazil is also expected to have affected early corn plantings and yield prospects.

World barley production is expected to fall by 4% to 151 million tonnes in 2021–22, after reaching record levels in 2020–21. World barley production is expected to decline because of expectations of lower production in Australia and in the United Kingdom and European Union. From 2022–23 to 2025–26, world barley production is projected to increase by 5% from 151 to 159 million tonnes, in response to increasing demand from China and other developing countries for use as animal feed and for human consumption. Production increases are expected to occur in the Black Sea Region and South America rather than in Australia, the European Union or the United States, due to a lack of suitable area and ongoing competition from other crops.

Demand to reach consecutive records

Global consumption of coarse grains is expected to remain stable at 1.5 billion tonnes in 2021–22, supported by ongoing demand from China. Over the outlook period, demand for coarse grains is projected to increase and consumption is projected to reach consecutive records. This is underpinned by rising demand for animal feed in China and increasing industrial use, particularly of corn.

Demand for corn by China – the largest consumer and importer – is expected to continue to outstrip domestic production. Demand is expected to be driven by the recovery of China's pig herd to pre–African swine fever outbreak levels and the continued growth of other intensive animal industries, including chicken and dairy. However, limited increases in the supply of corn have necessitated the ongoing

sale of national animal feed stockpiles by the Chinese government. Chinese imports of grain for animal feed have also hit record levels in response to rising meat production and domestic feed prices.

US corn consumption is expected to remain stable despite the ongoing impacts of COVID-19 on demand for more income-responsive food products, such as meat, and the decline in consumption of biofuels because of reduced travel. Over the outlook period, demand for corn in the United States is expected to increase as economic activity returns to pre–COVID-19 levels. The demand for corn used in biofuel production is also expected to be supported by a renewed policy focus on environmental sustainability.

Continued strong global demand and limited opportunities to increase planted area in major producing countries is expected to result in a continued reduction in coarse grain stocks to 277 million tonnes by 2025–26, down 12% from 2020–21.

Medium term scenarios for forecasts

Medium-term forecasts from 2022–23 to 2025–26 for Australian coarse grains are based on the average outcomes of 4 possible seasonal climate scenarios. A very dry season in the wheat-sheep zone is likely to occur in one of the 4 years. Each scenario places this dry season in a different year, with other years assumed to receive rainfall of around deciles 3 to 4. For a more detailed explanation see the Agricultural overview.

The range of outcomes forecast to result from each scenario are then averaged. Unless otherwise indicated, these average forecasts – or their ranges – are discussed in this note.

Upside and downside scenarios are also considered. The upside scenario combines a faster economic recovery from the COVID-19 pandemic with another high rainfall year in 2021–22. A very dry year is still assumed in 2022–23. Because it follows an assumed wetter year, negative effects on production are reduced. The downside scenario combines a slower than expected economic recovery with very dry years in 2021–22 and 2025–26.

Australian production and demand are subject to uncertainty

The outlook for Australian and global coarse grain markets is subject to a considerable degree of uncertainty resulting from seasonal and macroeconomic conditions.

Seasonal climate uncertainty is expected to be the greatest risk to coarse grain production in Australia and around the globe. ABARES considered 2 alternative production and consumption paths for barley and grain sorghum in Australia. A return to drought

conditions in eastern Australia with continued dry conditions in Western Australia would reduce planted area and yield prospects. Conversely, better than expected seasonal rainfall would support above average yields and plantings greater than the presented forecasts.

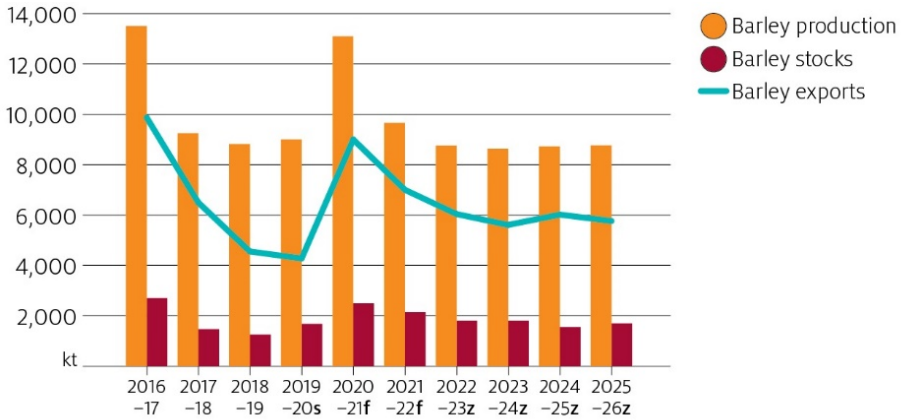
The ongoing economic recovery from the COVID-19 pandemic is likely to be uneven, with developed nations – including Australia – expected to vaccinate most of their populations in the 2021 calendar year. Evolving macroeconomic conditions are not expected to significantly affect the trajectory of production or demand for coarse grains, outside of the impacts on biofuel markets. Industrial biofuel production remains an important use of corn. A stronger or weaker than assumed economic recovery will affect demand for biofuels. However, the impact of macroeconomic uncertainty on biofuel markets is expected to be minor because the main consumers are developed nations in the western hemisphere, which are likely to vaccinate the majority of their populations in 2021.

Structural adjustment to affect Australian production over the outlook period

Australian production of barley is expected to fall by 19% in 2021–22 to 9.7 million tonnes. Although barley production is expected to remain above the 10-year average to 2020–21 (9.3 million tonnes), import tariffs imposed by China on Australian barley are expected to result in a reduction in area planted in trade-exposed regions, particularly Western Australia. Assuming these tariffs remain in place over the outlook period, area planted to barley is expected to fall below 4.0 million hectares by 2025–26—the lowest since 2013–14—with production ranging between 7.4 and 9.3 million tonnes, subject to seasonal rainfall. Despite this projected structural change, production within this range is projected to remain more than sufficient to meet domestic needs when dry conditions return.

Domestic consumption for barley is forecast to fall by 10% from 3.3 million tonnes in 2020–21 to 3.0 million tonnes in 2021–22 and fluctuate around this level over the outlook period. Improved seasonal conditions in 2020–21 across south-eastern Australia and timely rainfall across southern and central Queensland are expected to support sufficient pasture growth for animal herds and result in reduced use of barley as supplemental animal feed.

Australian production, stocks and export of barley, 2016–17 to 2025–26z

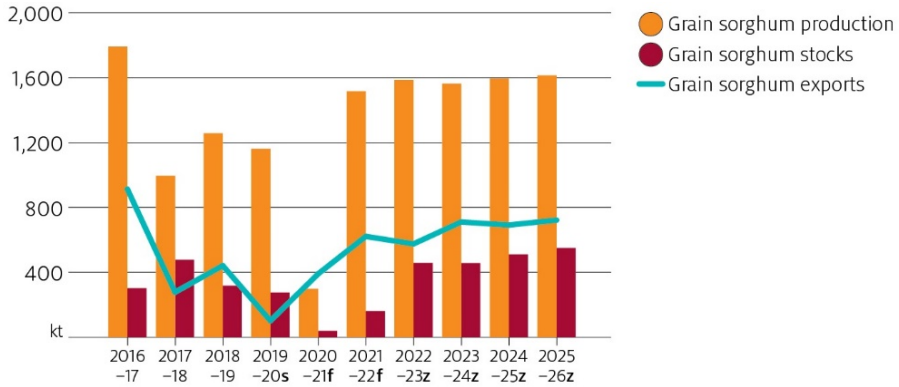


f ABARES forecast. **s** ABARES estimate. **z** ABARES projection.
Sources: ABARES; ABS

Grain sorghum production is expected to rebound from a 50-year low of 298,000 tonnes in 2020–21 to 1.5 million tonnes in 2021–22, because of the easing of drought conditions in southern Queensland and northern New South Wales. Grain sorghum production is expected

to fluctuate between 1.4 and 1.6 million tonnes across a range of seasonal scenarios to 2025–26. The recovery in grain sorghum production is also expected to increase competition between grain sorghum and feed barley in animal feed rations.

Australian production and stocks of grain sorghum, 2016–17 to 2025–26z



f ABARES forecast. **s** ABARES estimate. **z** ABARES projection.
Sources: ABARES; ABS

Carry-over stocks of barley are expected to recover from the lows of 2019–20 to 2.5 million tonnes in 2020–21—an increase of 48%. Similarly, carry-over stocks of grain sorghum are expected to increase to 161,000 tonnes in 2021–22 – an increase of 420%. Over the outlook period, stocks are projected to remain at or around current levels, with closing stocks in 2025–26 projected to be around 1.7 million tonnes of barley and 550,000 tonnes of grain sorghum (subject to seasonal variability).

Australian exports remain competitive on international markets

Exports of barley from Australia are expected to fall in 2021–22, declining 22% to 7 million tonnes. This reflects a decline in domestic production from 2020–21 levels.

Despite being subject to China's prohibitive import tariffs, barley exports from Australia are expected to remain competitive in international markets. As a result of the reorganisation of global barley supply chains to meet Chinese demand, Australian export prices have fallen below those of major competitors in the Black Sea Region and Europe. Australian barley has become more competitive in alternative markets, particularly in Saudi Arabia, which is the second largest importer of barley for animal feed after China. Malting grade Australian barley has also become competitive in new markets, including Mexico for use in beer production.

Opportunities and challenges

Long-term effects of COVID-19 on consumer behaviour are unknown

The shorter-term impacts of COVID-19 on consumer demand for products derived from coarse grains, including biofuels and alcohol and high-value meat products from feedlots, are reasonably well understood. However, the long term implications of COVID-19 on consumer spending create risks and opportunities for grain markets. For example, a substantial shift away from eating out at restaurants may have reduced the demand for animal feed for some years. Similarly, a shift toward working from home is expected to lead to longer term reductions in demand for biofuels, including ethanol from corn.

United States rejoins Paris accord

Following the inauguration of the Biden administration, the United States has re-joined the Paris climate accord. A renewed focus on environmental sustainability and climate change action is expected to impact ongoing demand for corn as an input into the production of biofuels for the US market. However, the effect is uncertain. An increase in the use of corn for biofuel is expected to further exacerbate the effect of shortfalls in US production of corn and lead to a reduction in US exports. As a result, global corn prices are likely to increase because of area constraints on a global supply response. In contrast the electrification of transport would lead to a reduction in demand for biofuels – and subsequently corn – over the long term.

Long-term drought impacts in Australia

The drought that occurred across Australia from 2018–19 to 2019–20 was severe, with rainfall significantly below average across much of the continent. The effects of the drought on livestock industries continue to linger despite more favourable seasonal conditions in 2020–21. The significant destocking that occurred across Australia during the drought is expected to result in a prolonged herd recovery period, particularly for cattle. The maintenance of stock on farm to facilitate herd rebuilding is expected to result in reduced demand for grain by the feedlot sector in the short term. However, an increase in the national animal herd is also expected to lead to increased animal feed demand when dry conditions return.

Severe events commonly result in 'scarring' and significant changes in behaviour. As a result of drought conditions, farm operators may become more risk adverse and retain more grain on farm to mitigate drought risk. Similarly, the retention of grain on farm may also enable the smoothing of income, with stored grain either fed or sold.

Outlook for coarse grains

Marketing year	unit	2018–19	2019–20 s	2020–21 f	2021–22 f	2022–23 z	2023–24 z	2024–25 z	2025–26 z
World a									
Production	Mt	1,398	1,411	1,439	1,436	1,470	1,494	1,515	1,526
corn	Mt	1,123	1,116	1,134	1,164	1,184	1,183	1,199	1,210
barley	Mt	139	157	157	151	153	152	156	159
Consumption	Mt	1,402	1,419	1,446	1,453	1,480	1,500	1,520	1,527
corn	Mt	1,127	1,127	1,144	1,149	1,171	1,186	1,202	1,212
barley	Mt	140	154	157	148	148	150	152	155
Trade	Mt	213	208	228	215	220	225	230	232
Closing stocks	Mt	347	332	316	299	289	283	278	277
Stocks-to-use ratio	%	24.7	23.4	21.9	20.6	19.5	18.9	18.3	18.1
Corn price **b**									
nominal	US$/t	167	163	200	190	182	186	180	177
real **c**	US$/t	172	165	200	187	175	176	167	161
Barley price **d**									
nominal	US$/t	219	184	230	226	217	222	214	211
real **c**	US$/t	225	187	230	222	209	209	198	191
Australia									
Sorghum e									
Area	’000 ha	462	550	143	511	530	523	528	526
Production		1,257	1,160	298	1,516	1,586	1,562	1,594	1,614
Domestic use	kt	977	1,101	136	772	715	853	849	853
Export volume	kt	441	110	390	621	575	710	691	722
Export value									
nominal	A$m	154	50.6	156	156	168	176	223	199
real **g**	A$m	159	51.4	156	154	163	167	208	181
Closing stocks **h**	kt	317	266	38.3	161	457	456	510	550
Barley i									
Area	’000 ha	4,437	4,050	4,422	4,200	4,050	4,000	4,000	3,975
Production		8,819	9,001	13,093	9,660	8,753	8,634	8,726	8,765
Domestic use	kt	4,482	4,499	3,289	3,000	3,056	3,030	2,960	2,854
Export volume	kt	4,553	4,067	9,000	7,003	6,040	5,608	6,018	5,763
Export value									
nominal	A$m	1,828	1,509	2,506	2,022	1,830	1,733	1,847	1,760
real **g**	A$m	1,883	1,534	2,506	1,992	1,775	1,649	1,724	1,607
Closing stocks **j**	kt	1,252	1,687	2,491	2,148	1,805	1,801	1,549	1,697
Prices									
Feed barley price **k**									
nominal	A$/t	378	292	235	243	249	258	254	252
real **g**	A$/t	389	297	235	239	242	245	237	230
Malting barley price **l**									
nominal	A$/t	383	305	245	254	260	269	265	263
real **g**	A$/t	395	310	245	250	252	256	248	240
Grain sorghum price **m**									
nominal	A$/t	346	374	319	300	258	261	258	253
real **g**	A$/t	357	380	319	296	250	248	241	231

a Reported as an aggregation of local marketing years. **b** US no. 2 yellow corn, fob Gulf**. c** In 2020–21 US dollars. **d** France feed barley, fob Rouen. **e** Marketing year, 1 March to 28 February. **f** ABARES forecast. **g** In 2020–21 Australian dollars. **h** At 28 February. **i** Marketing year, 1 November to 31 October. **j** At October 31. **k** Feed 1, delivered Geelong. **l** Gairdner Malt 1, delivered Geelong. **m** Gross unit value of production. **s** ABARES estimate. **z** ABARES projection.
Sources: ABARES; ABS; IGC; Jumbuk AG; USDA

Oilseeds

Emily Dahl and Rohan Nelson

Recovering demand driving world oilseed prices

Oilseed prices are forecast to remain strong in 2021–22 due to global demand outstripping supply. Chinese feed demand is expected to continue recovering into 2021–22 as China's pig industry rebuilds following outbreaks of African swine fever (ASF). Feed demand is likely to be the main driver within the oilseeds complex over the short term.

The world soybean indicator price is forecast to average slightly higher at US$474 per tonne in 2021–22, up from US$463 per tonne in 2020–21. The world canola price is expected to average US$491 per tonne in 2021–22, 19% above the 5-year average to 2020–21 of US$415 per tonne. The export price of Australian canola in 2021–22 is expected to remain largely unchanged from the previous year.

Over the medium term to 2025–26, global economic recovery and increasing incomes will underpin strengthening demand for oilseeds, particularly in Asia. Growth in demand for biodiesel is expected to continue as economies recover from the impact of COVID-19 related restrictions. Prices are expected to ease gradually (in real terms) over the projection period due to increasing supply offsetting the recovery in demand for feed and biodiesel.

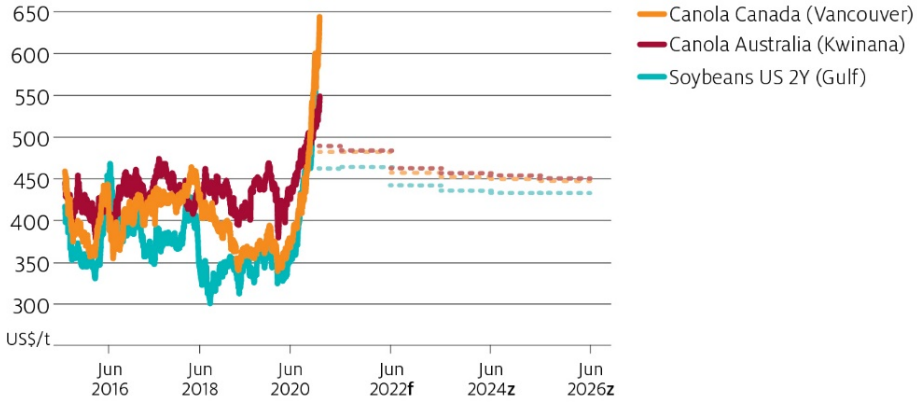
Medium-term scenarios for forecasts

Medium-term forecasts from 2022–23 to 2025–26 for Australian oilseeds are based on the average outcomes of 4 possible seasonal climate scenarios. A very dry season in the wheat-sheep zone is likely to occur in one of the 4 years. Each scenario places this dry season in a different year, with other years assumed to receive rainfall of around deciles 3 to 4. For a more detailed explanation see the Agricultural overview.

The range of outcomes forecast to result from each scenario are then averaged. Unless otherwise indicated, these average forecasts – or their ranges – are discussed in this note.

Upside and downside scenarios are also considered. The upside scenario combines a faster economic recovery from the COVID-19 pandemic with another high rainfall year in 2021–22. A very dry year is still assumed in 2022–23. Because it follows an assumed wetter year, negative effects on production are reduced. The downside scenario combines a slower than expected economic recovery with very dry years in 2021–22 and 2025–26.

Oilseed export prices, July 2015 to June 2026



f ABARES forecast. **z** ABARES projection.
Source: International Grains Council

Reduced world stocks leading to higher soybean prices

Higher world soybean consumption is likely to more than offset the rise in world soybean supply. US soybean ending stocks are expected to fall to 3.3 million tonnes in 2020–21, down from 25 million tonnes in 2018–19. In the short term, continued strong import demand from China is expected to result in the third consecutive drop in the world soybean stocks-to-use ratio to 22%. This is 13% below the 10-year average to 2020–21 and 31% below the high of 2018–19. This low stocks-to-use ratio will support prices into 2021–22. Over the medium term to 2025–26, supply increases are expected to result in stock rebuilding in major producing countries. The world soybean stocks-to-use ratio is expected to rise steadily from 2022–23.

Record soybean production lifts global oilseed supply

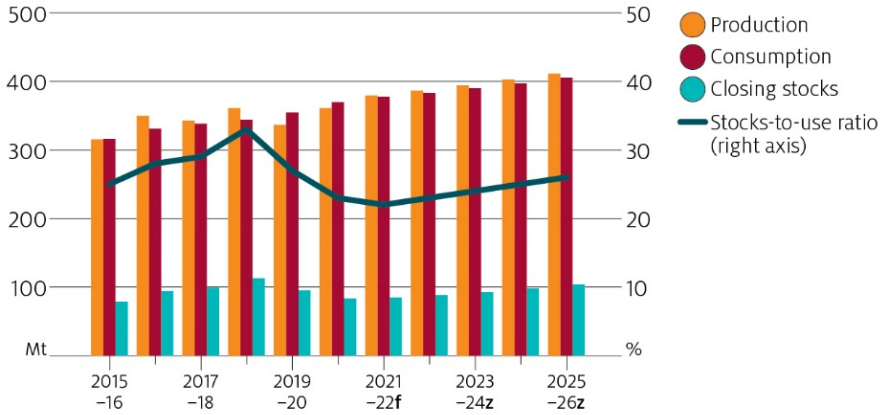
Global soybean production is expected to rebound to 361 million tonnes in 2020–21 and reach record levels over the medium term.

Despite unfavourable conditions in some key growing regions, Brazilian soybean production is on course to reach record output of 133 million tonnes in 2020–21. However, soybean production in Argentina is expected to fall slightly to 48 million tonnes in 2020–21 due to dry conditions associated with the current La Niña event.

US soybean production is projected to continue recovering over the short term. This follows a 20% fall in production in 2019–20 as US producers responded to lower Chinese import demand stemming from the ongoing trade dispute with China and the outbreak of ASF. The outlook for US soybean production is based on current farm support measures in the United States. Any changes to these measures are likely to change the incentives determining the split between soybean and corn production.

Strong international prices are likely to influence planting intentions, leading to area expansion in 2021–22, especially in the 3 major producing countries Brazil, Argentina and the United States. Assuming average yields, world soybean production is projected to increase by 5% to around 379 million tonnes in 2021–22. Growth in world production is then likely to slow for the remainder of the projection period. Yields are assumed to continue to trend upwards over the medium term because of the adoption of better practices and continued closure of yield gaps in emerging production regions.

World soybean supply, consumption and stocks-to-use ratio, 2015–16 to 2025–26



f ABARES forecast. **z** ABARES projection.
Sources: International Grains Council; US Department of Agriculture

Canadian canola production to boost global supplies

Canadian canola production is expected to rebound in 2021–22, increasing by 5% to almost 20 million tonnes. Canola supply in the European Union is likely to remain low due to persistent dryness in major growing regions. In the short term, world demand for canola is expected to outpace supply, leading to reductions in stocks and supporting prices into 2021–22. Over the medium term to 2025–26, world stocks are expected to increase as supply responds to higher prices.

Growth in food demand for vegetable oils to remain stable

World food demand for vegetable oils is expected to rise by 3% to 155 million tonnes in 2020–21, and gradually increase over the medium term. This is mainly due to rising demand in Asian markets.

Increased consumption of soybean oil and palm oil in the food sector will likely continue to contribute to growing demand for vegetable oils. Despite a downturn in hospitality sectors around the world, COVID-19 related restrictions have not had significant adverse effects on world consumption of vegetable oils. This suggests that vegetable oils are a staple, the demand for which is relatively unresponsive to changes in consumer incomes. Food demand for vegetable oils is therefore expected to continue increasing in line with population growth and urbanisation.

Biodiesel demand to gradually recover

Industrial consumption of vegetable oils is expected to increase by 2% to 52 million tonnes in 2020–21. Demand for biodiesel is forecast to continue recovering into 2021–22 and over the medium term as COVID-19 is gradually brought under control and pandemic-related travel restrictions begin to ease. However, the recovery in biodiesel demand could be delayed because of reduced demand for transportation fuel tied to further COVID-19 related lockdowns in Europe. Lower vegetable oil stocks are likely to support prices into 2021–22. Crude oil prices continue to recover after a sharp contraction at the start of the pandemic. The rebound in prices follows the April 2020 OPEC Plus deal to restrict production of crude oil, making biodiesel more competitive. However, crude oil prices are yet to return to pre-pandemic levels and are expected to average around US$50 per barrel over the medium term (see Economic overview).

Biodiesel mandates in Indonesia and Malaysia are a key determinant of biodiesel production sourced from palm oil. In both countries, plans to increase the blend rates for biodiesel were recently delayed due to COVID-19 related restrictions. Blend rates are still expected to increase in the next 5 years, with the 20% mandate in Malaysia

delayed until early 2022 and the 40% mandate in Indonesia delayed to the end of 2022. Industrial consumption of palm oil in Indonesia and Malaysia is likely to increase in line with increases in biodiesel production targets.

Livestock feed use boosted by Chinese feed demand

Higher use of protein meal for stockfeed is expected to boost demand for soybeans and canola. Protein meal use for livestock feed is expected to increase by 3% to 347 million tonnes in 2020–21. The Chinese pig industry's efforts to contain ASF and rebuild pig herds have driven growth in feed demand. Structural changes towards large-scale pig farming have increased the use of high-protein feeds, replacing traditional small-scale farming that uses food waste for livestock feed. The expanding poultry sector has also contributed to the growth of Chinese feed demand. Over the medium term, China is expected to lead global feed demand, with strong import demand driving global soybean trade.

Chinese pork production is expected to begin recovering in 2021 and steadily increase over the medium term. According to the latest US Department of Agriculture forecasts (revised in January 2021), Chinese pork production is estimated to have fallen from 54 million tonnes in 2018 to a low of 38 million tonnes in 2020 and is likely to partially rebound to 44 million tonnes in 2021.

Chinese pork production, 2010 to 2021

Source: US Department of Agriculture

Chinese soybean imports are expected to surpass pre-ASF levels in the short term (increasing to 100 million tonnes in 2020–21) and increase steadily over the medium term. This includes increased Chinese imports of US soybeans, with large purchases by China projected to continue in 2021. This suggests China is likely to meet its purchasing targets for US soybeans, negotiated as part of the phase one trade deal with the United States. These purchases will support increased US soybean production and exports over the projection period. US soybean exports are expected to increase by 34% to 61 million tonnes in 2020–21.

Australian exports to recover as supply increases

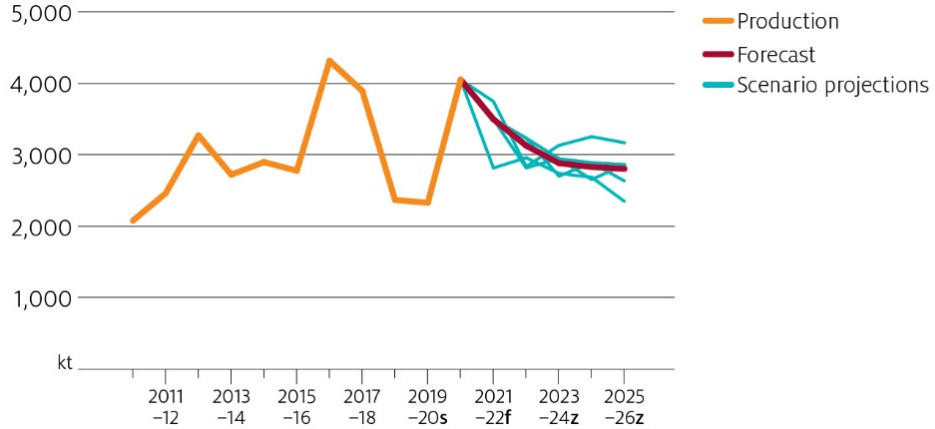
Australian canola production is forecast to increase by 74% to 4.1 million tonnes in 2020–21, 23% above the 10-year average to 2019–20. This increase reflects improved seasonal conditions, particularly across eastern cropping regions and a better than expected harvest in Western Australia (see Seasonal conditions). Following 3 consecutive years of drought-affected production, the domestic price of Australian canola is forecast to reach parity with the export price in 2020–21. With continued high international prices, domestic production and export values are expected to increase. Australian canola exports are expected to recover strongly in the 2020–21 marketing year, increasing by 91% to 2.9 million tonnes.

The area planted to canola is likely to increase in 2021–22 due to stored soil moisture following above average summer rainfall. Over the medium term, the area planted to canola is expected to remain around 10 to 15% of all winter crops, ranging from 2.4 to 2.5 million hectares, subject to soil moisture variability. Year-on-year changes in area over the outlook period will reflect grower constraints related to crop rotations and rainfall in time for planting. Canola production in 2021–22 is likely to be lower than in 2020–21 and slightly higher than average at around 3.5 million tonnes as stored soil moisture supports an increase in planted area. Over the remaining 4 years of the outlook period, projections for Australian canola assume that seasonal conditions allow yields to reach the levels that are achieved with rainfall of deciles 3 to 4 (see Seasonal conditions). Production outcomes could range from 2.8 to 3.5 million tonnes during the projection period. The value and volume of Australian canola exports are expected to remain high against a backdrop of stronger international demand for biofuels as economies recover from the impacts of COVID-19 related restrictions (see Economic overview).

In the upside scenario, another year of favourable growing conditions in 2021–22 will ensure that Australian canola production stays at above average levels. Continued La Niña conditions would likely result in lower yields in South America and some key cropping regions in the United States, leading to even tighter world soybean supplies that would further boost oilseed prices. In this scenario, COVID-19 is brought under control faster than in the forecast, causing demand to outpace supply and leading to higher export prices. These assumptions would lead to increases in Australian canola production and exports, in both volume and value.

The downside scenario assumes that less favourable seasonal conditions in 2021–22 and 2025–26 would lead to lower Australian canola production and exports in those years. Lower production in 2021–22 is unlikely to alter the domestic price significantly because world stocks-to-use ratios across the oilseeds complex would be expected to fall for another year. However, global supplies are expected to outweigh demand by 2025–26, leading to lower international prices. Given the downside macroeconomic assumptions, demand is expected to remain relatively subdued over the projection period. Biodiesel demand would likely fall because ongoing travel restrictions would significantly affect demand for fuel. Oilseed prices would weaken as a result, further reducing the volume and value of Australia's canola exports.

Australian canola production, 2010–11 to 2025–26



f ABARES forecast. **s** ABARES estimate. **z** ABARES projection.
Sources: ABARES; ABS

The past future of Australian canola production

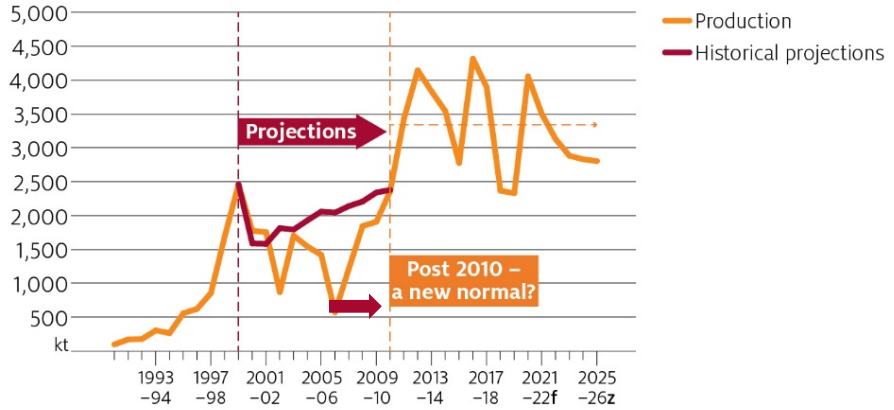
In 2001 ABARES released a report on the Future of canola production in Australia. It is interesting to review these long-term forecasts 20 years after they were made, and 10 years after the forecast period.

Australian canola production expanded rapidly in the 1990s from very low levels, leading observers to question whether the same pace of expansion was likely to be maintained into the future. Strong global demand for canola oil during the 1990s had driven high world prices, which Australia's competitive industry was able to take advantage of. Prices were projected to stabilise out to 2010, as supply in Australia and Canada responded.

ABARES 2001 projections of canola production were correct about the level that would be reached by 2010, but not the pathway by which this level would be reached. Droughts in 2002–03 and 2006–07 (with 3 years of, at best, average seasonal conditions in between) coincided with a range of agronomic issues affecting the production of this drought-sensitive crop. From the late 2000s onwards, a stepwise boost to Australian canola production came from the widespread adoption of genetically modified varieties in Western Australia and New South Wales.

In 2021 canola oil continues to contribute around 15% of global vegetable oil consumption, the same level as in the 1990s. Perhaps the most significant change since 2001 has been the development of global biofuel markets, especially in the European Union. The potential for biofuel demand to become significant was recognised in 2001, but it was not built into ABARES model-based forecasts at that time.

Australian canola production and projections, 1990–1991 to 2025–26



f ABARES forecast. **s** ABARES estimate. **z** ABARES projection.
Sources: ABARES; ABS

Opportunities and challenges

Uncertainty surrounding canola trade

The European Union is a significant export market for Australian canola. EU demand for canola is based on the Renewable Energy Directive that ensures feedstocks used to produce biodiesel meet lifecycle emissions thresholds. Despite reduced growth in EU biodiesel demand due to pandemic-related travel restrictions, lower canola production in the European Union is expected to boost import demand.

The European Union is also a significant importer of Canadian canola. Australian canola attracted a premium over Canadian canola from July 2018 to December 2020. This premium was tied to the secondary value of Australian canola as non-GM meal in Europe's dairy industry. Low canola production in Australia, large crops in Canada and a trade dispute between Canada and China also contributed to the price gap. As of December 2020, Australian canola is no longer trading at a premium over Canadian canola. The recent change in the price gap indicates that tighter supplies in Canada and strong demand are supporting a sharp increase in the Canadian canola price. The current higher price for Canadian canola could improve the likelihood of Australian canola regaining market share in the European Union, allowing Australian canola exports to be more competitive in international markets.

Canadian canola stocks are expected to remain tight until the next harvest commences in May. Increased canola production in Canada could result in Australian canola again trading at a premium over Canadian canola. Hence, the increase in competitiveness of Australian canola could be short-lived. Continued innovation should help ensure Australian canola producers maintain their competitive advantage and access to international markets.

Outlook for oilseeds

Marketing year	unit	2018–19	2019–20 s	2020–21 f	2021–22 f	2022–23 z	2023–24 z	2024–25 z	2025–26 z
World a									
Oilseeds									
Production	Mt	600	576	595	616	627	637	650	663
Consumption	Mt	581	598	607	615	623	632	644	655
Exports	Mt	171	190	194	195	198	201	205	209
Closing stocks	Mt	132	110	95.6	97.3	102	106	112	120
Soybean indicator price **b**	US$/t	337	348	463	474	459	461	468	477
real **c**	US$/t	347	354	463	466	442	436	433	433
Canola indicator price **d**	US$/t	388	366	482	491	475	479	486	493
real **c**	US$/t	400	372	482	482	457	452	450	448
Protein meals									
Production	Mt	333	345	353	358	364	371	378	385
Consumption	Mt	329	342	351	356	362	370	378	385
Exports	Mt	94.2	94.0	92.5	94.4	95.6	97.7	99.7	101
Closing stocks	Mt	16.6	14.1	11.6	13.9	16.1	16.8	17.6	17.2
Indicator price **e**	US$/t	343	330	444	455	432	435	442	451
real **c**	US$/t	354	335	444	447	416	411	409	409
Vegetable oils									
Production	Mt	204	207	210	211	214	217	220	223
Consumption	Mt	200	203	208	211	213	215	219	222
Exports	Mt	86.2	86.3	86.7	89.8	90.4	90.5	91.6	92.4
Closing stocks	Mt	23.0	23.8	21.7	22.5	23.7	25.3	26.8	28.0
Indicator price **g**	US$/t	747	759	941	959	926	937	946	961
real **c**	US$/t	770	771	941	942	892	885	875	872
Australia									
Production	kt	3,091	2,579	4,941	4,669	3,987	3,562	3,448	3,358
Exports	kt	1,654	1,727	2,600	2,678	2,337	2,127	2,056	2,028
Canola h									
Area	’000 ha	2,120	1,808	2,378	2,708	2,524	2,420	2,377	2,359
Production	kt	2,366	2,329	4,051	3,497	3,127	2,882	2,829	2,804
Apparent domestic use **i**	kt	776	789	1,135	1,050	939	865	849	842
Export volume	kt	1,591	1,524	2,917	2,448	2,189	2,018	1,980	1,963
Export value									
nominal	A$m	975	1,053	1,897	1,608	1,422	1,321	1,314	1,316
real **j**	A$m	1,004	1,070	1,897	1,584	1,379	1,257	1,226	1,201
Price **k**	A$/t	581	615	594	598	593	601	609	623
real **j**	A$/t	598	625	594	589	575	572	568	569

a Reported as an aggregation of local marketing years. **b** US no.2 soybeans, fob Gulf. **c** In 2020–21 US dollars. **d** Canola, Canada, fob Vancouver. **e** Soybean meal, Hamburg fob, ex-mill 45 per cent protein. **f** ABARES forecast. **g** Soybean oil, Dutch fob, ex-mill. **h** November-October years. **i** Calculated as a residual: production plus imports less exports less any observed or assumed change in stocks. **j** In 2020–21 Australian dollars. **k** Delivered Melbourne, July-June years. **s** ABARES estimate. **z** ABARES projection.
Sources: ABARES; ABS; IGC; Jumbuk AG; Oil World; USDA

Horticulture

Peter Collins and Charley Xia

Prices to rise in 2020–21 and then fall

The farmgate prices of some horticultural products are forecast to rise in the latter part of 2020–21, driven by an expected fall in production as a result of a significantly reduced supply of overseas labour. Prices of summer vegetables, stone fruit, pome fruit and table grapes are forecast to increase by between 7% and 29%. Fruit prices are expected to rise most, because fruit production is likely to be most adversely affected by reduced labour supply. The peak harvest period for fruit is in February, March and April, meaning lower than average supply and higher than average fruit prices may not occur until well into autumn. These price increases are expected to be low relative to normal seasonal volatility.

In the medium term, a staged increase in the supply of overseas labour is forecast to enable an increase in production. This will lower prices over the first half of the projection period. Over the latter part of the projection period to 2025–26, prices are forecast to stabilise, with production expected to continue recent growth trends.

Medium term scenarios for forecasts

Medium-term forecasts from 2022–23 to 2025–26 for Australian horticulture are based on the average outcomes of 4 possible seasonal climate scenarios. A very dry season in the wheat-sheep zone is likely to occur in one of the 4 years. Each scenario places this dry season in a different year, with other years assumed to receive rainfall of deciles 3 to 4. For a more detailed explanation see the Agricultural overview.

The range of outcomes forecast to result from each scenario are then averaged. Unless otherwise indicated, these average forecasts – or their ranges – are discussed in this note.

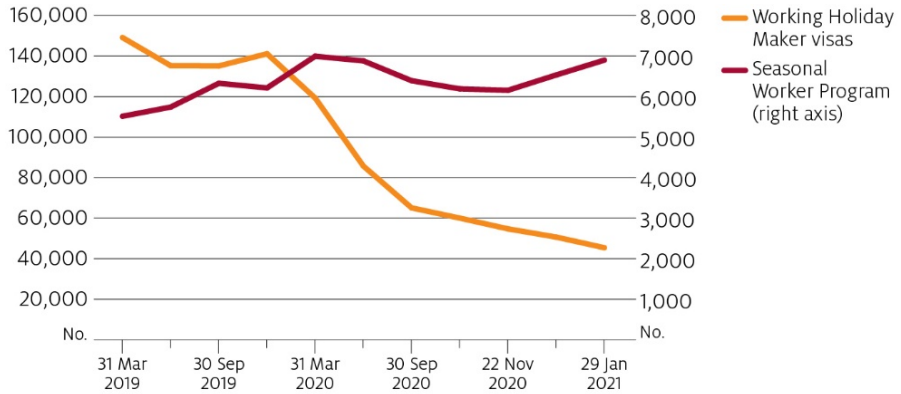
Upside and downside scenarios are also considered. The upside scenario combines a faster economic recovery from the COVID-19 pandemic with another high rainfall year in 2021–22. A very dry year is still assumed in 2022–23. Because it follows an assumed wetter year, negative effects on production are reduced. The downside scenario combines a slower than expected economic recovery with very dry years in 2021–22 and 2025–26.

Fall in supply of overseas workers in short term

A large fall in the supply of overseas workers is expected to reduce the supply of horticultural produce in 2020–21 and 2021–22.

The supply of overseas workers on working holiday maker visas and from the seasonal worker program declined significantly following the introduction of COVID-19 containment measures, which curtailed international travel. The major impact was on the number of working holiday makers, which fell by 64% in 2020 to around 61,000.

Number of visas granted, by selected visa category, March 2019 to January 2020



Source: Department of Home Affairs

ABARES has assumed that the overseas labour supply will be around 50% of pre-COVID-19 levels in 2020–21, which is a significant fall in the usual workforce available to horticultural enterprises. The rise in the number of seasonal workers is likely to be limited until after the peak harvest period (February, March and April) in 2020–21. No additional backpackers are expected. ABARES forecasts assume a staged return to pre-COVID-19 levels of overseas labour supply in 2021–22 and 2022–23.

The supply of overseas labour is expected to be around 70% of pre-COVID-19 levels in 2021–22. The present impasses preventing Pacific Islanders from coming to Australia in large numbers on seasonal worker visas are assumed to be resolved during 2021. This would add significantly to the supply of overseas workers during the peak harvest period (February, March and April) in 2021–22. However, because overseas travel into Australia is expected to remain restricted until at least the end of 2021, the number of working holiday makers (backpackers) is expected to remain low. Even if restrictions on inbound travel ease significantly early in 2022, holiday makers would not be expected to come to Australia in time for the peak harvest months in 2021–22.

Constraints to the supply of overseas labour are assumed to be removed by 2022–23. Seasonal workers from the Pacific Islands and working holiday makers are assumed to be able to travel to Australia in sufficient numbers to eliminate any shortages. For the final 2 years of the projection no constraints to the use of overseas labour are assumed.

Modelling the impact of labour shortages

Analysis of the likely impact of the reduced supply of overseas labour on production and prices in 2020–21 was reported in *Agricultural commodities: December quarter 2020*. That analysis included a discussion about the uneven regional impact of the reduced supply of overseas labour, adaptive responses of growers and Australian Government measures to bolster labour supply. Also described was ABARES approach to modelling the effect of the reduced supply of overseas labour on production and prices. That approach was modified slightly for the analysis reported here. A more aggregated level was used to run the model over multiple years and includes the impact of demand and the impact of the climate, economic and labour market scenarios.

Changes to supply of overseas workers to affect production

The assumed fall in the supply of overseas labour is forecast to reduce production of some horticultural products in 2020–21, despite

favourable seasonal conditions. Production of fruit is forecast to fall by around 17% and production of vegetables by around 2%. Typically fruit and table grape producers are most reliant on overseas workers for picking and packing fruit. Packing sheds are becoming increasingly automated but there is no viable alternative to manual harvesting of most fruit. Many vegetable producers are smaller scale and less acutely affected by the reduced supply of overseas labour because they are better able to mobilise family labour, and are often located in peri-urban areas that are more attractive to local workers.

Production is forecast to increase in 2021–22 and 2022–23 as constraints on the supply of overseas workers return to pre-COVID-19 levels. A large number of almond and citrus orchards are coming into full production over the projection period. These will contribute to small increases in aggregate production, particularly over the latter part of the projection period.

Consistent demand drives prices higher when supply falls

Despite demand for some horticultural produce being somewhat seasonal, demand for many products is quite consistent throughout the year, serviced by counter-cyclical imports of fresh produce from overseas. Counter-cyclical imports also occur between Australian states. This is common during the winter months when many sought-after fresh vegetables are imported into the southern states from Queensland. However, counter-cyclical imports add transport and biosecurity costs and are not always instantly available when local supplies fall.

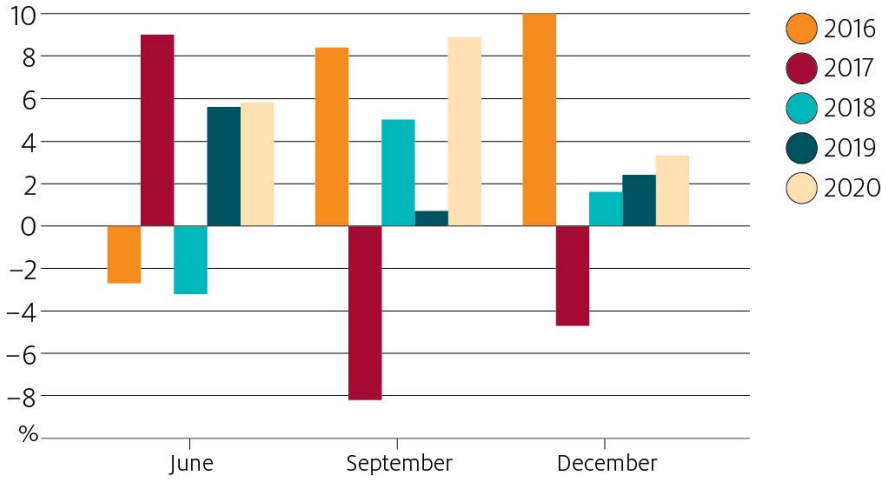
Demand for horticultural produce in Australia is not particularly sensitive to changes in price. For example, Australian consumers generally do not significantly reduce purchases of fresh produce when prices rise. Most household purchases of fresh produce generally make up only a small share of household budgets and this provides more scope to pay higher prices for these products.

These characteristics of demand for fresh produce in Australia often mean variations in local supply lead to large short term swings in prices. Broccoli provides a good example of this phenomenon. Its price regularly cycles between about $4 per kilogram and about $7 per kilogram in southern states, depending on crop cycles and the source location.

In this context, forecast price changes of between 7% and 29% are not particularly unusual and are unlikely to come as a shock to consumers of fresh produce.

Disruptions to the supply of fresh fruit and vegetables have been occurring since March 2020. Year-on-year increases in fruit and vegetable prices in the December quarter in 2020 were higher than recent years. In 2016, the December price increase was much higher than other years because of floods in key growing regions. In the September quarter, year-on-year price increases in 2020 were much higher than recent years and slightly higher than in 2016 when floods adversely affected key growing regions. In the June quarter, the year-on-year price increases in 2020 were similar to 2019 when there was unfavourable growing conditions in key Queensland growing regions but much lower than in 2017 when there was very unfavourable growing conditions in key growing regions. Increases in farmgate prices are likely to be passed onto consumers by retail outlets and show up in consumer prices.

Year-on-year changes to fruit and vegetable consumer price index, 2016 to 2020

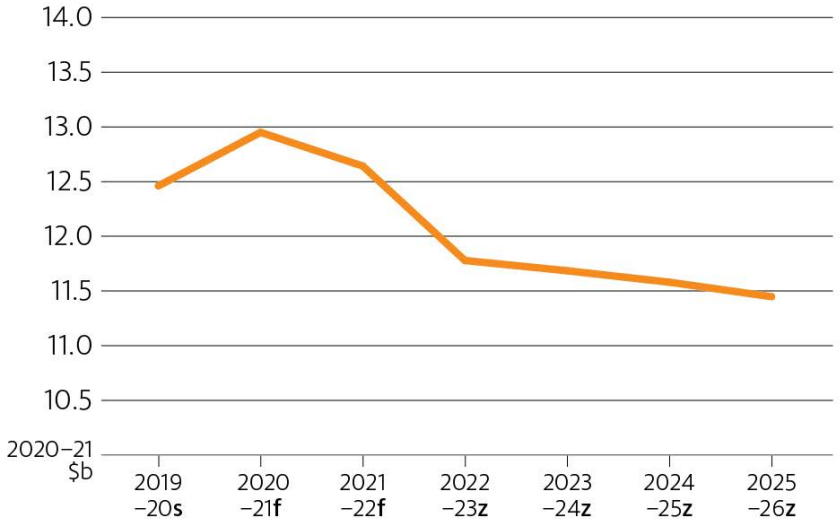


Source: ABS

Production value to rise in 2020–21 then fall

Despite a forecast fall in the volume of production, higher prices are forecast to result in an increase in the gross value of horticultural production by 6% to almost $13 billion in 2020–21, 17% above the 5-year average to 2019–20 in nominal terms. The value of vegetable production is forecast to increase to a record high of $4.9 billion, 18% above the 5-year average to 2019–20 in nominal terms. The value of fruit and tree nut production is forecast to increase to $5.6 billion, 20% above the 5-year average to 2019–20 in nominal terms.

Horticulture gross value of production, 2019–20 to 2025–26



f ABARES forecast. **s** ABARES estimate. **z** ABARES projection.
Sources: ABARES

The value of horticultural production is forecast to fall in 2021–22 and 2022–23. With overseas labour assumed to return in stages to pre-COVID-19 levels over those years, production is forecast to increase and prices to fall.

Over the latter part of the projection period when constraints to the supply of overseas labour subside, the value of production is forecast to increase in nominal terms at a small but steady rate, but to fall in real terms. This is expected to be driven by increasing productivity and production, especially in horticultural commodities that have a higher than average export orientation, particularly almonds and citrus. There were significant plantings in these sectors around 2016–17, and shortly after, which will bear over the next few years.

For example, almond production is set to reach a record high in 2020–21, with more trees coming into production over the projection period. In the climate scenarios behind these forecasts, sufficient irrigation water is expected to be available for these high value crops. Even if the supply of irrigation water falls, and the price of water increases, producers of high value crops are still expected to purchase what they need to maximise production. Export demand for these products is expected to grow over the projection period. These products are popular in countries where incomes are rising and consumers are becoming more health conscious. Demand will be aided by a slowly recovering world economy following the roll out of COVID-19 vaccines.

Export value to rise

Exports of fresh horticultural produce are expected to be mixed in 2020–21. The value of almond exports is forecast to grow due to expected record production and growing demand in Asia, particularly China and India. There are already contracts in place for the expected exports to China in 2020–21. The value of vegetable exports is forecast to grow modestly in 2020–21. However, the value of fruit exports is forecast to fall with fruit production expected to be most affected by the reduced supply of overseas labour. Over the latter part of the projection period, the value of horticultural exports is forecast to grow steadily, driven by growth in fruit and nut exports.

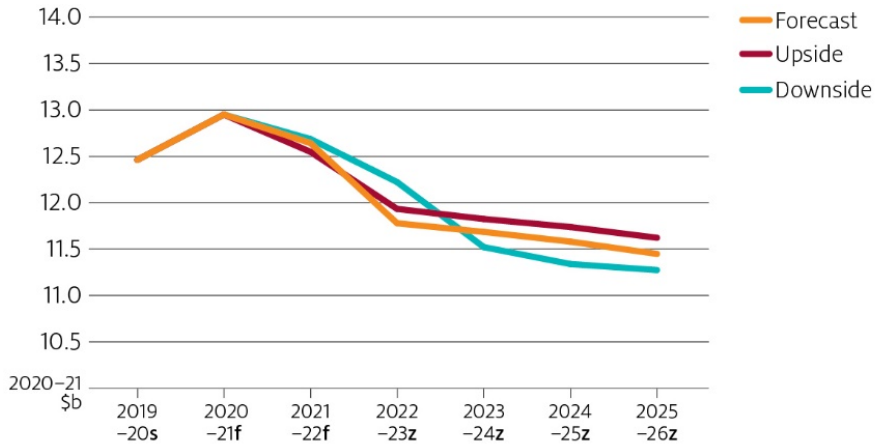
Alternative scenarios

The upside scenario has very much above average rainfall early in the projection period followed by one year of very much below average rainfall and 3 years of just below average rainfall. The economic outlook is more positive than forecast, with a rapid recovery in the world economy following vaccine rollouts for COVID-19. The labour market outlook is also more positive, with a larger return of overseas labour in 2021–22 than used to produce the forecast.

The value of horticultural production is forecast to be lower in the upside scenario than in the 2021–22 forecast. An assumed higher supply of overseas labour would increase the volume of production. Higher production would result in a faster fall in prices as the sector adjust backs to pre-COVID-19 trends.

From 2022–23 to the end of the projection period, the value of horticultural production in the upside scenario would be expected to be higher than in the forecast. The year with very much below average rainfall comes after 2 years of well above average rainfall, and well-stocked water storages can reasonably be expected to buffer horticultural production. Constraints to the supply of overseas labour are removed by 2022–23 and the more favourable economic outlook would be expected to drive stronger export demand for products like almonds and citrus.

Scenarios for horticulture gross value of production, 2019–20 to 2025–26



f ABARES forecast. **s** ABARES estimate. **z** ABARES projection.
Source: ABARES

The downside scenario assumes well below average rainfall early in the projection period in 2021–22 and again in 2025–26, with just below average rainfall in the intervening years. The well below average rainfall early in the period comes after one year of well above average rainfall that would replenish water storages but not to the same degree as 2 years of above average rainfall early in the upside scenario. Consequently, horticultural production is forecast to be more adversely affected by the well below average rainfall early in the period in the downside scenario. Similarly, well below average rainfall in 2025–26 would have a more significant adverse impact on production. This is because it follows the year of well below average rainfall early in the period and 3 subsequent years of just below average rainfall.

The economic environment in the downside scenario is assumed to be difficult, with ongoing outbreaks of COVID-19 leading to ongoing containment measures that restrain economic activity and people movements. These measures would lead to a slower return of overseas labour. World economic activity would be dampened for much of the period with some recovery late in the projection period. This delayed economic recovery would increase export demand for horticultural produce like almonds and citrus late in the projection period, providing a partial buffer to the downward impact on the value of production caused by projected lower production.

The value of horticultural production in 2022–23 is forecast to be higher in the downside scenario than in the forecast, mainly because of the lower supply of overseas labour. The volume of production would be lower, which would be expected to lead to proportionately higher prices.

Opportunities and challenges

Labour shortage may spur productivity growth

COVID-19 is creating significant resourcing challenges for parts of the Australian horticultural industry. But this also presents the industry with an opportunity to put itself in a stronger long-term position that is better prepared for future market upheavals.

For example, robot harvesters for fruit are being developed and are closer to being commercially viable. If this technology becomes commercially viable it would help protect the industry against future labour shortages. Labour saving technologies could also lower variable operating costs, increasing the competitiveness of the industry in growing export markets. However, this kind of innovation requires significant capital investment, and may also require changes to

existing production systems. For example, the way orchards are laid out may need to be altered to maximise the cost and picking effectiveness of robots.

Outlook for horticulture

Category	unit	2018–19	2019–20 s	2020–21 f	2021–22 f	2022–23 z	2023–24 z	2024–25 z	2025–26 z
Gross value									
nominal	$m	11,782	12,260	12,951	12,832	12,141	12,276	12,409	12,543
real **a**	$m	12,135	12,461	12,951	12,642	11,778	11,685	11,580	11,448
Fruit and tree nuts (excl. grapes)									
nominal	$m	4,981	5,186	5,559	5,447	5,083	5,135	5,187	5,239
real **a**	$m	5,130	5,271	5,559	5,366	4,931	4,888	4,840	4,781
Table and dried grapes									
nominal	$m	497	510	547	543	507	512	517	522
real **a**	$m	512	518	547	535	492	487	483	477
Vegetables									
nominal	$m	4,374	4,603	4,852	4,818	4,497	4,542	4,588	4,634
real **a**	$m	4,505	4,678	4,852	4,747	4,362	4,324	4,282	4,229
Nursery, cut flowers and turf									
nominal	$m	1,677	1,705	1,732	1,759	1,786	1,813	1,840	1,867
real **a**	$m	1,728	1,733	1,732	1,733	1,732	1,725	1,717	1,704
Other horticulture **nei b**									
nominal	$m	253	257	261	265	269	273	277	281
real **a**	$m	261	261	261	261	261	260	259	256
Exports									
nominal	$m	3,360	3,434	3,521	3,603	3,486	3,610	3,740	3,873
real **a**	$m	3,461	3,490	3,521	3,549	3,382	3,436	3,491	3,535
Fruit									
nominal	$m	1,493	1,647	1,505	1,523	1,492	1,588	1,686	1,783
real **a**	$m	1,538	1,674	1,505	1,501	1,447	1,512	1,573	1,627
Tree nuts									
nominal	$m	1,074	1,017	1,238	1,301	1,241	1,255	1,271	1,289
real **a**	$m	1,106	1,034	1,238	1,282	1,204	1,195	1,186	1,177
Vegetables									
nominal	$m	457	481	517	528	507	526	546	565
real **a**	$m	471	488	517	520	492	501	509	516
Nursery									
nominal	$m	16.3	15.1	16.3	15.1	16.3	15.1	16.3	15.1
real **a**	$m	16.8	15.3	16.3	14.9	15.8	14.4	15.2	13.8
Other horticulture **b**									
nominal	$m	320	275	245	235	230	225	222	220
real **a**	$m	330	279	245	232	223	214	207	201

a In 2020–21 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; ABS

Wine and wine grapes

Peter Collins and Charley Xia

Average prices of wine grapes and wine exports to fall

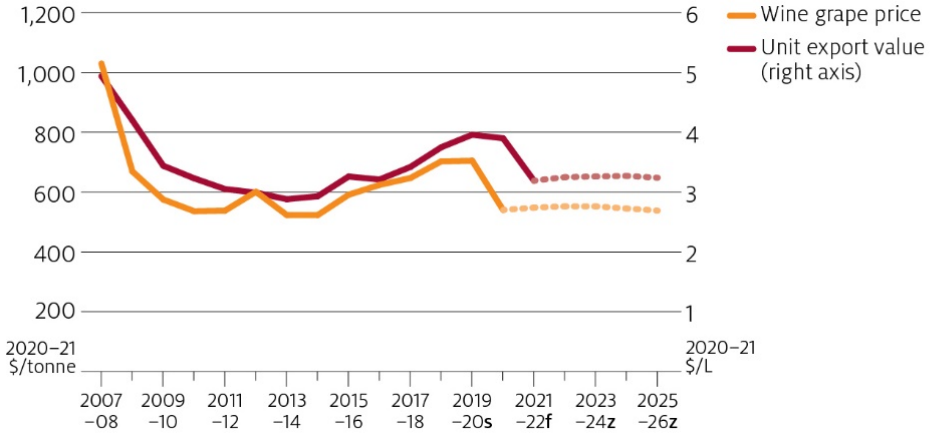
The average price of Australian wine grapes is forecast to fall from $694 per tonne in 2019–20 to $540 per tonne in 2020–21. The major reason for this is the loss of China as a significant export market for Australian wines. This is also expected to constrain prices over the remainder of the projection period. The price is expected to rise slightly to $556 per tonne in nominal terms in 2021–22.

Wine grape and wine production are forecast to increase in 2020–21 on the back of improved seasonal conditions after below average production in 2019–20. Labour has proved to be less of an issue for wine and wine grape producers in 2020–21 than it has for other horticultural industries. Australian wine production is expected to remain around 1.2 million litres over the projection period to 2025–26. This represents a return to 2006–07 and 2014–15 levels – before the China export boom.

Wine exports are forecast to fall in 2020–21 following the sudden loss of China as a significant market. The impact of that market loss is forecast to keep exports relatively constant between 2021–22 and 2022–23 before rising slightly at the end of the projection period. The average export price of wine will be lower over the projection period compared with the 3 years to 2019–20. This is expected to hold down the average price of Australian wine grapes.

The recovery of the world economy in response to vaccine rollouts for COVID-19 is expected to provide a modest boost to demand for Australian wine, lifting exports and wine grape prices in nominal terms towards the end of the projection period. However, wine grape prices are still expected to remain below $600 per tonne over the projection period to 2025–26, about 15% to 20% lower than in 2019–20.

Average wine grape prices in Australia and unit export values, 2007–08 to 2025–26



f ABARES forecast. **s** ABARES estimate. **z** ABARES projection.
Sources: ABARES; ABS

Medium term scenarios for forecasts

Medium-term forecasts from 2022–23 to 2025–26 for Australian wine and wine grapes are based on the average outcomes of 4 possible seasonal climate scenarios. A very dry season in the wheat-sheep zone is likely to occur in one of the 4 years. Each scenario places this dry season in a different year, with other years assumed to receive rainfall of deciles 3 to 4. For a more detailed explanation see the Agricultural overview.

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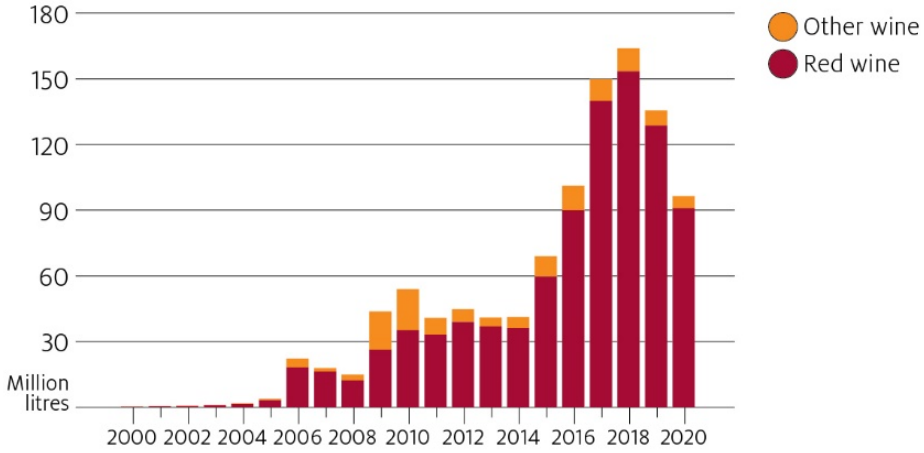
China trade disruption

The loss of China as an export market will shape the Australian wine industry over the projection period.

Australian wine exports to China were negligible before jumping to 22 million litres in 2006 and 41 million litres in 2014. Over the next 4 years, these exports grew dramatically, to peak at 164 million litres in 2018. In that year, 19% of the 859 million litres of wine exported from Australia went to China. Between 2014 and 2018, Australian exports of red wine to China increased by 117 million litres to 153 million litres and comprised 93% of all wine exports to China.

Much of the 117 million litre increase in exports of red wine to China between 2014 and 2018 came from increased Australian production. Some came from diversion of bottled red wine from other export markets, which in turn was backfilled by exports of bulk red wine. However, the extent of Australia's trade diversion from third markets to China was small. Red wine exports to the United States fell by just 12 million litres and the United Kingdom by 1 million litres over this period, and volumes diverted from other, smaller export markets were too insignificant to make up the increase in exports to China.

Australian wine exports to China, 2000 to 2020



Sources: ABARES; ABS

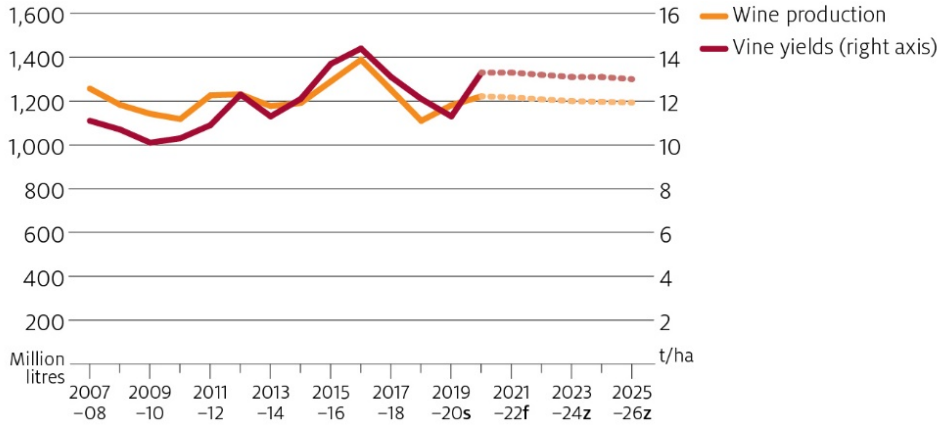
On 27 November 2020, the Chinese Ministry of Commerce announced that from 28 November 2020 Chinese imports of Australian wine will

be subject to anti-dumping security deposits. These duties are sufficiently high to curtail exports of Australian wine to China. The average price of wine exported to China was around 17% higher than the average price of wine exported to all other markets. Given that around 60% of Australian wine is exported, the loss of the China market is expected to flow through to the price wineries pay for wine grapes.

Production and exports in the absence of China

After 2 years of below average production, wine grape and wine production are forecast to recover to longer-term averages in 2020–21 at around 1.5 million tonnes of wine grapes and around 1.2 billion litres of wine. The recovery is a result of more favourable seasonal conditions. Negligible exports to China combined with low prices are forecast to keep wine grape and wine production in Australia at around these levels over the projection period to 2025–26. This is 14% below the 1.4 billion litre peak of wine production reached in 2016–17 during the China export boom. Red wine represents most of the recent variation in wine production. The forecast production levels are expected to be achieved by maintaining the bearing area of vines at around the same level as the last 5 years and by managing yields.

Wine production and average vine yield in Australia, 2007–08 to 2025–26



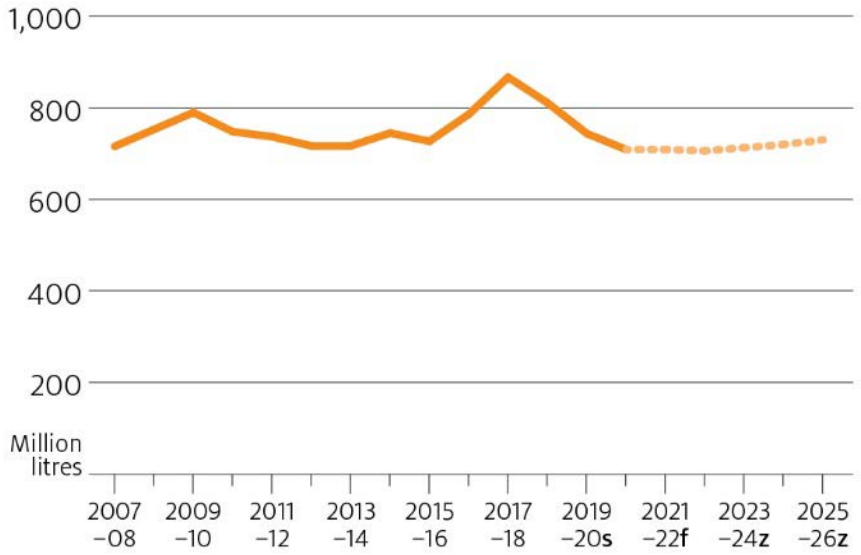
f ABARES forecast. **s** ABARES estimate. **z** ABARES projection.
Sources: ABARES; Wine Australia

The Australian wine industry is forecast to remain export focused and continue to export around 60% of production. The volume of wine exports is expected to be around 709 million litres in 2020–21 and rise slightly over the latter part of the projection period to 730 million litres in 2025–26 as the world economy recovers. The export volume forecast for 2020–21 is down from 744 million litres in 2019–20. This contrasts with a peak of 867 million litres in 2017–18 at the height of the export boom to China.

From the second half of 2020–21, the United Kingdom, the United States, Canada and New Zealand are expected to be the major destinations for Australian wine exports. All export markets other than China are expected to absorb around 15% more wine from Australia annually in the first part of the projection period than these

markets imported in 2019 and 2020. Expansion into these alternative markets is assumed to extend through the projection period.

Wine exports from Australia, 2007–08 to 2025–26



f ABARES forecast. **s** ABARES estimate. **z** ABARES projection.
Sources: ABARES; ABS

The recovery of wine production in 2020–21 to a longer-term average, and the loss of China as a major export market in December 2020, are expected to result in a slight increase in wine stocks in 2020–21. Wine stocks fell in each of the previous 3 years as sales outpaced production during the drought. With lower projected production and exports over the medium term, stocks are forecast to remain relatively stable over most of the projection period, falling slightly in 2025–26.

The value of wine exports is forecast to fall to $2.8 billion in 2020–21, down from $2.9 billion in 2019–20 and from the peak of $3 billion in 2018–19 during the export boom to China. This is due to the forecast fall in the volume of exports and an expected fall in the average unit value of wine exported from Australia following the loss of China as a major export market in December 2020. In the 5 years to 2019, the average unit value of wine exported to all markets, including China, was $3.28 per litre. The average unit value of wine exported to all markets, excluding China, was $2.73 per litre. The exclusion of China deducts 17% from the average unit value because the average unit value of wine exported to China over the 5 years to 2019 was $6.24 per litre.

From 2021–22 until 2023–24 the value of wine exports is forecast to be around 14% to 17% lower than in 2020–21, at between $2.3 billion and $2.4 billion. It is expected to increase slightly to around $2.6 billion towards the end of the period as the world economy recovers after the rollout of vaccines for COVID-19.

Adjustment to new wine blends

The composition of forecast falls in Australian production and exports is expected to change over the period to 2025–26. Following the loss of China as a major market, substitution by winemakers is expected towards lower-valued wines. It is likely that some grapes formerly used to produce high-value wine will be blended with other grapes to produce lower-value wine. It is expected this will happen relatively quickly because China was lost as a major export market before wineries started making wine from the 2020–21 wine grape harvest.

The expected fall in the share of high-value wines in production and exports could be mitigated if marketing campaigns designed to sustain demand for high-value wine are successful. However, such campaigns take time to generate benefits for the industry. It will also be difficult

to replace a market the size of China. These forecasts assume minimal success in growing demand for high-value wine over the projection period.

Alternative scenarios

The upside scenario has very much above average rainfall early in the projection period, followed by 1 year of very much below average rainfall and 3 years of just below average rainfall. The economic outlook is more positive, with a rapid recovery in the world economy following vaccine rollouts for COVID-19.

Wine grape and wine production are higher in the upside scenario than in the forecast in all years of the projection period. The year with very much below average rainfall comes after 2 years of well above average rainfall, so well-stocked water storages can reasonably be expected to buffer wine and wine grape production. Wine grape prices would be expected to be higher than in the baseline scenario with the more favourable economic outlook likely to drive higher export demand for wine.

The downside scenario assumes well below average rainfall in 2021–22 and 2025–26, with just below average rainfall in the intervening years. The well below average rainfall early in 2021–22 follows a year of well above average rainfall that would replenish water storages, but not to the same degree as the 2 years of above average rainfall in the upside scenario. Consequently, wine and wine grape production are forecast to be more adversely affected by the well below average rainfall early in the period than in the upside scenario.

Similarly, well below average rainfall in 2025–26 would have a more significant adverse impact on production of wine and wine grapes. This is because it follows 3 years of just below average rainfall.

The economic environment in the downside scenario is assumed to be difficult, with ongoing outbreaks of COVID-19 leading to measures that restrain economic activity. Economic activity would be dampened for much of the period, with some recovery late in the projection period. This delayed recovery would delay increases in export demand for wine and rises in the price of wine grapes until late in the projection period. This late rise in demand would provide a partial buffer to lower production caused by unfavourable rainfall late in the projection period.

Opportunities and challenges

Overcoming low industry growth after losing China as a market

The loss of China as a major export market for Australian wine looks set to usher in a period of low growth in the wine industry, similar to between 2006–07 and 2014–15. Overcoming this low growth is likely to be challenging.

Trend growth in domestic wine sales slowed after 2009–10 so the small-size of Australia's domestic market may provide only limited opportunities for industry growth. The sheer size of the global wine market means it will most likely provide the best opportunity for future growth. But the industry may be challenged to identify opportunities to expand exports to existing major export destinations.

For example, the United States remains one of Australia's largest wine export markets, but the volume of Australian wine exported to the United States has trended down since 2009. In 2019 it was around

103 million litres lower than in 2009, a 42% fall, and the value of these exports fell by 37%. Similarly, the volume of Australian wine exports to the United Kingdom has trended down since 2008, and in 2019 was 37 million litres less than in 2008, a 14% reduction. The value of these exports dropped by 54%. This was the result of a shift away from bottle wine exports towards bulk containers of wine, with bottling undertaken in the United Kingdom.

The best opportunities for growth may lie with a group of low volume but exceedingly high value markets such as Singapore, Malaysia and the United Arab Emirates. The value of these markets for Australia's wine industry has grown rapidly, and may represent the best opportunity to sell high-value wine formerly exported to China.

A boost from wine tourism

Interstate travel remains problematic and the peak summer holiday season has passed, but intrastate winery tours will remain a popular weekend leisure activity for the rest of the year. This is especially the case for the many wineries in close proximity to major urban centres. These provide a positive opportunity for wine tourism and cellar door sales. These activities were curtailed by COVID-19 restrictions and their revival will provide a welcome boost to wine sales.

Natural fibres

Chris Mornement

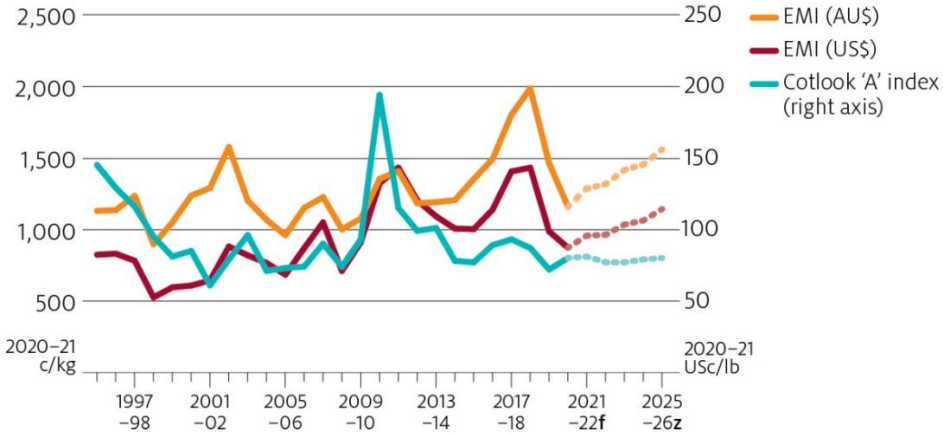
Cotton prices to rise and steady, wool prices to rise

The world cotton indicator price is forecast to average US83 cents in 2021–22, up from US80 cents in 2020–21. Strong import demand from China and recovering global demand more generally are forecast to support prices throughout 2021. However, high stock levels and competition from synthetics are expected to keep cotton prices near current levels in real terms over the outlook period.

The Eastern Market Indicator (EMI) price for wool is forecast to average 1,300 cents per kilogram clean in 2021–22. This is a 12% increase from 2020–21 but remains 33% lower than the peak in 2018–19. Lower consumer demand and supply-chain disruptions throughout 2020 reduced demand for wool in textile manufacturing. As a result, wool prices reached near 11-year lows in late 2020. High price volatility throughout 2020 is consistent with the niche role that wool plays in world fibre markets.

Stronger global economic growth over the medium term to 2025–26 is forecast to lead to higher wool prices, especially for superfine and fine micron wools used in woollen apparel.

Eastern Market Indicator, Cotlook 'A' index, 1995–96 to 2025–26



f ABARES forecast. **z** ABARES projection.
Sources: ABARES; AWEX; Cotlook

Medium-term scenarios for forecasts

Medium-term forecasts from 2022–23 to 2025–26 for Australian cotton and wool are based on the average outcomes of 4 possible seasonal climate scenarios. A very dry season in the wheat-sheep zone is likely to occur in one of the 4 years. Each scenario places this dry season in a different year, with other years assumed to receive rainfall of deciles 3 to 4. For a more detailed explanation see the Agricultural overview.

The range of outcomes forecast to result from each scenario are then averaged. Unless otherwise indicated, these average forecasts – or their ranges – are discussed in this note.

Upside and downside scenarios are also considered. The upside scenario combines a faster economic recovery from the COVID-19 pandemic with another high rainfall year in 2021–22. A very dry year is still assumed in 2022–23. Because it follows an assumed wetter year, negative effects on production are reduced. The downside scenario combines a slower than expected economic recovery with very dry years in 2021–22 and 2025–26.

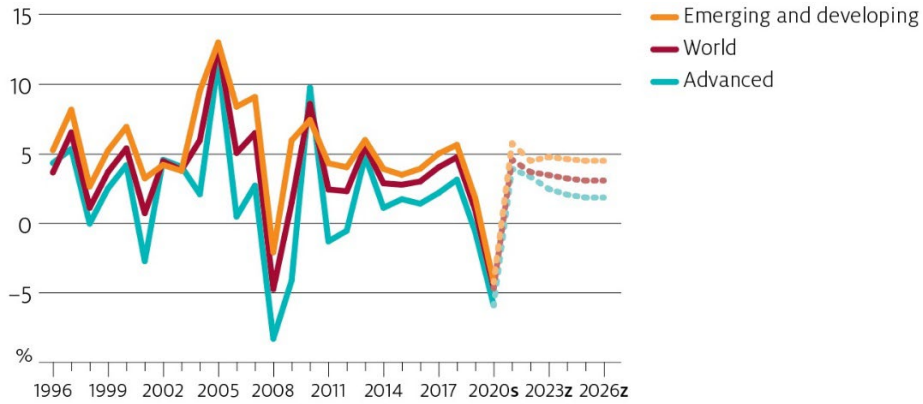
Demand to grow after a disrupted year

Recovery in textile demand mostly via synthetics

COVID-19 containment measures disrupted textile manufacturing operations throughout 2020 and reduced consumer demand. Growth in global incomes is projected to drive recovery in textile demand to pre-COVID-19 levels by 2022, increasing further over the outlook period to 2025–26.

Stronger income growth in emerging and developing economies is expected to drive more of this recovery in demand, particularly for synthetics. In advanced economies, income recovery is expected in the short term, but slower growth is assumed over the medium term.

World textile demand growth, 1996 to 2026



s ABARES estimate. **z** ABARES projection.
Note: For breakdowns of advanced and of emerging and developing economic groups, see the table in the Economic overview.
Sources: ABARES; International Cotton Advisory Committee

Natural fibres form a larger share of textile consumption in advanced economies, but synthetics occupy a larger share of textile demand in emerging and developing economies. Assumed stronger economic growth in emerging and developing economies over the medium term is expected to further decrease the share of natural fibres in world textile demand.

Global consumption of cotton is projected to increase by an average of 2% per year from 2021 to 2026, to reach 26.9 million tonnes. Global consumption of wool is projected to increase on average by 1% per

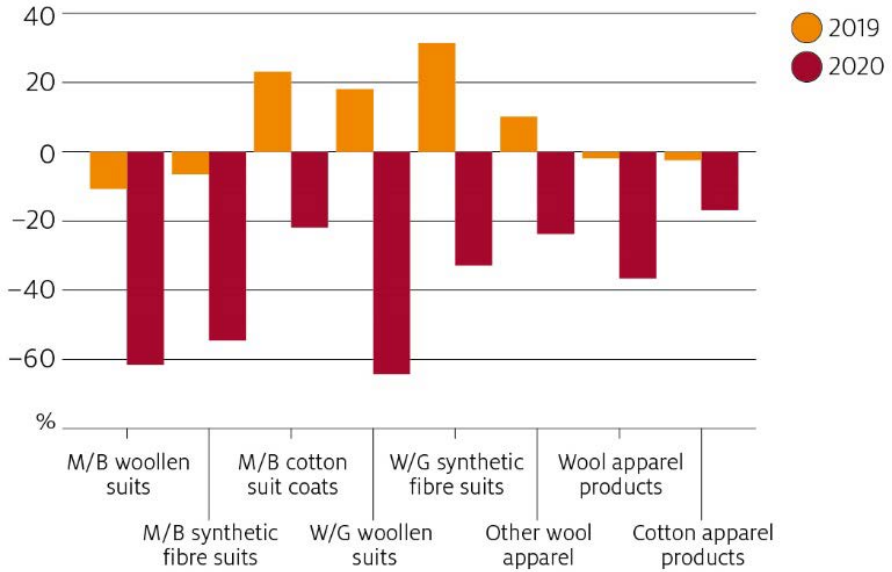
year, to reach 1.1 million tonnes by 2026. In contrast, global consumption of chemical fibres (synthetic and cellulosic) is projected to increase by an average of 4% per year, to reach 89.9 million tonnes by 2026.

Niche wool demand subject to variability in key markets

Wool is a high-value niche product in world textile markets, contributing 1% of world textile consumption. The low share of wool consumed relative to other fibres – and the availability of cheaper substitutes for many uses – means that the price of wool is volatile and highly sensitive to small changes in demand and supply. Demand for Australian wool is mostly driven by consumer demand for woollen apparel in China and by demand in global markets for Chinese textiles. Small volumes of Australian wool are also exported to OECD countries. Throughout 2020, shifts in consumer sentiment and disruptions along the supply chain – including closures of manufacturing operations and across retail sectors – significantly affected Australian wool prices and export volumes.

The United States is the world's largest importer of woollen textiles and apparel. Data from the US Office of Textiles and Apparel indicate that US imports of wool products (including apparel, blankets and carpets) declined by 32% year-on-year in 2020. US imports from China, the largest source (with a 37% share in 2019) were down by 42% year-on-year. Disruptions to economic activity in the United States, including job losses and the closure of clothing retailers, contributed to lower consumer demand for woollen apparel. A combination of pessimistic consumer sentiment and widespread working from home arrangements contributed to lower US suit imports. For example, imports of men's and boys' woollen suits were down by 62% and synthetic fibre suits by 55% in 2020.

Year-on-year change in US import volumes for various apparel types, 2019 and 2020



M/B Men's and boys' garments. **W/G** Women's and girls' garments.
Note: Percentage change is taken on import volume data, relative to the previous calendar year.
Source: US Office of Textiles and Apparel

In September 2019, US import tariffs on woollen apparel from China rose by 15% as a result of the US–China trade dispute. The phase one agreement between the 2 countries left this tariff arrangement unchanged. This will continue to dampen US demand for imported woollen apparel from China when economic recovery commences in the United States.

China is a major consumer of woollen products, with domestic consumption estimated to account for between 50% and 60% of China's total raw wool imports. In China, the economic and consumer

disruption caused by COVID-19 containment measures pushed retail sales of garments, footwear, hats and knitwear down by 11% year-on-year in 2020.

In the eurozone, resurgences of COVID-19 have dampened consumer confidence and forced renewed lockdowns, reducing demand for fibres across the value chain. This is on top of the weak consumer demand and slow income growth faced by advanced economies in the eurozone prior to COVID-19.

Recovery in demand for woollen apparel in these key markets will continue to be uneven and subject to containment or vaccination measures to control COVID-19. This means that the forecast increase in Australian wool prices is expected to be relatively modest, at least until export demand for Australian greasy wool returns to pre-COVID levels.

Wool production to recover with sheep numbers

Australian shorn wool production is forecast to rise by 2% in 2020–21 to 288,000 tonnes. Continued favourable seasonal conditions throughout 2020–21 are forecast to lift fleece weights close to the 10-year average, offsetting the reduced number of sheep to be shorn nationally. Australian wool supply is forecast to continue increasing gradually from 2021–22 onwards, driven largely by flock rebuilding. Low auction offerings and clearance rates relative to the volume of wool tested throughout 2019–20 and 2020–21 resulted in stock accumulation both on-farm and in storehouses. In the short to medium term, wool price growth is expected to also be dampened by the supply of wool exceeding demand until stocks are cleared.

World cotton production to grow slowly and stocks to fall

World cotton production is forecast to be 7% lower in 2020–21, at 24.3 million tonnes. This is largely driven by reduced area planted in most producing countries, and below average yields in the United States and Pakistan. World cotton stocks are forecast to reach 21.2 million tonnes by the end of 2020–21 – a rise of 3.7 million tonnes since mid-2019 due to COVID-19 related milling disruptions. A strong rise in import demand throughout 2020–21 by major world processors China and Pakistan has supported international cotton prices. Both countries are importing to fill deficits in useable supply. For Pakistan, stronger import demand is the result of 2 consecutive poor crop seasons. China's import demand stems from the combined impact of the phase one agreement with the United States and bans on cotton exports from the Xinjiang region.

World cotton production is projected to grow to 26.2 million tonnes by 2025–26, driven largely by yield improvements in producing countries such as the United States, India, China and Brazil. Area planted to cotton in China is forecast to decrease over the medium term, scaling down production in line with a long-term declining trend in domestic mill use. Chinese mill use peaked in 2007. Since then, increasing labour costs and stricter environmental regulations have led to a gradual shift of spinning capacity to lower-cost countries such as Bangladesh and Vietnam. World cotton consumption is projected to grow to 26.9 million tonnes by 2025–26 as a result of increased textile demand. The largest growth is expected in India, Bangladesh, Vietnam and Indonesia.

World raw cotton trade is projected to increase to 10.2 million tonnes by 2025–26. Exports are expected to increase from the United States,

Brazil, Sub-Saharan Africa and Australia as production grows in each of the regions. World cotton markets will continue to face potential disruption from changes in trade and support policies in major producing countries. Imports are expected to increase in developing economies such as Bangladesh, Vietnam and Indonesia. These countries do not produce much cotton, but they are increasingly using cotton as an input to manufacture and export yarn, textiles and clothing.

Australian cotton production to rise

ABARES forecasts for cotton production over the medium term are based on a scenario that reflects climatic conditions similar to those experienced over the last 20 years. Alternative scenarios are considered in the Upside and downside scenarios for natural fibres section in this note.

Australian cotton production is forecast to reach 2.4 million bales in 2020–21. This is a significant recovery from 2019–20, but still 28% below the 10-year average to 2019–20. Above average rainfall over much of New South Wales throughout autumn and winter 2020 increased dam storages, soil moisture and general security allocations in time for the growing season. Similarly for Queensland, large rainfall events early in 2020 are expected to have recharged groundwater aquifers and boosted on-farm storages in cotton regions. As a result, areas planted to cotton in New South Wales and Queensland are forecast to have increased significantly in 2020–21.

Australian cotton supply is forecast to increase further in 2021–22 due to significant water carryover in New South Wales and assumed improvements in water storages for northern New South Wales and southern Queensland.

This forecast assumes a low likelihood of the recurrence of favourable climate drivers, such as a La Niña or a negative Indian Ocean Dipole, over the next 5 years. In the absence of these drivers, water storage drawdown is expected to exceed water inflow in each projection year. As a result, cotton area is projected to fall in the traditional growing regions of the Murray–Darling Basin over the medium term from 2022–23 onwards.

Upside and downside scenarios for natural fibres

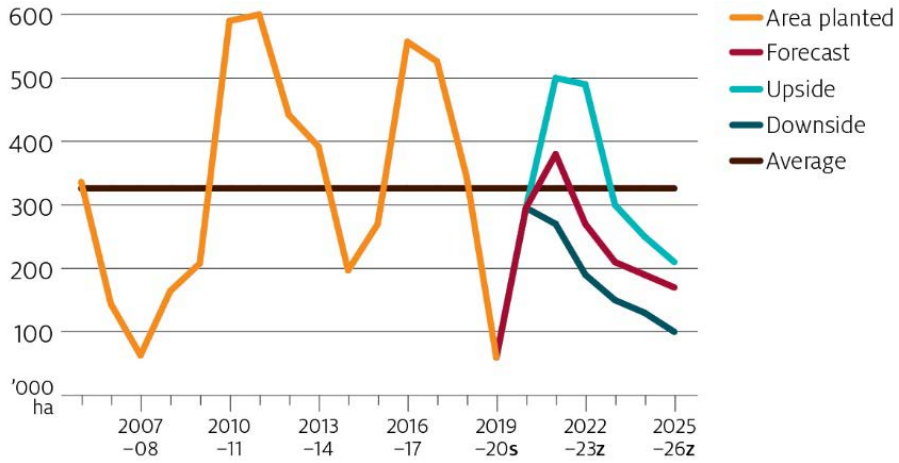
Given the level of uncertainty affecting the supply of and demand for Australian cotton and wool, upside and downside scenarios can highlight potential trajectories of production, consumption and prices over the medium term.

Cotton area heavily reliant on water inflows

In the upside scenario, continued favourable seasonal conditions are forecast to increase area planted to cotton to 500,000 hectares in 2021–22, representing almost full plantings in most irrigated cotton regions. Over the medium term, area planted is projected to fall, with water storages in 2025–26 nearly reaching those of the forecast (baseline).

In the downside scenario, assumed dry conditions in 2021–22 are forecast to decrease area planted, particularly in dryland cotton. Some water storage or carryover is expected to remain available from the wet 2020–21 season, which will initially support area for irrigated or semi-irrigated plantings. Area planted is then projected to remain below average over the medium term, falling over time to reach 100,000 hectares in the final assumed dry year.

Australian cotton area planted projections over the medium term, 2005–06 to 2025–26



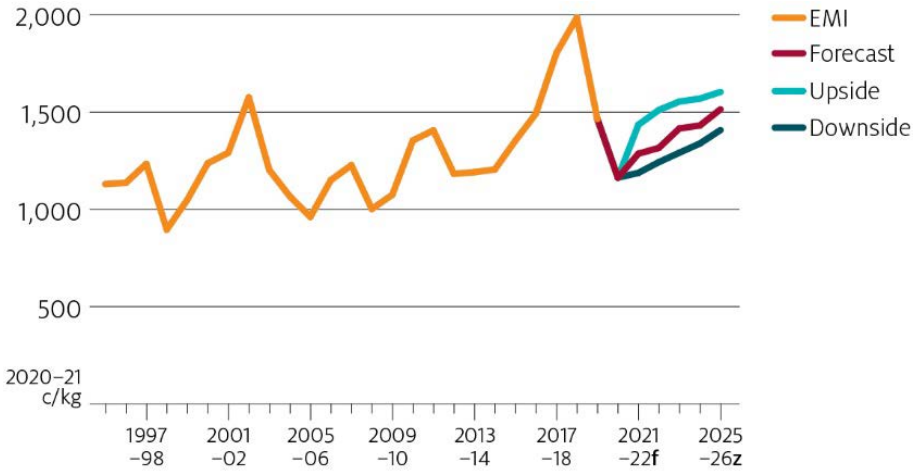
s ABARES estimate. **z** ABARES projection.
Note: 'Average' in the chart refers to the average area planted between 2005–06 and 2019–20.
Sources: ABARES; Cotton Australia

Wool prices highly sensitive to changes in demand

In the upside scenario, faster suppression of COVID-19 and earlier easing of associated restrictions are forecast to result in improved global demand. For wool, this is likely to result in higher consumer demand for woollen apparel and textiles leading into and during the 2021–22 northern hemisphere winter. In this scenario, Australian greasy wool export volumes are forecast to be significantly higher, with exports resuming to previously significant markets such as Italy and India. As a result, prices received for wool at auction are forecast to be much higher than in the baseline scenario. Continued recovery in wool demand over the medium term is forecast to drive further growth in wool prices, which will continue to be higher than the forecast out to 2025–26. This more favourable outlook for wool prices would be expected to drive producers' joining intentions towards merino and crossbreed, as opposed to the increased joining of terminal sires employed throughout 2020.

In the downside scenario, further COVID-19 outbreaks and lockdowns are forecast to slow economic recovery and dampen consumer sentiment. For wool, this is likely to result in continued weak consumer demand leading into and during the 2021–22 northern hemisphere winter. In this scenario, Australian greasy wool export volumes are forecast to remain at 2020–21 levels, driving further stock accumulation and resulting in minimal price growth during 2021–22. Wool demand is then forecast to grow in the medium term at a similar pace to that of the forecast. This slower outlook for growth in wool prices would be expected to support more meat-focused flock intentions in the short-term while wool remains relatively less profitable.

Wool price projections over the medium term, 1995–96 to 2025–26



f ABARES forecast. **z** ABARES projection.
Sources: ABARES; AWEX

Opportunities and challenges

Cotton and textile industry support policies to continue setting the agenda

Changes in support policies can have a substantial influence on world markets and are difficult to predict. Higher levels of government support can insulate producers from shocks to world markets. However, this can also reduce competition in global export markets.

China's cotton stocks have had a major influence on the world cotton market for the past 9 years. Stock accumulation and drawdowns have had a significant effect on world cotton prices due to the size of China as an importer and consumer of cotton. The timing of further stock drawdowns remains a source of uncertainty over the outlook period. Significant stock drawdowns reduce import demand in what is otherwise one of Australia's largest export markets.

Support for China's domestic cotton industry has come in the form of direct subsidies and trade restrictions. This support was estimated by the International Cotton Advisory Committee to equate to US37 cents per pound of cotton (a total of US$4.7 billion) in 2019–20. OECD estimates of producer single commodity transfers suggest that in 2019 China's cotton farmers received government support representing 46.5% of their incomes. Trade barriers, such as quotas and sliding-scale duties, protect China's cotton industry from international competition. The effective out-of-quota tariff on cotton is 40%.

The world's largest raw cotton exporter, the United States, also employs support programs for its cotton industry. Examples of US support measures include price and revenue loss insurance, subsidised crop insurance and a marketing loan program. The OECD estimated that in 2019 US cotton farmers received government support equivalent to 9.6% of their incomes, down from 19.5% in 2018.

The Indian Government supports cotton production through floor prices and programs to develop the domestic textile industry. The OECD estimated that in 2019 India's cotton farmers received government support representing 5.7% of their incomes. India is largely self-sufficient in cotton. It is the largest producer and one of the largest consumers of raw cotton, and imports very little. Its exports are principally cotton yarn and textiles and to a much lesser extent raw cotton. As a result, its support programs pose less of a threat to Australia's competitiveness in world markets compared with support

in Brazil and the United States. This is due to Australia's comparative advantage in producing and exporting high-quality cotton, rather than manufacturing yarn or textiles like India.

Textile industry developments in India

The release of India's new National Textiles Policy 2020 has been delayed as a result of the COVID-19 pandemic. This policy is expected to prioritise the production and export of textiles over raw cotton and yarn. Significant investment will be directed towards the creation of new textile manufacturing infrastructure in the form of integrated textiles parks. The recent 2021–22 budget announcements included a scheme to produce 7 'mega investment textiles parks' in the next 3 years. The budget also included a new 10% import duty on Australian raw cotton, which may further reduce the small volume of Australian cotton exports to India.

Investment that focuses on development of new textile industry infrastructure in India presents an upside over the medium term for Australian wool exports, with potential for India to import more.

Xinjiang cotton banned in several high-income consumer markets

Xinjiang cotton comprises around 90% of the Chinese cotton crop, representing 5.5 million tonnes of the country's forecast 6 million tonne 2020–21 production. During 2020–21 the United States, Canada and the United Kingdom announced that products containing Xinjiang cotton would be banned from crossing their borders for the foreseeable future. These restrictions put pressure on China's textile industry to source cotton from other nations such as the United States and Brazil. As a result, China imported large volumes of cotton, reportedly around 1.1 million tonnes from August to December 2020 alone, compared with 1.6 million tonnes for the full 2019–20 marketing year. This strong import demand is expected to continue throughout 2021, supporting world cotton prices despite high global stocks. There is uncertainty about the duration of these restrictions and whether they will be adopted by other advanced economies that import cotton products from China.

Outlook for natural fibres

Marketing year	unit	2018–19	2019–20 s	2020–21 f	2021–22 f	2022–23 z	2023–24 z	2024–25 z	2025–26 z
Wool									
Australia									
Sheep shorn	million	72.5	68.4	65.0	69.7	72.6	75.1	77.0	77.6
Wool production									
Shorn	kt	300	283	288	312	322	333	341	344
Total **a**	kt	379	355	355	379	392	405	414	419
Exports									
Volume									
Greasy	kt	270	234	260	297	307	317	324	327
Total **b**	kt	393	328	347	395	409	422	432	436
Value									
Greasy	A$m	3,511	2,360	2,176	2,783	2,988	3,384	3,627	4,014
Total **b**	A$m	4,152	2,754	2,521	3,203	3,439	3,895	4,175	4,620
Eastern Market Indicator **c**	Ac/kg	1,939	1,448	1,164	1,300	1,350	1,480	1,550	1,700
Cotton									
World **d**									
Production	Mt	25.9	26.3	24.3	25.0	25.3	25.6	25.9	26.2
Consumption	Mt	26.2	22.4	24.5	25.6	26.0	26.3	26.6	26.9
Exports	Mt	9.1	8.9	9.3	9.7	9.9	10.0	10.1	10.2
Closing stocks	Mt	17.5	21.3	21.2	20.6	20.0	19.2	18.5	17.7
Cotlook ‘A’ index	USc/lb	84.4	71.3	80.0	83.0	80.0	82.0	85.0	88.0
Australia									
Area harvested	’000 ha	343	59.7	295	380	270	210	190	170
Lint production	kt	485	134	562	764	549	427	386	346
Exports									
Volume	kt	896	336	260	618	675	487	392	350
Value	A$m	2,556	964	746	1,845	1,968	1,458	1,214	1,123
Gin-gate returns **e**	A$/bale	619	558	559	581	567	581	603	624

a Includes sheepskins, shorn and fellmongered wool. **b** Includes sheepskins, greasy and semi-processed wool. **c** Clean equivalent. **d** August–July years. **e** Value of lint and cottonseed less ginning costs. **s** ABARES estimate. **f** ABARES forecast. **z** ABARES projection.

Sources: ABARES; ABS; AWEX; Cotton Australia; Cotlook Ltd; OECD; USDA

Beef and veal

Jonathan Wong

Cattle prices to fall, in line with global beef prices

Average saleyard prices are forecast to fall from 593 cents/kg in 2020–21 to 552 cents/kg in 2021–22. Cattle prices continue to be supported by competition between processors and farmers looking to restock. Prices are expected to stabilise in the first half of 2021 before trending down through 2021–22.

Beef and live cattle exports are likely to rise slightly in 2021–22. Herd rebuilding is expected to slow, leading to an increase in cattle availability and lower domestic cattle prices. This will make Australian beef and cattle exports marginally more competitive in world markets.

Outlook

Average saleyard prices are forecast to continue falling to 461 cents/kg in 2025–26. This fall will be driven by greater domestic cattle availability in the short term and lower global beef prices through the outlook period. Lower global beef prices will be influenced by different factors in the short and medium term. In the short term, high US and Brazilian exports and a low Brazilian real are expected to reduce global beef prices. In the medium term, the ongoing recovery of the Chinese pig herd is likely to ease global demand for protein, putting downward pressure on meat prices. Live exports are forecast to gradually increase through the outlook period as prices for young cattle fall.

Medium-term scenarios for forecasts

Medium-term forecasts from 2022–23 to 2025–26 for Australian beef and cattle are based on the average outcomes of 4 possible seasonal climate scenarios. A very dry season in the wheat–sheep zone is likely to occur in one of the 4 years. Each scenario places this dry season in a different year, with other years assumed to receive rainfall of around deciles 3 to 4. For a more detailed explanation see the Agricultural overview.

The range of outcomes forecast to result from each scenario are then averaged. Unless otherwise indicated, these average forecasts – or their ranges – are discussed in this note.

Upside and downside scenarios are also considered. The upside scenario combines a faster economic recovery from the COVID-19 pandemic with another high rainfall year in 2021–22. A very dry year is still assumed in 2022–23. Because it follows an assumed wetter year, negative effects on production are reduced. The downside scenario combines a slower than expected economic recovery with very dry years in 2021–22 and 2025–26.

Stronger competition and Chinese pork recovery underpin all scenarios

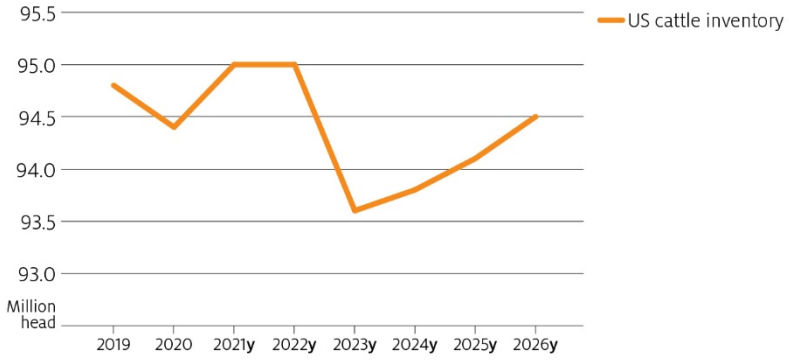
For all scenarios, the Brazilian real is assumed to remain weaker than the Australian dollar through the outlook period, and China's pork industry is assumed to continue to recover from African swine fever (ASF). Chinese pork production is expected to return to – and then

exceed – pre-ASF levels over the next 5 years. Industry consolidation and improved biosecurity arrangements are likely to deliver significant productivity gains. This is expected to reduce China's import demand for protein and place downward pressure on global beef prices over the outlook period.

Medium-term forecast – an uneven global economic recovery

In the short term to 2022–23, the United States and Brazil are expected to continue to increase beef exports to high-value markets – notably China. US herd contraction is slowing, with cyclical rebuilding likely to start in 2022–23. This will slightly reduce US beef production and exports. It is also likely to increase beef prices (especially for chilled beef) in Australia's main export markets, in which Australia and the United States compete. An increasing Brazilian cattle herd and a weak real suggest Brazilian beef exports will continue to maintain a significant presence in global beef markets through the outlook period.

US herd projections, 2019 to 2026



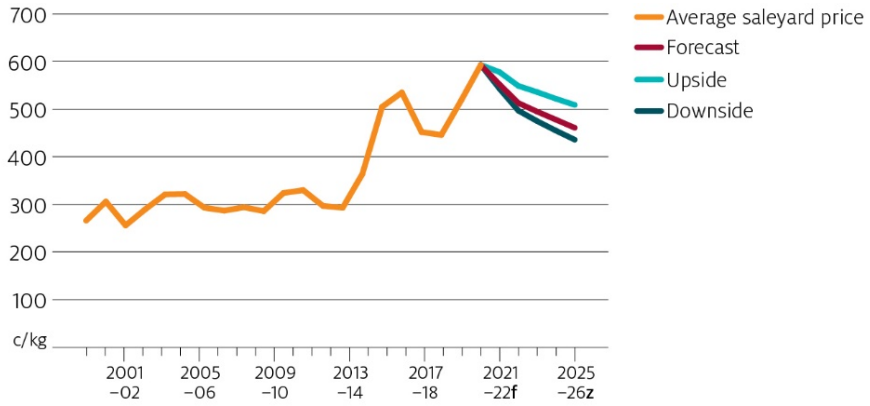
y US Department of Agriculture projection.
Source: US Department of Agriculture

Ongoing competition between processors and farmers looking to restock is expected to keep Australian cattle prices relatively high through 2021, easing in the latter part of 2021 and 2022 due to slowing restocking activity.

Soil moisture from a wet 2020–21 is expected to provide above average pasture growth in 2021–22 despite a likely end to La Niña conditions. Low grain prices and the accumulation of feed are expected to enable farmers to continue restocking in the short term. This will result in more cattle available for slaughter later in the outlook period, increasing production and exports from their current lows.

A slightly lower Australian dollar and reduced US beef supply from 2022–23 are likely to make Australian beef more competitive. The post-ASF recovery of Chinese pork production is expected to keep global beef prices trending downwards from historic highs.

Weighted average saleyard price, 2000–01 to 2025–26



f ABARES forecast. **z** ABARES projection.
Sources: ABARES; ABS; Meat & Livestock Australia

Live exports to recover through the outlook period

Live exports are forecast to gradually increase over the outlook period, from a low base in 2020–21. During 2020–21 high prices for young cattle in southern Australia have resulted in young cattle being diverted from live export to restocking, as farmers capitalise on increased feed availability. As a result, high prices have made it difficult for many Indonesian feedlotters to import Australian cattle. Australian cattle prices are forecast to stay relatively high through 2021, decreasing towards the end of the year. Live exports are expected to recover as restocking demand eases and prices decline.

Upside scenario – favourable conditions see a larger herd

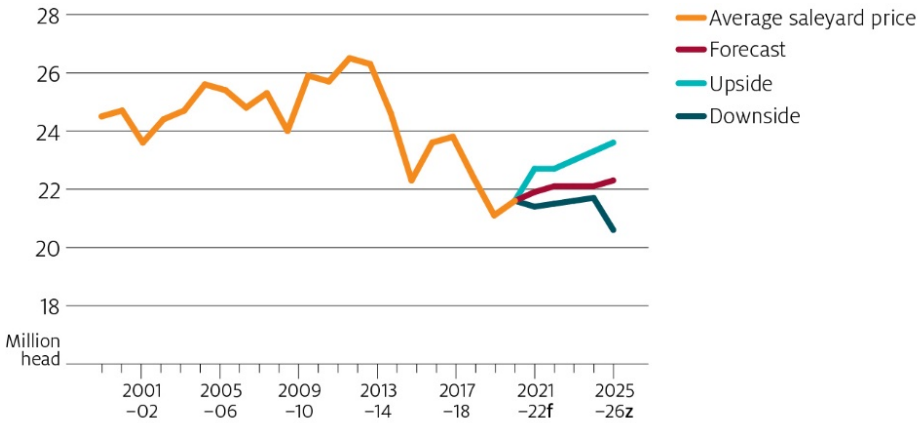
A faster global economic recovery is likely to result in beef prices staying higher for longer than the forecast. Restaurants and the food services sector are likely to adapt faster, with global travel expected to recover more quickly. This would increase global demand for chilled and frozen beef products. However, the effect of this increased demand on prices will be at least partially moderated by China's slowing import demand over the outlook period.

Consecutive years of favourable seasonal conditions in Australia during 2020–21 and 2021–22 are assumed to facilitate prolonged herd rebuilding. Pasture and feed accumulation are expected to be sufficient to sustain herds through a dry 2022–23, noting that herd numbers will still be recovering from relatively low levels. This would mean the size of the national herd is larger than the forecast by the end of the projection period in 2025–26.

Australia's herd rebuilding would lead to higher expected production and exports from 2022–23 as more cattle become available. Prices would be higher than the forecast due to stronger global demand but impacts on exports will be partly offset by a stronger Australian dollar.

In this scenario, live exports recover from the lows of 2020–21 but the recovery is slower than the forecast. Prolonged herd rebuilding would keep young cattle prices higher, which would likely result in higher prices for exported light steers.

Beef herd size, 2000–01 to 2025–26



f ABARES forecast. **z** ABARES projection.
Sources: ABARES; ABS

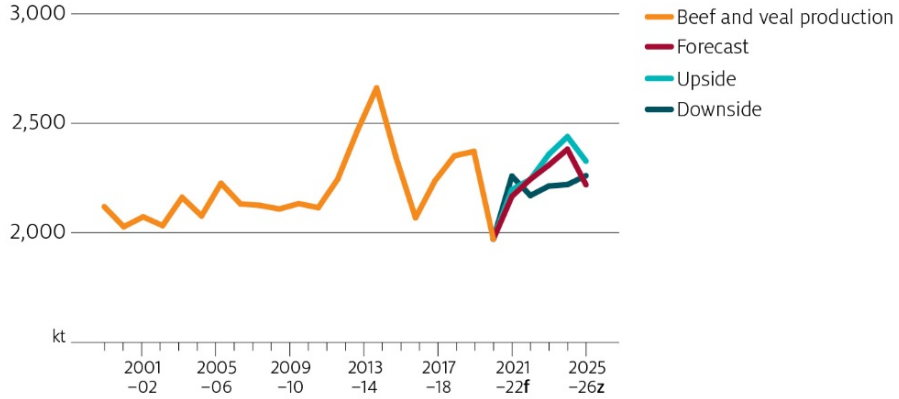
Downside scenario – drier seasons see lower herd, lower cattle prices

Ongoing COVID-19 outbreaks and subsequent lockdowns would see lower demand for beef than in the forecast, with prices falling slightly faster from historic highs. Lower consumer confidence, travel and economic growth are expected to contribute to lower demand over the outlook period, especially for high-value cuts of beef. This fall in demand is likely to be tempered by increasing competitiveness from a

weaker dollar, especially as falling US beef supply puts upward pressure on prices in the latter half of the outlook period.

In this scenario, a dry 2021–22 is expected to be largely offset by soil moisture and feed accumulation from La Niña–induced rainfall in 2020–21. Nonetheless, this climate scenario is expected to slow or stop herd rebuilding momentum. After several average rainfall years, a dry 2025–26 would be expected to result in increased slaughter rates as feed availability declines and the price of feed increases. This would lead to higher beef production and export volumes late in the outlook period compared to the forecast.

Beef and veal production, 2000–01 to 2025–26



Note: In the upside scenario, the difference in production relative to the forecast is driven by larger herd numbers. In the downside scenario, the difference is driven by lower feed availability and a slightly lower Australian dollar.
f ABARES forecast. **z** ABARES projection.
Sources: ABARES; ABS

Opportunities and challenges

Chinese pork production recovery

The rate of China's recovery from ASF is likely to have an impact on global beef prices. A rapid recovery may push protein prices below their pre-ASF levels, leading to downward pressure on global beef prices and presenting a challenge for beef exporters. However, such a recovery is contingent on China's ability to source sufficient feed for its pork (and other meat) production. A slower recovery would likely keep protein prices relatively higher for longer, presenting an opportunity to beef exporters. Stronger Chinese feed demand may also indirectly impact global cattle prices.

Social licence

Navigating social licence is both an opportunity and a challenge for the beef and cattle industry, especially for the live export industry. To capture value opportunities, producers and processors will need to remain responsive to evolving consumer preferences. Adhering to high environmental and animal welfare standards is likely to become even more important if producers are to retain social licence to produce and to benefit from premiums derived from these management practices.

Competition in live cattle markets

The high price of Australian cattle is proving to be a challenge for countries importing Australian cattle, with many feedlotters in Australia's export markets being priced out of the market. There have been reports of Indonesia looking to Brazil and Mexico as an alternative cattle source, but it is unclear how long it will be before cattle can arrive in Indonesian feedlots. The logistical challenge of transporting cattle so far on a regular basis remains an obstacle. Australian cattle are therefore likely to regain their competitiveness as young cattle prices fall. The size of the South-East Asian market means

that a large amount of cattle would have to be imported on an ongoing basis for Australian exporters to see substantial negative price impacts.

Outlook for beef and veal

Category	unit	2018–19	2019–20 s	2020–21 f	2021–22 f	2022–23 z	2023–24 z	2024–25 z	2025–26 z
Cattle numbers **ab**	million	24.7	23.4	24.0	24.3	24.4	24.4	24.4	24.6
beef cattle	million	22.4	21.1	21.6	21.9	22.1	22.1	22.1	22.3
Slaughterings	’000	8,704	8,699	6,594	7,234	7,654	7,816	7,941	7,355
Production	kt	2,352	2,372	1,971	2,167	2,245	2,310	2,381	2,219
Consumption per person	kg	22.8	19.6	19.8	19.1	18.8	18.4	18.2	17.9
Exports									
Japan	kt	302	284	242	286	300	311	324	296
United States	kt	241	240	188	222	233	242	251	230
China	kt	228	331	161	190	199	207	215	197
Korea, Rep. of	kt	189	170	161	191	200	208	216	197
World	kt	1,222	1,290	959	1,135	1,190	1,236	1,284	1,174
nominal	A$m	9,476	11,258	7,912	8,905	9,251	9,513	9,766	8,807
real **c**	A$m	9,759	11,442	7,912	8,774	8,974	9,055	9,114	8,038
Live feeder/slaughter cattle exports	’000	1,125	1,237	808	928	935	1,025	1,090	1,105
nominal	A$m	1,368	1,562	1,100	1,210	1,139	1,280	1,345	1,330
real **c**	A$m	1,409	1,588	1,100	1,192	1,105	1,218	1,255	1,214
Saleyard price									
nominal	Ac/kg	446	518	593	552	513	495	478	461
real **c**	Ac/kg	459	526	593	543	498	471	446	421

a Includes dairy cattle. **b** At 30 June. **c** In 2020–21 Australian dollars. **f** ABARES forecast. **s** ABARES estimate. **z** ABARES projection.

Sources: ABARES; ABS; MLA

Sheep meat

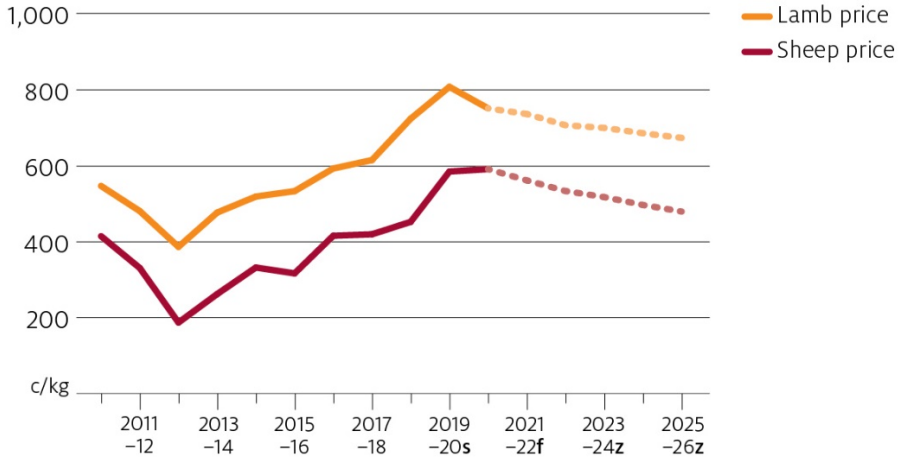
Mikayla Bruce

2021–22 price outlook more favourable than for medium term

The average saleyard price for lamb is forecast to remain high in 2021–22, falling by 2% to 736 cents per kilogram. The average saleyard price for sheep will also remain high, falling by 5% to 561 cents per kilogram. Drought-induced supply shortages and strong global demand driven by African swine fever are expected to begin to abate, leading to price falls.

In the medium term to 2025–26, lamb and mutton prices are unlikely to remain at the high levels of 2019–20 and 2020–21. By 2025–26 lamb saleyard prices are forecast to fall by 10% to 673 cents per kilogram and the saleyard price for sheep is forecast to fall by 19% to 479 cents per kilogram. Global meat supply is increasing in response to high prices caused by Chinese import demand following the African swine fever (ASF) outbreak. This increased supply is expected to place downward pressure on Australian sheep prices over the medium term to 2025–26. Restocking efforts in the short term will increase the supply of lambs available in the medium term and reduce upward pressure on prices out to 2025–26.

Lamb and sheep average saleyard prices, 2010–11 to 2025–26



f ABARES forecast. **s** ABARES estimate. **z** ABARES projection.
Note: Lamb price and sheep price are a weighted average saleyard price
Sources: ABARES; Australian Bureau of Statistics

2020–21 saleyard prices revised up from the December forecast

Average saleyard prices in 2020–21 for both lamb and sheep have been revised up from the December forecast, amidst stronger competition between producers and processors at saleyards. The saleyard price for lamb is forecast to average 751 cents per kilogram in 2020–21, down 7% from 807 cents in 2019–20. The saleyard price for sheep is forecast to average 590 cents per kilogram, up slightly from an average of 584 cents per kilogram in 2019–20. Limited supply of mutton and large-scale restocking are amplifying competition between processors and producers, leading to a sharper rise in mutton prices than lamb prices.

Medium-term scenarios for forecasts

Medium-term forecasts from 2022–23 to 2025–26 for Australian sheep meat are based on the average outcomes of 4 possible seasonal climate scenarios. A very dry season in the wheat–sheep zone is likely to occur in one of the 4 years. Each scenario places this dry season in a different year, with other years assumed to receive rainfall of around deciles 3 to 4. For a more detailed explanation see the Agricultural overview.

The range of outcomes forecast to result from each scenario are then averaged. Unless otherwise indicated, these average forecasts – or their ranges – are discussed in this note.

Upside and downside scenarios are also considered. The upside scenario combines a faster economic recovery from the COVID-19 pandemic with another high rainfall year in 2021–22. A very dry year is assumed in 2022–23. Because it follows an assumed wetter year, negative effects on production are reduced. The downside scenario combines a slower than expected economic recovery with very dry years in 2021–22 and 2025–26.

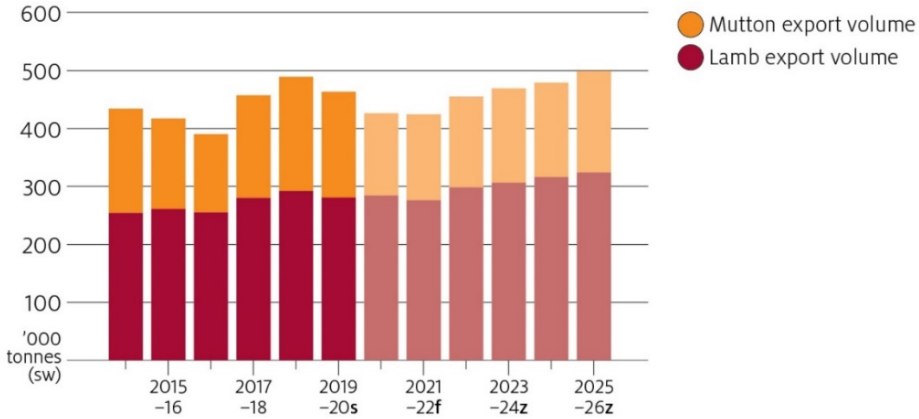
Forecast saleyard prices will be influenced by the timing of dry years

Lamb saleyard prices are forecast to fall between 4% and 10% by 2025–26, and the saleyard price for sheep is forecast to fall between 18% and 23%. More favourable seasonal conditions early in the outlook period will assist a more rapid increase in the supply of sheep meat. This will result in prices being towards the lower end of the forecast range. Less favourable conditions early in the outlook period will limit flock growth and result in prices in the upper end of the forecast range.

Export demand for Australian mutton remains strong in the short term

The export volume of sheep meat in 2020–21 was forecast to fall by 33% in December. However, stronger than anticipated mutton exports have reduced this anticipated fall to 23%. Restocking activity and a smaller national flock have reduced the volume of mutton exports since 2019–20. Producers face the competing incentives of restocking versus selling due to national sheep prices being 35% above the 5-year average.

Lamb and mutton exports, 2014–15 to 2025–26



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

Higher protein production will reduce demand for sheep meat

China is the largest consumer of Australian lamb and mutton, by volume. However, compared with other markets, Australia's lamb exports to China are a lower value commodity, making it sensitive to competition from cheaper substitutes. The average export unit price of lamb to China between July and December 2020 was $5.50 per kilogram, 37% less than the average export unit price to the world of $8.73 per kilogram.

Competition from lower priced substitutes in China is expected to place downward pressure on prices over the medium term. An anticipated full recovery of the Chinese pig herd by the end of the outlook period is expected to reduce the demand for Australian sheep meat. At the same time, an increased supply of lower priced substitutes, such as domestically produced poultry and imported beef from Brazil, is likely to lower the willingness of Chinese consumers to pay for higher priced Australian lamb.

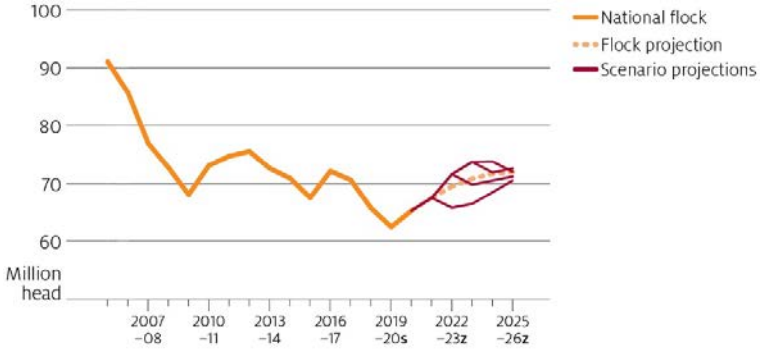
Seasonal conditions assisting fast rebuilding of the national flock

The national flock is forecast to reach 67.5 million head in 2021–22. In the medium term to 2025–26 the national flock is forecast to grow by 10% to 72 million head. Growth in the national flock could vary between 7% and 12% over the outlook period. Faster growth is likely if favourable seasonal conditions occur early in the outlook period when prices are still high, boosting the incentive to restock. Slower growth will occur if drier seasonal conditions take place earlier in the outlook period and restocking occurs later when prices are lower, and when the incentive to restock is also lower.

Favourable seasonal conditions for most areas of the eastern states have allowed producers to commence restocking in the latter half of 2020–21. This restocking activity has led to a diversion in lamb prices, with the price of restocker lambs 9% above trade lambs between July 2020 and January 2021. Over the medium term, producer demand for restocker lambs will fall as flocks increase through breeding. This will in turn reduce competition between processors and producers, which will lower prices over the outlook period.

Feed production and storage in 2020–21, made possible by favourable seasonal conditions, has placed producers in a better position to reduce flock turn-off and maintain animal condition in case of a dry year in the medium term to 2025–26. Because no consecutive dry years have been assumed in the outlook period, sufficient feed availability will mean that destocking during a dry season is unlikely to be as severe as it was in 2018 and 2019. It will also mean that, in dry years, restocking will only be slowed temporarily.

National flock numbers, 2005–06 to 2025–26



f ABARES forecast. **s** ABARES estimate. **z** ABARES projection.
Note: Scenario projections alter the timing of a dry year over the outlook period. The average of these scenarios creates the forecast.
Sources: ABARES; Australian Bureau of Statistics

Larger flock will boost production and slaughter in medium term

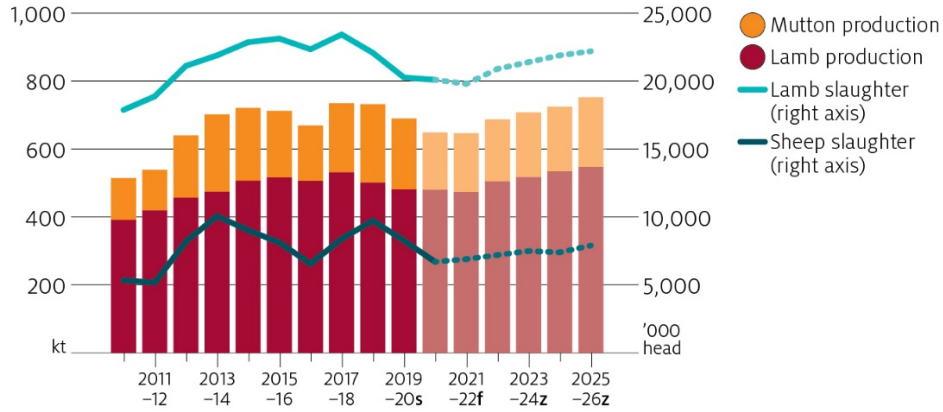
Sheep meat production is forecast to reach 647,000 tonnes in 2021–22, slightly down from 649,000 tonnes in 2020–21. This fall is associated with lower lamb production, as a result of producers retaining female lambs for flock rebuilding. In the medium term to 2025–26, the larger flock and higher carcase weights (from improved genetics) are assumed to increase the supply of sheep meat.

In 2021–22 sheep and lamb slaughter are both forecast to fall as rebuilding takes priority, before increasing over the outlook period in line with the growing national flock.

2020–21 sheep meat production and slaughter revisions from the December forecast

Production of mutton in 2020–21 has been revised up from the December quarter from 145,000 tonnes to 168,000 tonnes because steady demand has been met with supply despite many producers shifting their focus to restocking. Likewise, sheep slaughter has been revised up by 16% to 6.7 million head. The production of lamb has been slightly revised down from the December quarter and is forecast to reach 480,000 tonnes in 2020–21. Slaughter has been revised down by 4% to 20.1 million head.

Lamb and mutton production and slaughter, 2010–11 to 2025–26



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

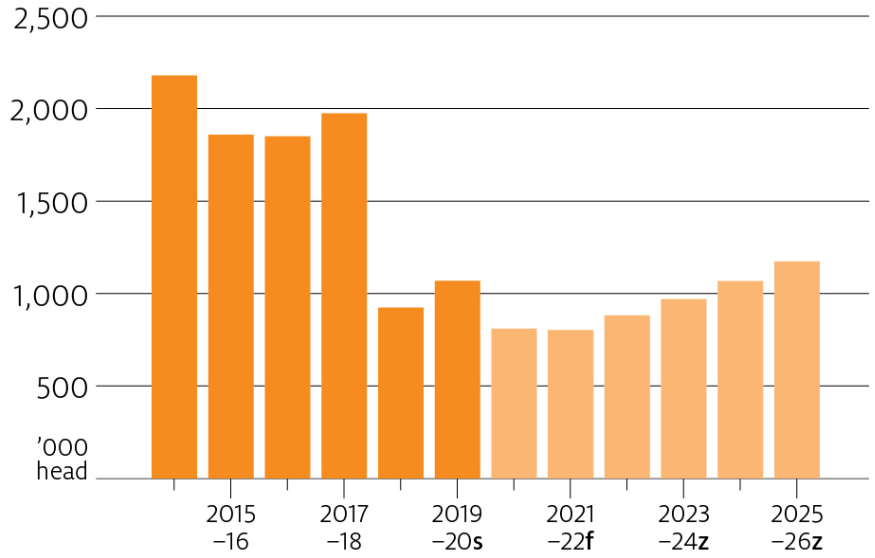
Live sheep exports lower after Western Australian destocking

Live sheep exports are forecast to fall in 2021–22 to around 802,000 head, a downward revision from the December forecast. Several factors are anticipated to weaken the demand for Australian live sheep exports in 2020–21 and 2021–22. Reduced supply of sheep available for live export, growing competition with Romania and South Africa for market share in the Middle East, and Qatar's removal of subsidies for Australian lamb imports at the end of 2020 will all affect demand.

Over the medium term to 2025–26, live sheep exports are assumed to track with the rate of growth of Western Australia's flock and return to numbers similar to those in 2019–20. Continued strong competition from cropping and consumer substitution towards processed meats in the Middle East are expected to limit recovery in live exports to

around 2019–20 volumes. Assuming growth in the flock, the larger supply of sheep available over the outlook period is expected to weaken the price of Australian sheep in international markets and assist Australia's competitiveness. Western Australia has been experiencing less favourable seasonal conditions than the eastern states in 2020–21, and sheep producers are still in a destocking phase. An estimated 1.8 million head of sheep were transferred from Western Australia to the eastern states by December 2020. Without a seasonal break, the WA sheep flock could further contract, resulting in fewer stock available for live export over the outlook period.

Volume of live sheep exports, 2014–15 to 2025–26



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

Uncertain environment influences flock dynamics

Improved circumstances increase trade-off between sheep meat and wool production

In the upside scenario, high meat prices are likely to persist longer in 2021–22 than in the forecast, as a result of the opening of economies and the food service industry increasing global demand. However, prices would remain lower than recent highs given weakening demand from China, as its pig herd recovers from ASF. Recovering global demand for wool as economic activity recovers would provide producers with a greater incentive to increase wool production under this scenario. This is discussed further in Natural fibres.

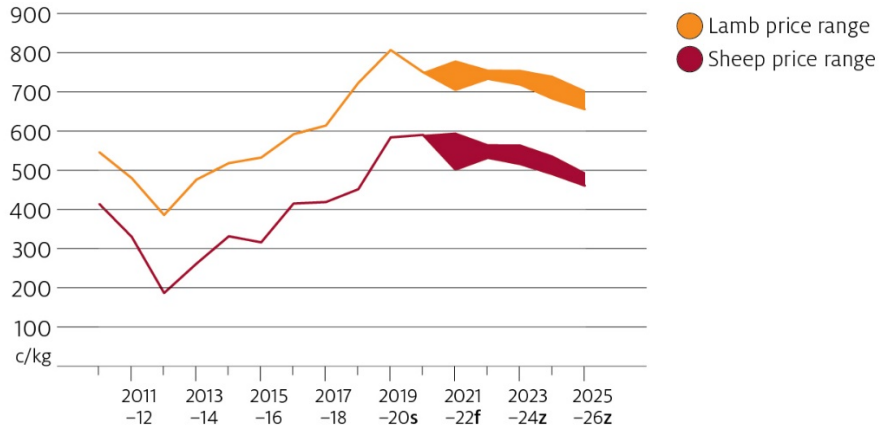
Favourable prices for sheep meat and wool, and persistence of favourable seasonal conditions in 2021–22, would create stronger momentum for flock rebuilding relative to the forecast. Substantial pasture growth and grain production over this period is assumed to provide a solid base for producers to maintain flock numbers and animal condition during the dry year assumed for 2022–23. Reduced restocking intensity in 2022–23 will ease the competition between producers and processors in saleyards, leading to lower prices.

Production outcomes consistent with decile 3 to 4 rainfall would persist between 2023–24 and 2025–26. The larger supply of sheep meat from faster flock rebuilding (relative to the forecast) would place downward pressure on prices. This would be additional to the effect on prices of an expected fall in global demand as Chinese pork supply recovers and likely exceeds previous levels, as a result of productivity gains achieved from industrialisation of the industry.

Lower sheep meat prices towards the end of the outlook period and production outcomes consistent with decile 3 to 4 rainfall would

reduce incentives for producers to expand flocks. However, the rapid flock rebuilding early in the outlook period means that the national flock would likely finish the outlook period at a higher level than in the baseline forecast.

Scenario price range for sheep and lamb, 2010–11 to 2025–26



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

Sheep meat production a better alternative than wool under less favourable circumstances

In the downside scenario, prices are expected to be similar to the forecast. Slower flock growth would reduce the supply of sheep meat, and relatively weaker economic activity would lower demand. The opposing influence on sheep meat prices from these factors would limit major price falls.

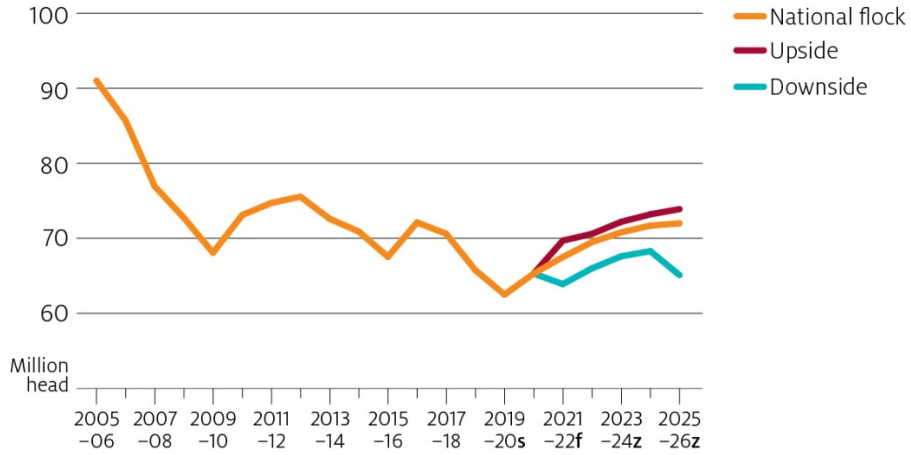
Ongoing low wool demand would keep wool prices low, causing producers to emphasise sheep meat production given the relative price of sheep meat to wool. Throughout the projection period, producers' joining decisions for improved sheep meat production would increase marking rates and carcase weights compared with the forecast and upside scenarios. These other scenarios have a greater emphasis on wool production given the assumed resurgence in economic activity.

Favourable seasonal conditions for pasture and grain production in 2020–21 are expected to assist producers to manage the adverse seasonal conditions assumed for 2021–22. Flock rebuilding would likely be delayed under this scenario. Producers would instead be expected to prioritise flock maintenance when seasonal conditions are poor.

Production outcomes consistent with decile 3 to 4 rainfall are assumed to persist from 2022–23 to 2024–25, which would allow producers to recommence flock rebuilding. Seasonal conditions would restrict the speed of rebuilding but improved marking rates compared with the upside scenario and forecast will counteract this effect. Increased competition between producers and processors would improve prices for lamb and sheep in 2022–23. A full recovery and possible post-African swine fever productivity boost to China's pork supply would reduce demand for Australian sheep meat. However, delayed restocking would slow supply increases and buffer against major price falls.

Under the downside scenario, another dry year is assumed for 2025–26. A general trend towards flock rebuilding under this scenario is anticipated to be counteracted by higher turn-off in poor seasons, leaving flock numbers in 2025–26 similar to those of 2020–21. The downside scenario has a greater impact on flock numbers than the upside scenario due to the greater deviations in seasonal conditions.

Scenario national flock number comparison, 2005–06 to 2025–26



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

Opportunities and challenges

New Zealand and China upgrade their free trade agreement

New Zealand and Australia are in direct competition when it comes to satisfying China's demand for sheep meat. In January 2021 China and New Zealand upgraded their free trade agreement, which entered into force in 2008. Improved relations between Australia's biggest sheep meat competitor and consumer could make New Zealand more competitive in the Chinese market. However, market access for sheep meat remains unchanged in the upgraded agreement.

Outlook for sheep meat

Category	unit	2018–19	2019–20 s	2020–21 f	2021–22 f	2022–23 z	2023–24 z	2024–25 z	2025–26 z
Prices									
Lambs									
nominal	c/kg (cw)	723	807	751	736	706	699	685	673
real **a**	c/kg (cw)	745	820	751	725	685	665	639	614
Sheep									
nominal	c/kg (cw)	452	584	590	561	533	517	496	479
real **a**	c/kg (cw)	465	594	590	553	517	492	463	437
Sheep numbers									
Total sheep **b**	million	65.8	62.7	65.3	67.5	69.5	70.8	71.7	72.0
Slaughterings									
Lambs	’000	22,087	20,272	20,100	19,800	20,900	21,400	21,900	22,200
Sheep	’000	9,730	8,268	6,700	6,900	7,200	7,500	7,400	7,900
Production									
Sheep meat	kt (cw)	732	690	649	647	688	708	725	752
Exports									
Sheep meat **c**	kt (sw)	489	462	426	424	455	469	479	499
Sheep meat value									
nominal	$m	3,865	4,056	3,635	3,456	3,430	3,392	3,228	3,248
real **a**	$m	3,981	4,123	3,635	3,405	3,327	3,229	3,012	2,964
Live sheep	’000	925	1,089	810	802	882	970	1,067	1,174
Live sheep value									
nominal	$m	121	157	111	97.7	93.7	92.6	88.7	88.7
real **a**	$m	125	160	111	96.3	90.9	88.2	82.8	80.9
Consumption per person									
Sheep meat	kg (cw)	6.3	5.6	5.5	5.4	5.5	5.6	5.6	5.7

a In 2020–21 Australian dollars. **b** At 30 June. **c** Fresh, chilled and frozen, shipped weight. **f** ABARES forecast. **s** ABARES estimate. **z** ABARES projection.

Sources: ABARES; ABS; MLA

Dairy

Damien Thomson

Farmgate milk price to rise with stronger demand and slower supply growth

The Australian average farmgate milk price is forecast to increase by 2% to 48.8 cents per litre in 2021–22. Imports of dairy products are returning to pre-pandemic levels for Australia's major trading partners. Global supply growth is forecast to decline slightly in 2020–21 following strong growth in 2019–20. Competition among domestic milk processors for supply will continue to ease as production recovers from historically low levels, with international demand playing a bigger role in determining farmgate prices.

An upward revision of prices from the *Agricultural commodities: December quarter 2020* reflects stronger than expected international demand for dairy products. Butter, cheese and whole milk powder prices are forecast to remain relatively unchanged in 2020–21. The skim milk powder price is expected to rise by 10% due to a combination of a strong rebound in demand from China and lower than expected spring milk production in New Zealand.

Medium-term scenarios for forecasts

Medium-term forecasts from 2022–23 to 2025–26 for Australian dairy are based on the average outcomes of 4 possible seasonal climate scenarios. A very dry season in the wheat-sheep zone is likely to occur in one of the 4 years. Each scenario places this dry season in a different year, with other years assumed to receive rainfall of about deciles 3 to 4. For a more detailed explanation see the Agricultural overview.

The range of outcomes forecast to result from each scenario are then averaged. Unless otherwise indicated, these average forecasts – or their ranges – are discussed in this note.

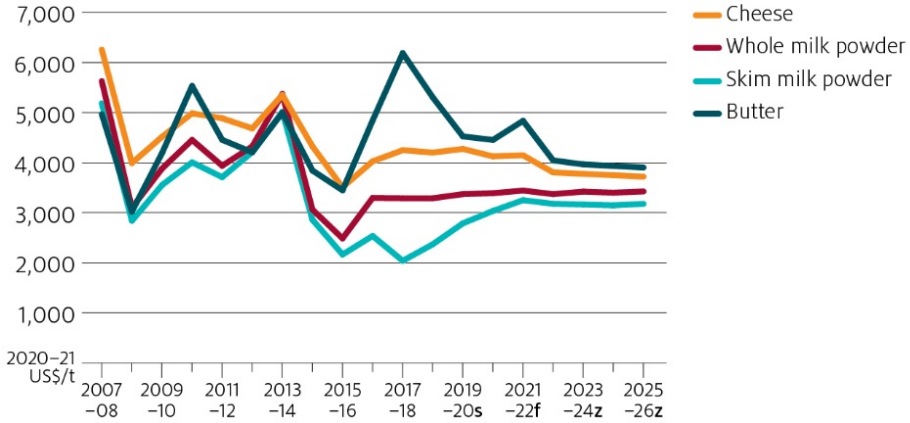
Upside and downside scenarios are also considered. The upside scenario combines a faster economic recovery from the COVID-19 pandemic with another high rainfall year in 2021–22. A very dry year is still assumed in 2022–23. Because it follows an assumed wetter year, negative effects on production are reduced. The downside scenario combines a slower than expected economic recovery with very dry years in 2021–22 and 2025–26.

Over the medium-term, the farmgate milk price is projected to remain relatively steady at around 49.0 cents per litre in 2025–26. It is expected to range between 48.9 and 51.3 cents per litre under the forecast scenarios considered in this outlook.

Global dairy prices are expected to converge and remain relatively flat over the medium term, following a significant period of diversion between butter and skim milk prices over the 5 years to 2020–21. Assuming no significant shocks to the dairy market, global milk supply is forecast to grow at the same rate as global demand, as it has done

for the past 20 years. Dairy markets are sensitive to shocks, so even small changes in either supply or demand can create price volatility. Under the assumptions of the downside and upside scenarios, butter prices are expected to range from US$3,900 to US$4,100 per tonne, cheese from US$3,700 to US$3,900 per tonne, skim milk powder from US$3,200 to US$3,300 per tonne and whole milk powder from US$3,400 to US$3,600 per tonne.

World dairy product prices, 2007–08 to 2025–26



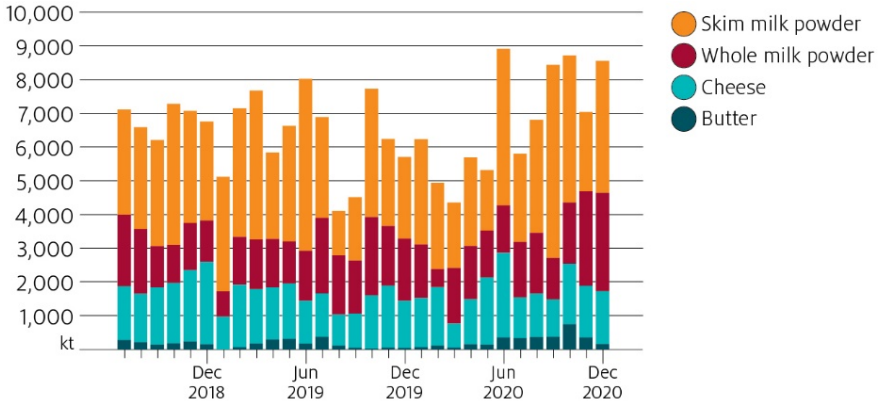
f ABARES forecast. **s** ABARES estimate. **z** ABARES projection.
Sources: ABARES; Dairy Australia

Demand to strengthen due to global economic recovery

Global dairy markets were resilient throughout 2020 despite the disruption caused by the COVID-19 pandemic. Export volumes to China dipped slightly in February and March 2020 at the peak of COVID-19 control measures. The relative containment of the virus in China from April led to an easing of control measures and higher economic activity. Export volumes subsequently improved to exceed pre-COVID-19 monthly volumes in the last 4 months of 2020. China is one of the few economies that reported economic growth in 2020, up by an assumed 2.1%. Most economies are expected to recover in 2021 after significant contractions in 2020. An assumed growth in the Chinese economy of 8.1% in 2021 is expected to support strong import demand for Australian dairy products (see Economic overview).

China is Australia's largest export market for dairy products, accounting for an average of 30% of total dairy exports by value over the 5 years to 2019–20. Between July and December 2020, the volume of Australia's dairy exports to China was 31% higher year-on-year, including a 49% increase in exports of skim milk powder. Although butter exports only make up a very small proportion of these exports, between July and December 2020 they were 265% higher than in the same period in 2019. This was predominantly due to a reduction in the supply of butter from New Zealand, China's largest source of butter and all other dairy products.

Volume of dairy product exports to China, July 2018 to December 2020



Source: ABS

International milk supply growth steady in 2020–21

Milk supply growth from major exporting regions is expected to remain relatively unchanged at 1.5% in 2020–21, but with variations across regions. The production of milk in the United States between July and December 2020 was 2.6% higher compared with the same period in 2019. This has largely been due to government support programs, such as the Farmers to Families Food Box Program. This stimulus, which is expected to continue until the United States recovers from the effects of the COVID-19 pandemic, is likely to result in further strong growth in US milk supply.

New Zealand has had lower than expected milk production during the spring peak season. Below average rainfall, particularly in the North Island, restricted spring pasture growth and reduced milk supply in October, November and December.

International milk production is expected to continue to grow by 1% to 2% each year over the projection period. Supply growth is expected via increasing yields through improvements in technology, feeding, management and genetics. Growth in US milk supply is expected to slow down once the current level of government stimulus is wound back.

Domestic milk production to improve slightly from historic lows

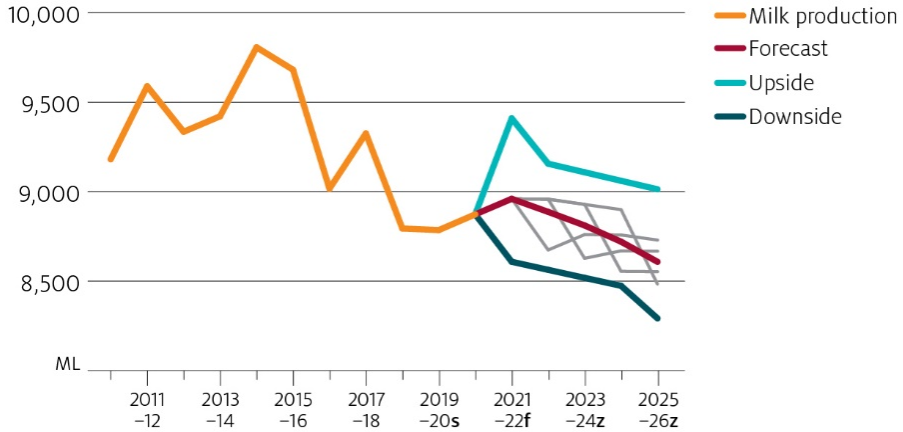
Australian milk production is forecast to increase by 1% in 2020–21. Milking cow numbers are forecast to rise by 2.7% but average yield is expected to fall after 3 years of strong growth. The expected yield decline is the result of forecast restocking, which involves retaining older cows and a higher proportion of young heifers as replacements. The heifers will yield less in their first few milking years. Wetter than average conditions in 2020 led to increased pasture production, lower grain and hay prices and increased on-farm feed reserves.

Falling water allocation prices and a relatively high farmgate milk price are forecast to improve dairy farm profitability in 2021. This is expected to improve industry confidence and allow dairy farmers to continue replenishing depleted herds. In 2021–22 cow numbers are expected to increase by 2%, with the rate of rebuilding expected to be limited by structural change and high live export numbers. Yields are still expected to be about 1% lower, reflecting a return to drier seasonal conditions. On balance, milk production in 2021–22 is forecast to rise by 1%.

Over the outlook period to 2025–26, milk production in Australia is projected to decline to 8.6 billion litres. With a return to drier seasonal conditions from 2021–22, herd numbers are projected to decline to

1.3 million head. Improved farm management is expected to support an increase in average yields rising to over 6,500 litres per cow. Herd numbers are influenced by competing demands, such as the live export of heifers, structural change in the industry and an increasingly drier and hotter climate. The forecast for herd numbers to 2025–26 depends on the timing of the assumed very dry year. This projection considers the average of 4 assumption-based combinations of possible seasonal conditions.

Australian milk production outlook scenarios, 2010–11 to 2025–26



f ABARES forecast. **s** ABARES estimate. **z** ABARES projection.
Sources: ABARES; Dairy Australia

Uncertain environment influences milk production

Continued favourable seasonal conditions to support faster herd rebuilding

Under an upside scenario, a very wet year in 2021–22 would support faster herd rebuilding and higher average yields, leading to significantly higher production. The prompt control of COVID-19 and subsequent economic recovery assumed for this scenario would lead to an earlier return in food service demand in Australia's export markets. Many of Australia's major export markets are emerging and developing economies in South-East Asia that are assumed to have strong economic recoveries in 2021. The faster economic recovery assumed in the upside scenario would be expected to underpin stronger export demand in these markets and place upward pressure on Australian dairy prices. An appreciation in the Australian dollar would marginally reduce export competitiveness but not enough to offset the positive effect on prices.

A very dry year is assumed for 2022–23, which would cause modest destocking, a fall in average yields and hence lower milk supply. The rate of destocking is expected to be buffered by accumulated on-farm feed reserves and low input prices from the 2 previous wet years. From 2023–24 to 2025–26, assumed dry seasonal conditions would result in a longer-term downward trend of production continuing.

Prices resilient through slower global economic recovery

The downside scenario involves a very dry year in 2021–22, which would stall herd rebuilding and reduce cow numbers by 2.5%. This decline would be slightly stronger than the long-term downward trend of 2.3% a year between 2000–01 and 2018–19. The expected fall would still be buffered by accumulated on-farm feed reserves and low grain prices. However, the assumed prolonged COVID-19 outbreak and slower global economic recovery would delay the return of food service demand in Australia's export markets. Global demand for Australian dairy products would be supported by emerging and developing economies in South-East Asia that are expected to maintain relatively strong growth compared with other regions, but at lower rates than the medium-term forecast. Demand is expected to be

similar to the medium-term forecast, leaving prices relatively unchanged.

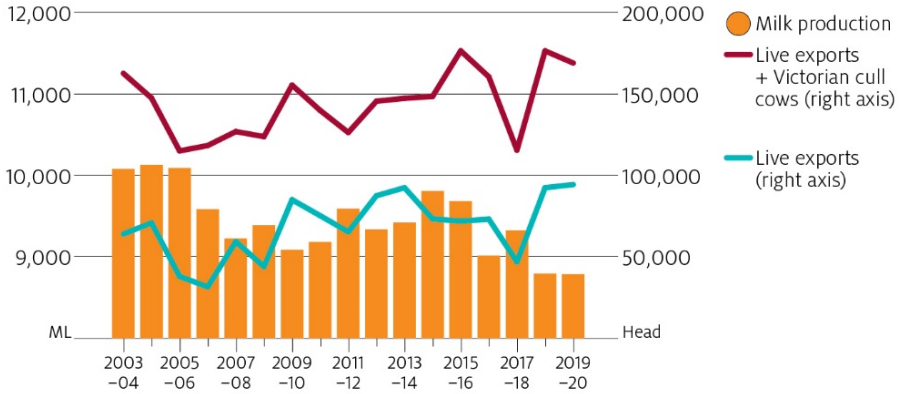
Milk production is projected to trend lower over the medium term. The return of drier seasonal conditions for the 3 years to 2024–25 is assumed to deplete feed reserves and cow numbers. A very dry year is assumed for 2025–26, which would cause production to fall more significantly and put upward pressure on farmgate milk prices because processors have to compete for limited milk supply. Based on these scenarios, Australian milk production is expected to range between 8.3 and 9 billion litres over the outlook period.

Opportunities and challenges

Live exports as an alternative income stream versus herd rebuilding

Live exports of Australian dairy heifers were at an all-time high during the drought of 2018–19 and 2019–20. Dairy farmers hit by drought and high feed prices used live exports as a lucrative avenue to reduce herd numbers. This was a useful risk management option and is compatible with long-term structural adjustment to an industry with fewer, much larger and more globally competitive farms. Australia's dairy farming businesses will continue to weigh the profitability of producing and exporting heifers against the profitability of increasing herd size to produce milk. Favourable seasonal conditions and intentions to rebuild herds are expected to reduce live export numbers by 23% in 2020–21. High import demand for dairy heifers in China suggests that live exports will continue to be an attractive option over the outlook period.

Milk production, live exports and Victorian cull cows, 2003–04 to 2019–20



Sources: ABARES; ABS; Dairy Australia

Favourable irrigation conditions in the short-term

Irrigated dairy farms reduced their water entitlement holdings during the wet years (2010 to 2012) that followed the drought years of the late 2000's. As a result, their reliance on temporary water markets has increased, and most dairy farms tend to be net buyers of water. Dairy farms are also able to use purchased fodder in place of irrigated pastures when water prices are high, but greater reliance on fodder could lead to higher input costs and reduced profitability.

Water allocation prices are expected to remain low for the remainder of 2020–21 due to recharged storages and high rainfall. Inter-valley trade limits are expected to remain binding, which will lead to price gaps, particularly between regions above and below the Barmah Choke. Dairy farms in regions above the choke, where water supply is expected to be greater, are benefiting from lower prices this year. Unused water balances, which can be carried forward into the next

year, are currently quite high. These are likely to further boost water supply next year, contributing to downward pressure on prices (but this remains dependant on seasonal conditions).

However, water prices are expected to rise over the projection period to 2025–26 due to higher competing demand from horticultural farms, and because of a hotter and drier outlook. If high water prices eventuate, the profitability of irrigated dairy farms is likely to decline.

Outlook for dairy

Category	unit	2018–19	2019–20 s	2020–21 f	2021–22 f	2022–23 z	2023–24 z	2024–25 z	2025–26 z
Australia									
Cow numbers **a**	’000	1,376	1,360	1,397	1,425	1,398	1,371	1,343	1,311
Milk yields	L/cow	6,389	6,459	6,352	6,289	6,356	6,424	6,493	6,563
Production									
Total milk	ML	8,793	8,784	8,872	8,959	8,886	8,810	8,719	8,607
market sales	ML	2,476	2,477	2,478	2,492	2,505	2,517	2,529	2,540
manufacturing	ML	6,318	6,308	6,394	6,467	6,381	6,293	6,190	6,067
Butter **b**	kt	73.3	72.5	77.0	76.0	70.0	65.0	60.0	56.0
Cheese **c**	kt	381	389	400	405	406	407	408	410
Whole milk powder	kt	47.5	43.8	42.0	42.0	40.0	38.0	35.0	31.0
Skim milk powder	kt	177	141	138	136	135	130	125	118
Farmgate milk price									
nominal	Ac/L	49.7	52.4	47.9	48.8	48.2	48.7	48.8	49.0
real **d**	Ac/L	51.2	53.3	47.9	48.1	46.8	46.4	45.5	44.7
Export value									
nominal	A$m	3,188	3,428	3,671	3,837	3,768	3,806	3,808	3,808
real **d**	A$m	3,283	3,484	3,671	3,781	3,655	3,623	3,553	3,475
Export volume									
Butter **b**	kt	21.4	11.9	25.4	19.0	17.5	16.3	15.0	14.0
Cheese	kt	166	158	168	182	183	183	184	185
Skim milk powder	kt	151	108	104	109	108	104	100	94.4
Whole milk powder	kt	37.4	30.9	33.6	29.8	28.4	27.0	24.9	22.0
World prices									
Butter									
nominal	US$/t	5,144	4,456	4,454	4,925	4,200	4,200	4,250	4,300
real **e**	US$/t	5,303	4,524	4,454	4,836	4,045	3,966	3,934	3,902
Cheese									
nominal	US$/t	4,075	4,210	4,125	4,223	3,950	4,000	4,050	4,100
real **e**	US$/t	4,201	4,274	4,125	4,147	3,804	3,777	3,749	3,721
Skim milk powder									
nominal	US$/t	2,298	2,746	3,035	3,310	3,300	3,350	3,400	3,500
real **e**	US$/t	2,369	2,787	3,035	3,250	3,178	3,163	3,147	3,176
Whole milk powder									
nominal	US$/t	3,190	3,321	3,390	3,506	3,500	3,623	3,673	3,773
real **e**	US$/t	3,289	3,371	3,390	3,443	3,371	3,421	3,400	3,424

a At 30 June. **b** Includes the butter equivalent of butter oil, butter concentrate, dry butterfat and ghee. **c** Excludes processed cheese. **d** In 2020–21 Australian dollars. **e** In 2020-21 US dollars. **f** ABARES forecast. **s** ABARES estimate. **z** ABARES projection.
Sources: ABARES; ABS; Dairy Australia

African swine fever

Mikayla Bruce, Emily Dahl and Damien Thomson

Current status of African swine fever

Recovery from African swine fever (ASF) in China will have a significant impact on global agricultural markets. This is because China accounts for around 50% of both the global pig herd and global pork consumption. In 2020, 12% of global meat consumption was pork produced in China. This article provides an update on the report ABARES released in 2019 on the Impact of African Swine fever on global markets.

China's pig herd on the path to recovery

Chinese biosecurity authorities and the pork industry contained the spread of ASF in early 2020. The Chinese pig herd and pork production are now on a rapid path to recovery. Since May 2020, outbreaks in China have almost ceased. Small, isolated outbreaks in July and October 2020 and in January 2021 have had limited impacts on the industry.

Outbreaks still occurring globally

ASF remains a significant biosecurity risk. Outbreaks outside of China occurred in Hong Kong at the start of February 2021 and are ongoing in Vietnam and the Philippines. At the start of 2021 a new variant of the disease emerged that is more difficult to detect because the associated mortality rate is lower.

In the European Union, 13 member states reported outbreaks of ASF between 2015 and 2020. Measures were taken to eradicate the disease. On 26 February 2019 the Czech Republic was the first country to report that ASF had been eradicated in both domestic and wild pig populations. On 19 November 2019 Estonia reported the eradication of ASF in domestic pigs only. This was followed by reported eradication in both domestic and wild pigs in Belgium on 20 November 2020. Germany is the most recent member state to report an outbreak of ASF on 10 September 2020, jeopardising exports to China worth US$873 million in 2019. As of February 2021, ASF was present in 11 EU member states.

Industrialisation of the Chinese pig industry

Structural changes towards large-scale pig farming reduce transmission risk

ASF forced a rapid progression of a multi-decadal process of structural adjustment away from small family-run pig farms to large-scale corporate farms. Large corporate farms are more able to isolate production from potential sources of infection via biosecurity measures, such as sanitation, personal protective equipment and truck washing. Large corporate farms have also become more vertically integrated, reducing the risk of the disease spreading from one farm to another. Feed mills, transport pathways and saleyards all pose significant threats of virus transmission. Streamlining supply chains greatly reduces these risks.

Investment in large corporate farms has been attractive given the high pork prices that resulted from the fall in pork supply. Corporate

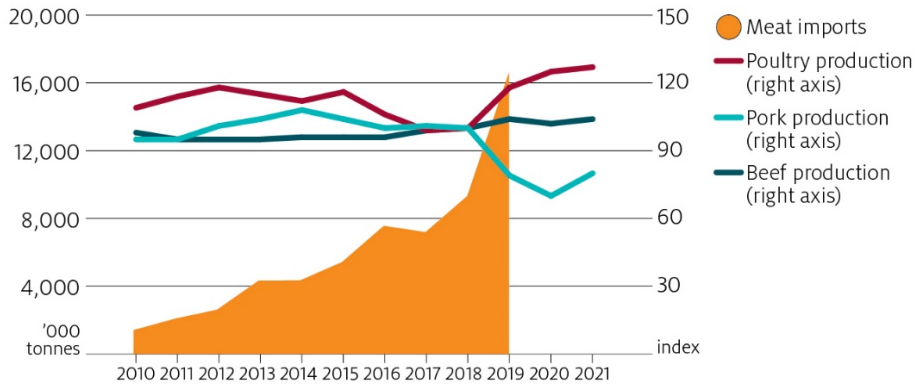
investment enabled rapid restocking, driving a nationwide recovery in pig numbers. The adoption of modern animal husbandry, better disease control processes, and the shift to a more vertically integrated industry, are expected to significantly increase the productivity of the Chinese pork industry. Higher domestic production of pork in the long term is expected to reduce China's import demand for both pork and substitute sources of protein.

Production of substitutes in China increasing

In 2018 the world pig herd was roughly 2.1 billion head, of which China accounted for 55%. The first official report of ASF in China was in August 2018. By 2019 the world pig herd had contracted by 12% and China's share of that had fallen to 48%. World pork production fell by 11 million tonnes in that year, causing consumers in China and around the world to substitute to other sources of protein. This rise in demand for meat led to higher Chinese production of poultry (by 18%) and beef and veal (by 4%) in 2019. Higher prices also provided an incentive for investment in industrial-scale pig farming.

Adjustment to large-scale pork production has enabled the Chinese pork industry to commence a rapid herd rebuild. In 2020 the Chinese pig herd grew by 11%, but pork production was down by 11% to a low of 38 million tonnes because pigs were being retained for breeding. According to the US Department of Agriculture, Chinese pork production is estimated to rebound to 43.5 million tonnes in 2021, 20% below pre-ASF levels. Pork production in China is expected to steadily increase over the medium term to 2025–26 to exceed pre-ASF levels.

Chinese meat imports and beef, pork and poultry production, 2010 to 2021



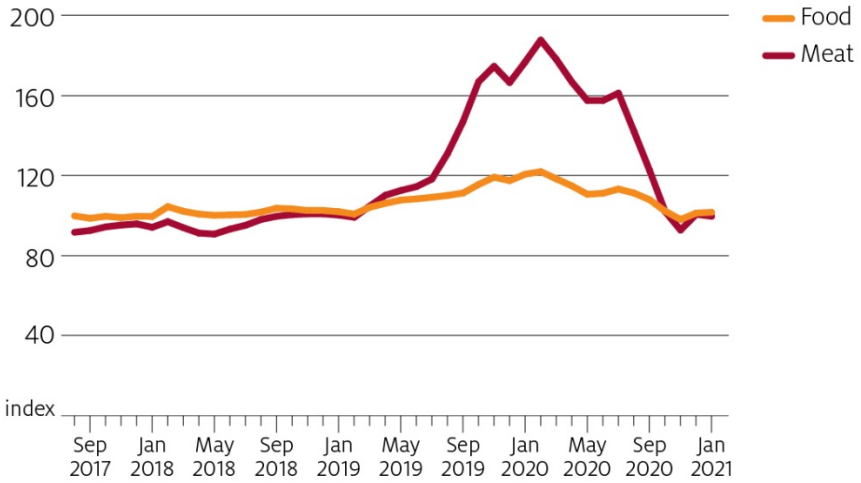
Note: 2018 = 100. UN Comtrade import data is only available to 2019.
Source: UN Comtrade; US Department of Agriculture

Global protein prices to decline in response to falling Chinese import demand

In 2019 falling pork supplies and rising prices led Chinese consumers to substitute towards imported meats. The volume of China's pork imports doubled, poultry rose by 77%, beef by 72% and sheep meat by 42%. ASF-driven reductions in the global supply of protein and the resulting increase in import demand from China pushed up protein prices in China and globally. The consumer price index for pork in China peaked in February 2020, up by 135% year-on-year. The consumer price index for beef was 21% higher and for mutton 11% higher. For meat more generally (including pork) the index was up by 88%.

By December 2020 the consumer price index for meat in China had fallen back to previous levels. This was the direct result of the recovery in China's meat supply.

Chinese consumer price index for food and meat, August 2017 to January 2021



Note: The same month last year = 100.
Source: National Bureau of Statistics China

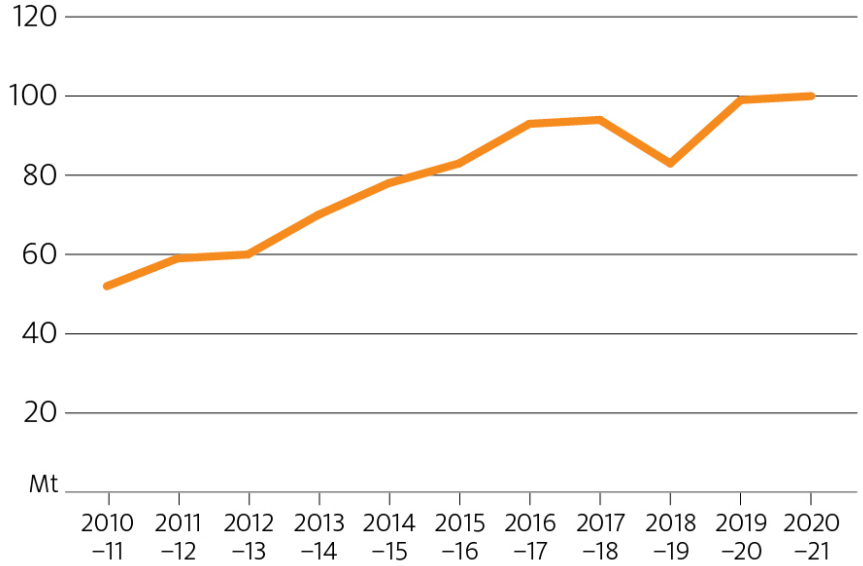
China leading global feed demand

China is the world's largest consumer and importer of corn and soybeans. As a result, feed demand in China underpins price movements in international feed grain and oilseed markets. Feed demand fell sharply when ASF caused the contraction in China's pig herd. The Chinese pig industry's efforts to contain ASF and rebuild pig herds have driven a recovery in feed demand towards pre-ASF levels. The expansion of China's poultry sector since 2018 has also contributed to the recovery. A shift by Chinese consumers towards poultry meat means that the poultry industry in China is likely to retain a higher share of feed demand into the future.

Chinese demand for corn is expected to continue to exceed domestic supply given continued expected growth of the pork and other intensive animal industries, such as poultry and dairy. The imbalance between demand and supply growth has led to the drawdown of national stockpiles of feed grains and record levels of feed grain imports.

Protein meal crushed from soybeans is a key ingredient in pig feed rations. Structural changes in the pig industry towards large-scale farms have increased the use of high-protein feeds, replacing food waste in traditional small-scale farming. Chinese soybean meal use for stockfeed is expected to increase by 8% to 76 million tonnes in 2020–21, exceeding pre-ASF levels. In 2018–19 with the outbreak of ASF, feed use of soybean meal in China fell by 5% to 65 million tonnes. Chinese soybean imports are expected to surpass pre-ASF levels in 2020–21 to reach 100 million tonnes, and then continue to steadily increase over the medium term.

Chinese soybean imports, 2010–11 to 2020–21



Source: US Department of Agriculture

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
ACT	Australian Capital Territory
AFMA	Australian Fisheries Management Authority
ANZSIC	Australian and New Zealand Standard Industrial Classification
ASMC	Australian Sugar Milling Council
AWEX	Australian Wool Exchange
b	billion (Australian)
BAE	Bureau of Agricultural Economics (now ABARES)
BRS	Bureau of Rural Sciences (now ABARES)
c	cent (Australian)
CBA	Commonwealth Bank of Australia
CIS	Commonwealth of Independent States
cif	cost, insurance and freight
CL	Chemical Lean
CME	Chicago Mercantile Exchange - Chicago Board of Trade
cw	carcase weight
DA	Dairy Australia
DAWR	Department of Agriculture and Water Resources (now Department of Agriculture, Water and the Environment)
DFAT	Department of Foreign Affairs and Trade

doi	digital object identifier
DM	deutschmark
ECU	European currency unit
EMI	Eastern Market Indicator
EU	European Union
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
GDP	Gross Domestic Product
GL	gigalitres (1,000,000,000 litres)
GST	Goods and Services Tax
ha	hectare (2.471 acres)
IGC	International Grains Council
IMF	International Monetary Fund
ITC	International Trade Centre
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
NAFTA	North American Free Trade Agreement
nec	not elsewhere classified
nei	not elsewhere included
nfd	not further defined
no.	number
NT	Northern Territory
m	million (Australian)
m3	cubic metre (1.307 cubic yards)
ML	megalitre (1,000,000 litres)

MLA	Meat & Livestock Australia
Mt	megatonne (1,000,000 tonnes)
org	organisation
RBA	Reserve Bank of Australia
Rep.	Republic
sw	shipped weight
t	tonne (1,000 kilograms)
UN	United Nations
USc	cent (United States)
US$	dollar (United States)
USDA	United States Department of Agriculture

Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES)

Postal address	GPO Box 858 Canberra ACT 2601
Switchboard	+61 2 6272 3933
Email	info.abares@awe.gov.au
Web	awe.gov.au/abares

awe.gov.au/abares