Agricultural forecasts and outlook
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Agricultural Commodities Report, Vol. 12.1
About the Agricultural Commodities Report
The *Agricultural Commodities Report* contains ABARES forecasts for the value, volume and price of Australia's agricultural production and exports.

Underpinning the forecasts contained in the *Agricultural Commodities Report* are ABARES outlook for global commodity prices, demand and supply. Each edition of the report factors in how changes to this outlook affect Australian producers and the value of their produce. Important risks to the outlook are also considered and discussed in each report.

A 'medium term' (5 year) outlook is published each year in the March edition of the *Agricultural Commodities Report*. Each June, September and December edition contains a short-term outlook. In June, the forecast period is to the end of the next Australian financial year (July to June). In September and December, the forecast period is to the end of the current Australian financial year.
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1. Agricultural overview

Andrew Cameron

**$81b**
Value of production

Agricultural overview
Record gross value of Australian agriculture.

**Key points**

- Australian agriculture benefits from decades of productivity growth in record-breaking year.
- Value of production to reach record $81 billion in 2021–22.
- Value of exports forecast to reach record $64 billion in 2021–22.
- Value of production and exports to fall and then steady over the medium term.

**Record value for 2021–22 before falling to trend**

The gross value of agricultural production is forecast to be a record $81 billion in 2021–22 – beating the previous year’s record by over $12 billion (Figure 1.1). This unprecedented result stems from the combination of record high crop production, and the highest prices (in real terms) for Australian agricultural produce in 32 years. Australia has harvested what will be the most valuable winter crop ever, even after accounting for the widespread downgrades in grain quality experienced across regions of New South Wales following an exceptionally wet harvest period. The total value of agriculture, fisheries and forestry production will also reach a record of almost $87 billion in 2021–22.

In 2022–23 the value of production is not likely to break further records, and instead is forecast to fall 6% to $76 billion – still the second highest on record. An expected return to more average seasonal conditions in 2022–23 will mean lower crop production. International prices are also expected to retreat from very high levels as overseas production increases, and the volatility and disruption of the COVID-19 pandemic begins to abate. Agricultural prices could remain higher for longer in the event of continued disruptions and a slower global recovery, which would add around $2.3 billion to gross value in 2022–23. See Box 1.1 for an explanation of the two medium-term scenarios considered in this edition of the *Agricultural Commodities Report.*
Over the medium term to 2026–27, the value of production in real terms is forecast to fall further as production and prices fall from record levels back to trend (Figure 1.2). Australia is likely to experience at least one very dry or drought year over the outlook period, which would reduce production and have implications for the years following, particularly for irrigated agriculture and the red meat industry.

The gross value of production in real terms is projected to range between $65 billion and $70 billion by 2026–27 (between $77 billion and $79 billion in nominal terms) under the two scenarios. Notably, agricultural production volumes are forecast to maintain historically high levels in most years in either scenario, which reflects significant long-term productivity gains, particularly in the cropping sector. Agricultural prices are expected to retreat from current record highs in both scenarios but will still hold on to around half of the gains of the last decade by 2026–27 (after accounting for inflation). A continued focus on adoption of productivity-enhancing technologies and practices across all agricultural industries will be critical to achieving the forecast values.

Elevated prices in the ‘slower recovery’ scenario could provide a significant short-term benefit to agriculture in the earlier years of the outlook, but this would come at the expense of future earnings. Over the 4 years between 2023–24 and 2026–27, ABARES projects an additional $7 billion in gross value would be earned in the faster recovery scenario (in real terms) despite the faster moderation of current high prices.
Record value of Australian exports during pandemic
The value of agricultural exports is also forecast to be a record of over $64 billion in 2021–22, up by a third on the previous year (Figure 1.3). Higher export volumes, which follow two consecutive years of exceptionally large grain harvests, are the largest contributor. This is further supported by higher prices forecast for almost every major export commodity.

Despite the significant and ongoing challenges in international shipping, Australian agricultural export supply chains have proved robust and resilient. Agricultural goods worth more than $29 billion have been shipped to 178 countries between July and December 2021, which demonstrates the diversity and extent of Australia’s agricultural trade (see Box 1.2 for a technical note regarding an update to ABARES definition of agricultural trade). The competitiveness of Australian agricultural exports over the medium term will be underpinned by continued agility in the pursuit of high-value markets, responding to changing consumer preferences, progress on multilateral trade reforms and new and upgraded trade agreements.
value. By 2026–27, the real value of agricultural exports could range from $47 billion to $53 billion. A drought year would see exports sharply lower under either scenario. The timing of a drought one year later in the slower recovery scenario has a greater impact than in the faster recovery scenario, with export focussed irrigated agricultural products such as cotton, almonds and rice more heavily affected (given the longer drawdown in storage levels). Higher inflation under the slower recovery scenario also accounts for over $2.5 billion of the difference in projected outcomes by 2026–27.

Box 1.1 Medium-term forecast scenarios

This edition of the Agricultural Commodities Report uses two scenarios to produce the five-year forecasts discussed in each chapter. Given the unprecedented uncertainty introduced by the ongoing COVID-19 pandemic, the two scenarios present alternatives for the pace at which the global economy reaches a ‘new normal’. These scenarios cover the period from 2021–22 (the current financial year) to 2026–27.

The assumptions for Australian seasonal conditions in both scenarios are chosen to be realistic given the trends observed over the last two decades. Long-term declines in rainfall mean that conditions experienced year to year are most likely to be below the historical average, with around decile 4 rainfall most likely. It is reasonable to expect that at least one year of the outlook period will have drought-like conditions – decile 1 or 2 rainfall. A return to wetter than normal conditions is less likely (although possible) and so is not considered in either scenario (see the Seasonal conditions overview for further explanation).

The ‘faster recovery’ scenario

In this scenario, the global economy continues an uneven recovery. Growth in Australia’s major agricultural export markets will be patchy, but in line with existing (January 2022) economic forecasts issued by the IMF. Progress in vaccinating populations against COVID-19 is expected to continue much as planned. Any future variants either do not exhibit serious resistance to existing vaccines, or new vaccines are quickly developed to combat them. This means that widespread lockdowns and their associated disruptions become progressively less common. Inflation peaks in early 2022 and will fall, although initially to price levels higher than pre-pandemic due to supply chain disruptions and adjustments continuing for the first half of the projection period. Central banks will respond to higher inflation (including in Australia) with tighter monetary policy, which will likely slow economic growth and asset price inflation.

Energy markets in this scenario broadly follow current consensus forecasts. Government interventions and geopolitical tensions – including those surrounding the Russian Federation and Ukraine – abate quickly in this scenario. Significantly for agricultural markets, export restrictions such as those currently imposed for grain (Russia) and fertiliser (China and Russia) will be rapidly unwound, as energy markets normalise and the prospect of more favourable seasonal conditions ease concerns around food prices and availability. International agricultural production is expected to trend towards average growth over this scenario. This contrasts with lower-than-average production growth for key staples in 2021–22 which have contributed to steep agricultural price rises. Disruptions to supply chains, both domestic and international, are assumed to have peaked and will slowly dissipate over the next 18 months, as adaptation takes
place and an expansion in ocean shipping capacity leads to reduced shipping rates and lower lead times.

Seasonal conditions in this scenario are assumed to be less favourable than the last 2 years for Australia. In 2022–23 an average (decile 4 rainfall) year is expected, although prospects are likely to still be above average given stored soil moisture, above average pasture biomass and accumulated fodder available to farms. A very dry or drought year (decile 2) follows in 2023–24, then a somewhat less dry year (decile 3) in 2024–25. Two years of decile 4 rainfall are assumed in 2025–26 and 2026–27. International growing conditions are assumed to tend to average in most years, with an above average year coinciding with the very dry year for Australia in 2023–24. This is a probable result of an El Niño event.

The 'slower recovery' scenario

In the slower recovery scenario, the global economy continues to recover but the pace is slower and more uneven than in the faster recovery scenario. World economic growth is lower overall and the slower recovery is felt more heavily in lower income countries. This slower recovery could result from the emergence of worse variants of COVID-19, slowdowns in vaccine rollouts, increased vaccine nationalism, prolonged conflict in eastern Europe, supply chains not adapting as rapidly as expected, or combinations thereof. This would mean supply chain bottlenecks persist for longer, COVID-related disruptions would be more widespread and persistent, and greater uncertainty about the prospects for recovery would be reflected in commodity prices - including agricultural commodities.

In this scenario, disruptions to agri-food markets such as export quotas and restrictions on critical inputs like fertiliser persist into 2024–25. Affected commodities are likely to record higher prices than they would otherwise. Inflation is higher and more persistent (including in Australia), prompting stronger central bank action and creating more concern about the fragility of the economic recovery, which causes consumers to be more cautious. Freight and other supply chains do not begin the process of normalisation until 2024–25, which adds to underlying inflationary pressure. Energy markets are likely to be more disrupted and volatile in this scenario. By 2026–27, a new normal has been reached but compared to the faster recovery scenario, Australia's major trading partners are poorer overall, particularly emerging and developing economies which experience significant economic scarring.

Seasonal conditions in this scenario are assumed to have a slightly more favourable sequence for Australian agriculture in the first 2 years of the outlook period. Average (decile 4 years) are assumed for 2022–23 and 2023–24. This means agricultural production is likely to be higher in the earlier years of this scenario, coinciding with higher agricultural commodity prices than in the faster recovery scenario (for most but not all commodities). A drought like (decile 2) year then occurs in 2024–25, a decile 3 year follows, and the scenario ends with another decile 4 year in 2026–27. International growing conditions are assumed to tend to average in most years, with an above average year coinciding with the very dry year for Australia in 2023–24. This is a probable result of an El Niño event.
ABARES considers the conditions outlined in the faster recovery scenario for 2022–23 to be higher probability than those of the slower recovery scenario, and so has adopted the forecasts in this scenario in the forecast tables accompanying this report. Between 2023–24 and 2026–27, there is greater uncertainty and so a simple average of the projections developed under both scenarios is presented in tables. Ranges of potential outcomes are discussed in each chapter.

The purpose of using scenarios is to better explain the factors driving Australia’s agricultural markets. It also demonstrates potential paths for agricultural production as it moves from record highs to more average seasonal conditions. This approach has been used since March 2020 (see Seasonal climate scenarios for medium-term agricultural forecasts) and aims to use more realistic medium-term assumptions that take Australia’s highly variable and changing climate into account.

**Input cost pressure likely to sharpen over medium term**

The net value of farm production is forecast to reach record highs in 2021–22 as farm businesses benefit from exceptional production and high commodity prices. The increases in income are likely to far outweigh the additional pressure of higher input costs for fuel, fertiliser, chemicals and labour (see the Economic overview for more analysis of global inflation pressure).

Over the medium term, production is forecast to fall and prices to ease, so the pressure of input costs will become more significant. In the slower recovery scenario inflation in Australia will be higher for longer, which will add additional pressure on farm inputs but perhaps most significantly to farm labour costs. Labour-intensive industries such as horticulture will feel this pressure more acutely than broadacre agriculture. A continued focus on productivity will be needed. Likely higher costs for labour saving technologies in this scenario would make capital investments even more difficult to finance. Farm businesses will face a balancing act between the costs...
and potential benefits of productivity-enhancing technology. Larger farm businesses with stronger balance sheets and greater risk appetites will be more likely to make such investments.

**Box 1.2 Updates to ABARES Agricultural, Fisheries and Forestry trade classification**

ABARES has updated the classification used to identify Agricultural, Fisheries and Forestry goods exported from Australia. This update expands the coverage of goods and improves alignment with existing standards. The update has resulted in historical revisions back to January 1988, due to the reclassification of export items between categories, the inclusion of items previously excluded, and the removal of some items. The net effect of these changes is to increase the value of Agricultural, Fisheries and Forestry trade as classified by ABARES (Figure 1.5). The revisions increase the value of agricultural, fisheries and forestry by less than 1% in most years between 1988–89 to 2020–21. Information about this update can be found on the definitions section of the ABARES webpage.

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**Figure 1.5 Percentage change to agriculture, fisheries and forestry export estimates from change in classification, 1988–89 to 2021–22**

Note: Changes are due to the net effect of the addition of some export items, the removal of some export items, and the movement of items between Agriculture, Fisheries and Forestry classifications. Category contributions to net percentage change shown. Source: ABARES; ABS
2. Economic Overview

Tim Whitnall

Key points

- Considerable uncertainty exists over global growth in the short-term which will have lasting implications for the global economy over the next 5 years.
- Ongoing supply chain disruptions and higher input prices are key risks.
- Inflationary pressures are expected to lead central banks to raise interest rates.
- The value of the Australian dollar is assumed to decline over the outlook period.

Global economic recovery to continue in the short-term
The global economy is estimated to have grown by 5.9% in 2021 following the 3.1% contraction in 2020 due to COVID-19. Growth is expected to slow in 2022 as stimulus support ends in advanced countries and supply chain bottlenecks from COVID-19 disrupt production.

Because of the uncertainty surrounding COVID-19, ABARES has prepared two alternative macroeconomic scenarios over the medium term for the global recovery. These two scenarios underpin the agricultural commodity forecasts. The ‘faster recovery’ scenario assumes a gradual global relaxation of COVID-related restrictions and that there will be no new variants which require their reimposition. It also assumes that supply chain disruptions and inflationary pressures dissipate over the next 18 months. This scenario forms the basis for ABARES forecasts for 2022–23, but uncertainties in the short run, if realised, could have longer run implications affecting agricultural markets. To account for these, the ‘slower recovery’ scenario assumes that global growth is significantly slowed by further COVID-19 outbreaks, inflationary pressures and supply chain disruptions in the short term, and that they continue to weigh on growth until around 2024–25. For a more detailed explanation of the economic scenarios used in the outlook, see the Agricultural overview.

Under the faster recovery scenario, global growth is assumed to moderate gradually, averaging 4.4% in 2022 and 3.8% in 2023. In contrast, under the slower recovery scenario, global growth is expected to slow markedly to 1.9% in 2022 before accelerating each year to 2025 when it reaches 3.7%. In the outer years under both scenarios, growth is assumed to slow to a longer-run rate of 3.1% by 2027 (Figure 2.1).
On a per-person basis, global incomes are assumed to be around 16% higher in real terms in 2027 than they were in 2021 under the faster recovery scenario, and around 12% higher under the lower recovery scenario. Advanced economy incomes are assumed to grow by between 12% and 10% across the two scenarios, while emerging and developing economy incomes are assumed to grow by between 22% and 16%. Income growth in emerging Asian countries is expected to be among the most rapid. Incomes in China are assumed to grow by between 33% and 27% per person, and incomes in the ASEAN region by between 31% and 21% by 2027.

**Short-term growth will continue to be uneven**

Despite the global economy recovering to its pre-pandemic level of real GDP in 2021, the recovery has been uneven across regions. Advanced economies made a rapid recovery to their pre-pandemic level of output in 2021. This reflects the large fiscal stimulus packages and accommodative monetary policy provided by governments and central banks in these economies. These actions boosted demand for goods, and the rapid rollout of vaccines allowed for the easing of mobility restrictions. China also grew rapidly in 2021, after avoiding a contraction in 2020. China’s growth was driven by increased manufacturing activity and strong global demand for its exports. In contrast, the recovery in other emerging and developing countries was relatively slower and this group did not recover to its pre-pandemic level of output in 2021. This slower recovery reflects the lower vaccination rates and less policy support available to deal with the effects of COVID-19 outbreaks. Fiscal stimulus packages in emerging economies were on average less than a quarter of the size of those in advanced economies, and central banks in countries such as Russia and Brazil began aggressively raising interest rates throughout 2021 to deal with rising inflation.

In 2022, growth in advanced economies is assumed to be 3.9% in the faster recovery scenario and 1.1% in the slower recovery scenario. In both scenarios growth is assumed to slow considerably from the 5.0% growth in 2021, which reflects the ending of large stimulus programs and the easing of pent-up demand from consumers who accumulated extra savings during pandemic lockdowns. The extent of the slowdown between the scenarios is largely contingent on the monetary policy responses to inflationary pressures and supply chain disruptions. If continued, supply chain bottlenecks will lead to slowdowns in production as industries face shortages of labour and restricted access to inputs which will drive inflationary pressures. Higher inflation will lead central banks to raise interest rates and reduce bond-buying.
programs to contain rising prices which will raise the costs of borrowing, and slow household expenditure and investment.

In emerging and developing economies, growth in 2022 is assumed to be 4.8% in the faster recovery scenario and 2.5% in the slower recovery scenario. These represent a slowdown from the growth rate of 6.4% in 2021. Emerging economies have lower rates of vaccinations than advanced economies and will be less able to contain outbreaks of the virus which will limit growth. Ongoing outbreaks and the potential for a more disruptive variant in the slower recovery scenario will mean growth will be markedly slower in 2022. China is expected to slow markedly in 2022 under this scenario due to lower domestic consumption. This reflects assumed shutdowns in accordance with the government’s zero-tolerance COVID-19 policy. South-East Asian countries, which include some major export markets for Australian agriculture, have also been adversely affected by significantly lower tourism, which is assumed to continue if outbreaks of the virus continue. This will keep demand for agricultural imports into the region subdued due to lower local incomes and lower food demand from the hospitality industry.

Growth to moderate over the medium term
Global growth over the medium term is still largely uncertain. Under the faster recovery scenario, growth is assumed to gradually slow from 4.4% in 2022 to 3.1% by 2025 and remain at that level for the remainder of the outlook period. This scenario reflects a gradual return to a normal long-run rate of growth in line with the assumptions of the IMF’s January World Economic Outlook Update.

Under the slower recovery scenario, growth is assumed to accelerate gradually from the low rate of 1.9% in 2022 to 2.3% in 2023 and 2.7% in 2024. This acceleration reflects a gradual rollout of vaccines in developing countries, and the slow recovery of international supply chains. In 2025, growth is expected to accelerate more rapidly to 3.7% as the supply disruptions and inflationary pressures are assumed to be brought under control. Growth will then ease back to the longer-run growth rate of 3.1% by 2027.

Despite growth returning to similar rates by the end of the outlook period in both scenarios, the slower recovery scenario results in lower incomes, with the effect more strongly felt in developing economies. In the slower recovery scenario, global GDP in 2027 is expected to be around 4.3% lower than in the higher growth scenario. In the same year, GDP of advanced economies is assumed to be 2.3% lower, and GDP of emerging and developing countries is expected to be 5.7% lower.

Ongoing supply chain disruptions key risk to outlook
Pandemic-induced lockdowns caused a large shift in consumption patterns in advanced economies away from services and towards purchases of goods. This shift caused a large increase in demand for transport services, which pushed up prices and shipping times for sea freight. Adding to this, labour force absences due to COVID-19 and truck trailer shortages have caused bottlenecks at ports, slowing the unloading and reloading of container ships. These supply issues have led to shortages of consumer goods and producer inputs, which has added to consumer price inflation and slowed production.

The shift in consumption patterns to goods has also caused changes to shipping patterns. The enormous demand for exported Chinese goods in large, advanced economies such as the United States has subsequently increased demand from Chinese exporters for shipping
container routes leaving Asian ports. This has led to shipping container shortages and significant increases in shipping prices on these routes, with the price to ship a container from Shanghai to Los Angeles rising as much as 600% between 2019 and 2021. This is causing some shipping companies to switch from other routes in the region or forego stops they would otherwise make to take advantage of lucrative Chinese routes. As a side effect for Australian exporters, this has decreased the supply of ships travelling from Australia to other regions, such as the Middle East and South Asia, causing the routes to become more expensive. This directly affects Australian exports of agricultural products such as meat, livestock products, wine and horticulture which are predominantly shipped in containers. The same rises in shipping prices are not as present in bulk shipping, so will not affect grains and other crops to the same degree.

Supply chain disruptions are expected to continue while consumption demand for goods remains high. This will gradually ease as consumers in advanced economies shift spending back to services, such as dining out and travel, that they forewent during the pandemic. The faster recovery scenario assumes that this will occur gradually over 2022 and 2023. The slower recovery scenario assumes that this will take longer to unwind, persisting until 2024 to 2025.

Commodity prices at elevated levels
Commodity prices rose markedly in 2021 as supply was unable to keep up with demand (Figure 2.2). Energy prices shot up in the second half of the year driven by rapidly increasing demand for natural gas. Adverse weather events led some countries to increase gas use for heating and cooling, while weather events also disrupted production of thermal coal and renewables. Metallurgical coal prices also rose significantly in 2021 due to strong demand from Chinese steel producers. While energy prices showed signs of easing towards the end of 2021, recent geopolitical developments have added upward pressure to prices at the start of 2022. Tensions on the Russian-Ukraine border have kept natural gas and crude oil prices high, and a temporary export ban on coal imposed in January by the Indonesian Government further pushed up prices for coal.

Higher natural gas prices in 2021 have also flowed through to significantly higher fertiliser prices. Urea prices roughly doubled between July and November 2021 as natural gas is a key input in its manufacture. Fertiliser price rises were exacerbated by export restrictions put in place by China and Russia, the world’s two largest producers. It has been announced that these restrictions will stay in place until the middle of 2022, which will likely keep fertiliser prices high through to at least the 2022 planting season in Australia.

Figure 2.2 Commodity Prices, January 2019 to January 2022

Source: World Bank
Inflation pressures will lead central banks to raise interest rates

Consumer prices in many countries rose faster than anticipated by central banks over the second half of 2021. Inflation increased to decade highs in many advanced economies (Figure 2.3), reflecting the increased consumer demand for goods, ongoing supply chain disruptions and higher energy prices. Inflation has also proven to be more broad-based than initially believed, with prices rising across fuel, food, shelter, apparel, vehicles and medical services.

Central banks in many advanced economies are expected to respond to higher inflation rates by tightening monetary policy in 2022. Central banks in countries such as New Zealand and the United Kingdom have already begun to raise interest rates. In Australia and the United States, banks have announced the slowing or ending of bond-purchasing operations—programs designed to keep long-term interest rates low. The magnitude of tightening is still uncertain but will depend on how long underlying inflation remains high. If inflation remains high for a long period, future inflation expectations can rise, requiring more significant interest rate hikes to bring down inflation. In the faster recovery scenario, inflationary pressures are expected to dissipate quickly, leading to only slightly higher interest rates. Conversely, in the slower recovery scenario, inflationary pressures are expected to persist for several years, which will require significantly higher interest rates over the outlook period.

The Australian dollar to fall over the short to medium term

The Australian dollar is assumed to average US73 cents in 2021–22. This is a 3% depreciation from 2020–21, driven by falling iron ore prices. In the faster recovery scenario, the Australian dollar is assumed to remain largely unchanged in 2022–23 as downward pressure from falling commodity prices is offset by strengthening economic activity. For the remainder of the outlook, the Australian dollar is assumed to depreciate slightly, averaging US72 cents for 2023–24 to 2026–27. This reflects the Department of Industry, Science, Energy and Resources' assumption of a longer-term decline in Chinese demand for...
imported bulk commodities like iron ore and coal as stimulus-led infrastructure spending slows which will put downward pressure on the exchange rate.

In the slower recovery scenario, the Australian dollar is assumed to fall to US69 cents in 2022–23. This reflects an increase in global uncertainty from ongoing COVID-19 outbreaks and prolonged supply chain disruptions which are assumed in this scenario. These factors will put downward pressure on the Australian dollar as investors increase demand for US dollars, which is seen as a safe haven by investors. Over the medium-term in this scenario, the Australian dollar is assumed to depreciate further, averaging US68 cents for 2023–24 to 2026–27. This largely reflects subdued demand which will cause commodity prices to fall further as growth recovers slower in developing countries.
3. Seasonal conditions

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 2022 for most of the world’s major grain- and oilseed-producing regions.

- The 2021–22 La Niña appears to have peaked or be near its peak. Neutral climatic conditions are more likely in the current 10-month forecast window, with La Niña conditions less likely to persist in 2022–23 or recur over the outlook period to 2026–27.

- In Australia, summer rainfall has benefited 2021–22 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.

Global production conditions have been favourable despite La Niña impact

Global rainfall to date

Rainfall over the 3 months to 31 January 2022 was variable for much of the world’s major grain- and oilseed-producing regions (Figure 3.1). 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 2022 was below average across parts of northern Argentina and southern Brazil. In Australia, the late forming La Niña resulted in well above average rainfall across much of eastern Australia. Above average rainfall across Queensland and northern New South Wales boosted crop development and yield prospects for grain sorghum, but delayed harvest and affected grain quality in winter crops.

In the northern hemisphere, November 2021 to January 2022 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 the eastern half of the United States. In contrast, rainfall was above average in India, parts of southern Europe and South-East Asia, and the west of the Russian Federation. 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.
Crop conditions
Global crop production conditions continue to be generally favourable despite mixed climatic conditions across parts of Argentina, Brazil, Canada and the United States (Figure 3.2). Despite concerns over drought induced poor growing conditions in parts of Argentina and Brazil, record global production levels are expected for corn and soybeans in 2021–22 (see Coarse grains and Oilseeds). Mixed growing conditions have reduced expected global wheat production in 2021–22, 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 2021–22.

Pasture and rangeland conditions
Analysis of the Vegetation Health Index (VHI) for the second 10-day period in January 2022 indicates poor vegetation condition across parts of northern and eastern Africa, in northern and central
Argentina, across parts of western and central Australia, southern Brazil, northern Mexico, and the west of the United States (Figure 3.3). 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.

**Figure 3.3 World vegetation health indexes, 11 to 20 January 2022**

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 2021–22**

According to oceanic and atmospheric indicators, the 2021–22 La Niña appears to have peaked in January to February 2022 as a moderate strength event. The latest forecasts from the Climate Prediction Center indicate that La Niña is likely to continue into the Northern Hemisphere spring (77% chance during March to May 2022). During the May to July period, the chance of transition to ENSO-neutral conditions is estimated to be about 55%, and the likelihood of an El Niño is near-zero (Figure 3.4).

**Figure 3.4 Estimated El Niño–Southern Oscillation (ENSO) probabilities, January to November 2022**

The outlook for the second half of 2022 remains relatively uncertain. Model predictions differ considerably, however neutral climatic conditions are more likely in the current 10-month forecast window, with La Niña conditions less likely to persist in 2022–23. The climate outlook is for average to above average rainfall between March and May 2022 for most of the world’s major grain- and oilseed-producing regions. The lingering 2021–22 La Niña event is expected to result in below average rainfall for Argentina, southern Brazil, parts of western Europe, west Asia, and southern and western United States.
This below average rainfall outlook follows recent dry conditions in Argentina and southern 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 2022, this is likely to constrain production in southern Kazakhstan and the United States.

For commodity-by-commodity assessments of the global crop production conditions and country assessments of the climate outlook and potential impact on production conditions, see ABARES Weekly Australian climate, water and agricultural update for 17 February 2022.

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

Drought conditions associated with the 2020–21 La Niña event affected major wheat-producing regions in Canada, the Russian Federation and the United States, with production in 2021–22 decreasing 20% year-on-year in these three key wheat exporting nations. However, this decline in production was more than offset by boosts in wheat production year-on-year in Argentina, Australia, the European Union and Ukraine.

**Impacts of the La Niña on world wheat supply in 2022–23 yet to be determined**

The US hard red winter wheat crop entered its dormant stage of growth in late November/December struggling with dry conditions associated with the re-emergence of La Niña in 2021–22. Although the 2022–23 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.

**La Niña induced production decline for oilseeds in South America**

The United States Department of Agriculture (USDA) in its February World Agricultural Supply and Demand Estimates (WASDE) report cut its estimates for South American soybean production. But these projections could be cut even further in the coming months with continuing dry conditions in Brazil’s and Argentina’s main growing regions (Figure 3.5). The USDA lowered its estimate for 2021–22 soybean production in Brazil, the world’s largest producer, to 134 million tonnes, which is 3.6% below last month’s WASDE forecast and down 2.9% from last year’s output. The USDA also trimmed its estimate for Argentine soybeans by 3.2%, to 45 million tonnes, compared with last month’s report.

South America’s upcoming harvests are critical to replenishing currently tight global supplies of many major commodities. But a second consecutive year of drought in Argentina and southern Brazil, brought on by La Niña, means the continent’s agricultural production is headed for significant declines.

**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 2021–22 growing season.

While the USDA left Argentine corn production for 2021–22 unchanged in its February WASDE report, Argentina’s Buenos Aires
Grains Exchange cut its forecast for the country’s 2021–22 corn harvest to 51 million tonnes, down from its previous estimate of 57 million tonnes. This follows prolonged drought conditions from December to mid-January and concerns are rising again about a new dry spell (Figure 3.5).

**Figure 3.5 Drought index for South America, 29 January 2022**

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 USDA in its February WASDE report cut its production estimate for Brazilian corn by nearly 1%. While Brazil’s larger, second corn crop is only now being planted, dry conditions in the country’s south, and excess rain in the north, could impact final production further.

**Australian agricultural production conditions for the remainder of 2021–22**

This analysis of rainfall, production conditions and the climate outlook form the basis of ABARES forecasts of Australian agricultural production for 2021–22.

**Recent rainfall and production conditions for livestock**

Following a wet spring across much of Australia, rainfall continued to be average to extremely high between November 2021 and January 2022 in key production regions (Figure 3.6). This rainfall has supported average to above average pasture growth across eastern, central and northern Australia.

However, rainfall was not favourable for agriculture in all of Australia’s important agricultural regions. November 2021 rainfall was extremely high across much of Australia and caused widespread flooding resulting in a lack of field access, inundation of pastures and livestock losses for producers in the worst affected areas.

Average 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.

Well above average rainfall coupled with mild temperatures during January provided a boost to pasture production for this time of year across most grazing regions in New South Wales, Queensland, northern Victoria, South Australia, northern Western Australia and the Northern Territory. This is likely to have enabled farmers to continue to rebuild stock numbers and provide opportunities to replenish fodder supplies during late spring and early summer.
While well above average rainfall between November 2021 and January 2022 has been largely beneficial to summer crop production prospects it was not favourable for winter crops across parts of eastern Australia. November 2021 rainfall was extremely high in most cropping regions in Queensland and New South Wales. This led to widespread flooding, weather damage, harvest delays of winter crops, and the inundation and loss of some summer crops. Following extremely high November rainfall totals, substantial December rainfall was favourable for summer crop planting and growth. Average to above average January 2022 rainfall likely further increased the production prospects and yield potential of summer crops planted later in the season.

Soil moisture and rainfall over the entire growing season need to be considered when determining planting opportunities and crop production outcomes for dryland summer crops. Adequate rainfall and high levels of soil moisture during early spring is likely to have boosted planted area of summer crops across southern Queensland and northern New South Wales.

Record high November rainfall in summer cropping regions is likely to have damaged some early sown crops and limited the ability to complete intended planting programs in northern New South Wales. However, improved production conditions during December 2021 and January 2022 boosted production prospects in New South Wales and facilitated additional late summer crop planting in Queensland.

Figure 3.7 and Figure 3.8 show the relative levels of modelled upper layer (~0.1 metres) and lower layer (~0.1 to ~1 metre) soil moisture across Australia for January 2022. Soil moisture estimates are relative to the historical long-term average (1911 to 2016) and presented in percentiles.

Upper layer soil moisture responds quickly to seasonal conditions and often shows a pattern that reflects rainfall and temperature events in the days leading up to the analysis date. Lower layer soil moisture is a large, deeper store that is slower than the upper soil layer to respond to seasonal conditions and tends to reflect the accumulated effects of events that have occurred over longer periods.

Relative upper layer soil moisture levels in January 2022 (Figure 3.7) in southern Queensland and northern New South Wales were mostly
average or higher. However, upper layer soil moisture was well below average across the central Queensland cropping region. This is likely to have limited planting opportunities for late sown summer crops. Further rainfall will be needed during February to boost upper layer soil moisture and support germination and establishment of later sown summer crops.

**Figure 3.7 Upper layer soil moisture, January 2022**

Relative lower layer soil moisture levels in January 2022 (Figure 3.8) were average to above average in most cropping regions in Queensland. Lower layer soil moisture levels were generally average to extremely high in cropping regions in northern New South Wales.

**Figure 3.8 Lower layer soil moisture, January 2022**

Note: Relative upper layer soil moisture is displayed for Australia. The extremely high band indicates where the estimated soil moisture level for January 2022 fell into the wettest 10% of estimated soil moisture levels on that day each year between 1911 and 2016. The extremely low band indicates where the estimated soil moisture levels for January 2022 fell into the driest 10% of estimated soil moisture levels on that day between 1911 and 2016.

Source: Bureau of Meteorology

With generally average or better soil moisture levels in most summer cropping regions, the favourable rainfall outlook for the remainder of the growing season is likely to be sufficient to achieve current forecast summer crop production during 2021–22.

**Irrigated crops**

The unseasonably high inflows into reservoir storages in the Murray-Darling Basin during early summer appear to have slowed, with small declines in water storage levels being recorded in early 2022. At 2 February 2022 the volume of water held in storage was around 22,500 GL, or around 90% of total capacity. This was around 8,800 GL
or 65% more than at the same time last year and remains at the highest level since 2016–17. Increased dam storages offer favourable irrigated planting prospects in both Queensland and northern and southern New South Wales during both 2021–22 and 2022–23 (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 2022 (published on 17 February 2022), there is a high chance of recording close to average March to May rainfall in 2022 across northern Australia (Figure 3.9). If realised, this rainfall is likely to support above average pasture growth in northern Australia.

Across most of the remainder of Australia, there is a 50% chance of recording close to average March to May rainfall in 2022. With average or better levels of soil moisture across most cropping regions, this rainfall is likely to be sufficient to support above 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.

**Most likely climate scenarios to 2026–27**

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 the *Agricultural Commodities Report*, 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 2026–27.

For the upcoming 5-year projection period we have some knowledge of the production conditions likely to be experienced during the upcoming 2022–23 season. Following a late-forming but moderate La Niña event in 2021–22, production outcomes for 2022–23 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 subsequent years – years 2 to 5 of the medium-term forecasts – depend to some extent on the conditions experienced during 2021–22. This means that climate scenarios in ABARES March 2022 medium-term forecasts are different to those used in March 2021 and 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 (Figure 3.10). 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’ like 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 2022–23 are:

- neutral year – most likely, and most climate models favour this scenario
- multi-year La Niña develops – low probability, with only 25% of all La Niña events on record lasting for 3 years
- El Niño develops in 2022–23 – 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 2023–24 to 2026–27 are:

- neutral years – most likely outcome in most years, with 24 out of 53 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 the Agricultural overview.

Figure 3.11 Phases of the El Niño–Southern Oscillation, 1969–70 to present

Source: Bureau of Meteorology
4. Wheat

Amelia Brown

Key points

- Value of Australian wheat production and exports to reach record high in 2021–22.
- Prices to ease but remain high in 2022–23 reflecting tight global supply.
- World production and consumption to increase over the medium term.
- Russia–Ukraine tensions contributing to price volatility.

Value of wheat production to reach record high in 2021–22

The gross value of wheat production is forecast to reach a record high of $12.3 billion in 2021–22, driven by record production and high prices. However, the quality profile of the Australian crop was impacted by a wet harvest in parts of southern Queensland and most of New South Wales. Parts of northern New South Wales were able to harvest before the rain, but the majority of central and southern New South Wales was impacted by record high November rainfall. This resulted in a high proportion of the wheat crop being downgraded to low protein and feed grade wheats. The quality profile in Western Australia was also well below average. Although these downgrades have reduced the overall value of production, they have been partially offset by high yields. More detailed analysis of 2021–22 wheat production can be found in the Australian Crop Report.

The mice population in cropping regions has generally declined during summer. Increased baiting of mice on farms during spring 2021 was effective and the very wet spring and summer has also helped. There have been no reports of significant damage to date.

In 2022–23 production value is forecast to fall to around $9.5 billion. Despite being lower than the 2021–22 record, it is still well above average. Australian production is forecast to fall in 2022–23 and world wheat prices are forecast to ease. This is driven by world production increasing, government interventions in grain markets lessening, supply chain disruptions easing and fertiliser prices falling. However, world wheat prices could remain elevated in 2022–23 should the global economy recover more slowly, and markets remain disrupted. This edition of the Agricultural Commodities Report considers both scenarios over the outlook period to 2026–27 (see the Agricultural Overview for a full explanation).

Over the medium term to 2026–27, the key determinant of gross value of wheat production will be the climate outlook and the timing of average and poor seasonal conditions and their impact on both global and Australian production. Gross value is forecast to range from $5.8 to $9.0 billion.

Under the faster recovery scenario, gross value is forecast to fall in 2023–24 due mainly to the impact of drought on production. Despite
the fall in production, there will be ample supplies in Australia to meet domestic requirements, following the rebuilding of domestic stocks over 2020–21 and 2021–22. We are unlikely to see domestic prices rise above world prices like we have in previous droughts when domestic stocks were very low. In addition, rising production globally is expected to more than offset the low production in Australia, causing a fall in world prices.

For the remainder of the medium term, gross value will increase in line with higher production in 2024–25 and then stabilise out to 2026–27. Under the slower recovery scenario, an assumed drought year is expected to create a sharp fall in production value in 2024–25.

Figure 4.1 Gross value of wheat production, Australia, 2010–11 to 2026–27

Value of exports to reach record high in 2021–22
The value of Australia’s wheat exports is forecast to increase by 26% in 2021–22 to a record $10.3 billion. Increased export supply, following two consecutive years of record production, combined with high global prices are driving the record value. In the context of high global freight costs, Australia is well placed to increase exports into our biggest South-East Asian markets due to our proximity. The volume and value of exports is forecast to fall in 2022–23 in line with forecasts of lower production and prices. Export volume is forecast to fall by 17% to around 21 million tonnes, with a value of $7.7 billion. Although this is a fall in export volume and value, it is still well above average.

Over the medium term to 2026–27, Australia’s export volume will depend on production under each scenario. Each scenario includes a drought like (decile 2) rainfall year. In these years it is assumed that there will still be a surplus needing to be exported, but with export volume and value expected to fall. The record value and volume of exports in 2021–22 is not expected to be repeated over the projection period.

Prices to remain high in 2022–23 then ease over the medium term
The Australian wheat indicator price (Australia Premium White) is forecast to ease in 2022–23 but remain historically high at around $400 per tonne. Although total world supply is forecast to increase, supplies of high-quality milling wheat will remain tight, causing their prices to remain high. This is expected to contribute to higher prices for baked goods such as specialty breads, muffins, and cakes. Staple foods like bread, noodles and pasta will also face the same upward
pressure on prices. However, relatively cheaper, lower quality wheat may be used or blended with higher quality wheat to reduce costs.

In 2023–24, Australian production is forecast to fall significantly due to drought like (decile 2) seasonal conditions under the faster recovery scenario. However, above average northern hemisphere production is expected to more than compensate for lower production in Australia, with ample world supplies driving global wheat prices to fall.

Wheat prices in Australia are expected to be coupled to world prices under all scenarios, even during drought years, reflecting ample domestic supply. The world indicator price (US no.2 Hard Red Winter) is forecast to fall in 2022–23 from current highs as world production increases. Prices are forecast to fall by 20% in 2023–24 reflecting above average northern hemisphere production, particularly in the major exporters (Black Sea, Canada, EU and the US). Prices will recover in 2024–25 and then ease towards the end of the projection period.

Under the slower recovery scenario prices are expected to remain slightly higher in 2023–24. A significant price fall is not expected until 2024–25 in this scenario, when northern hemisphere production increases. Prices would recover in 2025–26 and then ease by 2026–27.

**Australian production to fall from record highs**

The area planted to wheat in 2022–23 and over the medium term will be determined by crop rotation considerations, soil moisture availability, expected returns and input costs. The area planted to wheat in 2022–23 is forecast to fall by 4% to around 12.4 million hectares. Favourable returns for canola, cattle and sheep are likely to result in increased competition for planting area.

Two successive years of very high yielding cereal crops will have also depleted soil nutrient levels which is expected to increase demand for nutrient input. However, high prices of urea and phosphates will induce growers to ration their use or look for alternative methods to boost soil nutrients. In this context, pulse crops will be more competitive than wheat in cropping rotations due to their contribution to soil nutrients. Some marginal land could also be left unplanted, while increased soil testing would help growers apply fertilisers more efficiently. Subsoil moisture levels are currently well above average in the eastern states following above average summer rainfall. A positive rainfall outlook combined with current soil moisture levels are expected to be favourable for wheat area planted and yields in 2022–23. A neutral climate outlook is assumed in 2022–23, however, under the slower recovery scenario input costs such as fertilisers are forecast to be higher in the earlier years. This is likely to result in a further decrease in the area planted and a slightly negative impact on yields. Input prices are forecast to ease from 2025–26 onwards reducing the impact on area and yields. However, lower wheat prices are also likely to influence planting decisions.

The drought like (decile 2) rainfall year expected in 2023–24 under the faster recovery scenario would result in both the area planted to wheat and the average yield falling. Production will recover in 2024–25 but remain below average. In the final two years of the outlook period production is forecast to increase in line with longer term average yields.
Due to higher input costs under the slower recovery scenario, slightly lower area planted, and yields are expected in 2023–24. However, production is expected to fall significantly in 2024–25 due to the impact of a decile 2 rainfall year combined with high input costs. By 2026–27 the climate outlook is neutral and therefore production is forecast to increase in line with longer term trends.

**Figure 4.2 Australian wheat production, 2010–11 to 2026–27**

![Graph showing Australian wheat production from 2010-11 to 2026-27 with historical, faster recovery scenario, and slower recovery scenario lines.](image)

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**World wheat supply to increase over the medium term**

World wheat production increased marginally in 2021–22, despite lower production in major exporting countries, most notably in Canada (-38%), the Russian Federation (-12%) and the United States (-10%). Production in the EU, Argentina and Australia increased significantly, but the proportion of high-quality milling wheat produced was lower than average. As a result, world supply of high-quality milling wheat is the tightest it has been for many years which has led to a significant increase in prices. World wheat production is forecast to increase by 1% in 2022–23 to a new record of 780 million tonnes, with a forecast recovery in production in Canada and the Russian Federation. Production of Hard Red Winter wheat in the United States could be even lower than last year’s drought affected crop despite an increase in the area planted, as extremely dry conditions persist.

The timing of an El Niño like weather event will also influence global production over the medium term. In 2023–24 under the faster recovery scenario, an El Niño like weather event would result in world production being above average. It is typical in an El Niño year for northern hemisphere yields to increase as they benefit from above average rainfall. This is expected to happen in 2024–25 under the slower recovery scenario, with 2025–26 production in northern hemisphere also likely to be slightly above average. All other years in both scenarios have neutral climate outlooks and therefore production is forecast to revert to trend yields.

Over the medium-term to 2026–27, world production is forecast to continue to increase, mainly because of increasing yields rather than area planted. Area planted in most major exporters is forecast to remain relatively stable with marginal increases in yields. Yields are forecast to continue to increase in the Black Sea Region as the increased adoption of technology and more effective fertiliser application boosts productivity.

Global fertiliser prices have increased significantly since the start of 2021–22 because of a significant increase in energy prices and export restrictions being imposed by the Russian Federation and China to...
ensure they can meet their own domestic demand. Under the faster recovery scenario, fertiliser prices are forecast to ease more quickly and therefore the impact on crop production is likely to be limited to the short term. Under the slower recovery scenario, fertiliser prices are forecast to remain high for longer which may result in a larger fall in the area planted to crops, particularly crops which require more fertiliser such as corn. It is also likely to lead to lower crop yields. The resulting decrease in global supply is forecast to drive prices higher.

**World demand to increase in line with population growth and rising incomes**

Import demand has increased in some of the world’s largest importing countries – especially Iran and Turkey – due to dry weather in the Middle East and North Africa. Wheat purchases have increased despite significantly higher global wheat prices, and world wheat imports are forecast to increase by 4% in 2021–22 to over 200 million tonnes.

World wheat consumption is forecast to increase in 2022–23 and continue to grow over the medium term in line with population growth, changing diets and rising incomes as economies recover from the impact of COVID-19. As milling wheat has few substitutes, world import demand for milling wheat remained high throughout 2020–21 and 2021–22 despite COVID-19 restrictions and is expected to remain strong over the medium term.

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 wheat imports surged to a record 11 million tonnes in 2021–22 and are expected to remain high over the medium term. A policy focus on self-sufficiency in meat production will result in increased feed imports, as Chinese grain production, although growing, is not sufficient to meet feed demand.

Over the medium term, global feed grain demand is projected to continue to increase because of projected higher meat and dairy production. However, feed demand may be impacted under the slower recovery scenario, particularly in southeast Asian markets, as demand for higher-value foods derived from wheat flour (biscuits, cakes and pastries) and animal products (meat and dairy products) may fall due to further outbreaks of COVID-19 and its impact on economic growth.

**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 and prices 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.

**Russian export quotas and taxes contributing to price volatility**

On 31 December 2021, the Russian Government approved an 11 million tonne grain export quota between 15 February and 30 June 2022 for exports outside of the Eurasian Economic Union, including 8 million tonnes of wheat. This is on top of the floating tax duties which are still applicable. Shipments over the quota will be subject to a duty rate of 50%, but no less than €100 per tonne (US$114
on 7th February 2022). A higher multiplier for the grain export tax formula was also approved, which will be applicable if calculated export prices rise to US$375 per tonne. A further increase in multipliers will be triggered if prices reach US$400 per tonne. Together, these trade restrictions may limit the availability of Russian grains on the world market, leading to higher prices and providing an opportunity for grains from other countries, including Australia, to meet global import demand.

**Russia-Ukraine tensions contributing to price volatility**

The Russian Federation and Ukraine are both major global exporters of wheat, barley and corn. Their importance as global suppliers of grain has grown significantly over the last 10 years. The Russian Federation is now one of the world’s largest wheat exporters and Ukraine has become one of the world’s biggest exporters of wheat, corn and barley. If conflict escalate, global grain supply may be impacted by disruptions to grain shipments from the Black Sea which will lead to higher prices. Sanctions are also likely to be placed on the Russian Federation if they do invade Ukraine, which could lead to higher global energy prices (and therefore input costs) and limit Russia’s ability to access international finance. This could impact their ability to trade in international markets.
5. Coarse grains

Emily Dahl

Key points

• Value of Australian barley production and exports forecast to reach record high in 2021–22.

• Highest Australian barley harvest on record and above average sorghum production expected in 2021–22.

• High coarse grain prices are forecast to continue, reflecting strong world demand and tight supply.

Value of barley and sorghum production to increase in 2021–22

The gross value of barley production is forecast to increase by 23% in 2021–22 to a record $3.8 billion. The gross value of sorghum production is forecast to increase to $880 million in 2021–22, more than double the 5-year average to 2020–21. These increases in value reflect record barley production and above-average sorghum production, coupled with high world grain prices.

In 2022–23, the value of barley and sorghum production is expected to soften but remain above average. The value of barley production is forecast to fall to $2.9 billion, and for sorghum to $535 million. Production is expected to decrease following 2 consecutive high-production years under an expectation of more average rainfall. High world prices are also expected to ease. If the pace of the global economic recovery is slowed because of ongoing COVID-19 related supply chain disruptions, world prices could remain elevated in 2022–23 due to higher input and freight costs. This edition of the Agricultural Commodities Report considers both scenarios over the outlook period to 2026–27 (see the Agricultural Overview for a full explanation).

Over the outlook period to 2026–27, the value of barley production is forecast to range from $2.3 billion to $2.7 billion and the value of sorghum production is forecast to range from $360 million to $470 million. The range of forecast outcomes are driven by fluctuating seasonal conditions and changes in world prices based on the pace of global economic recovery.

High exports and prices to boost value of barley and sorghum exports

The value of barley exports is forecast to reach a record high of $3 billion in 2021–22, 72% above the 5-year average to 2020–21 of $1.7 billion. The value of sorghum exports is forecast to increase to $660 million in 2021–22, the highest value on record. High export values forecast for 2021–22 are driven by high world grain prices and an increase in grain available for export.

Record barley production and favourable conditions for the summer cropping season are expected to result in a significant exportable
surplus in 2021–22. Barley exports are forecast to increase to 8.7 million tonnes in 2021–22. Chinese tariffs on Australian barley have led to Australian barley trading below world indicator prices. As a result of the lower price, demand for Australian barley is likely to remain strong. Sorghum exports are forecast to increase to 1.7 million tonnes in 2021–22, supported by robust demand from China.

Even though grain prices are expected to remain strong in 2022–23, the value of barley and sorghum exports is expected to fall in line with a decrease in export volumes reflecting expectations of more average rainfall. The value of barley exports is forecast to decrease to $2.3 billion, and for sorghum to $435 million in 2022–23.

Over the outlook period to 2026–27, the value of barley and sorghum exports is forecast to remain below the value forecast for 2022–23, ranging from $2 billion to $2.5 billion for barley and from $290 million to $390 million for sorghum.

**Australian barley prices benefit from high world prices**

The Australian feed barley price is forecast to increase by 17% to $272 per tonne (US$199) in 2021–22, reflecting the forecast increase in world coarse grain prices (Figure 5.1). Australian barley prices are likely to remain below the world price because Australian producers are unable to access the higher-value Chinese market due to the imposition of anti-dumping and countervailing import tariffs. ABARES has assumed the import tariffs imposed by China will remain in place over the outlook period to 2026–27, therefore, Australian barley prices are not likely to equalise with other world export prices in the medium term.

The world indicator price for barley (fob Rouen, France) is forecast to increase by 19% to US$286 per tonne in 2021–22. World demand for barley is expected to outpace supply, reducing stocks and leading to higher prices. The world indicator price for corn (fob Gulf) is forecast to increase by 20% to US$261 per tonne in 2021–22. World corn production is forecast to increase to a record in 2021–22, however, stocks are likely to remain relatively flat due to strong world demand.

**Figure 5.1 Barley and corn export prices, July 2015 to July 2022**

Grain prices are forecast to remain strong in 2022–23 due to strong world demand. The world barley and corn prices are forecast to fall 7% to US$266 and US$244 per tonne respectively, but remain high compared to average prices over the last 5 years. Supply chain disruptions, reducing both the availability of fertiliser and increasing transportation costs, would potentially result in world barley and corn prices averaging slightly higher than under the faster recovery pathway, at US$283 and US$256 per tonne, respectively.
Prices are expected to ease gradually (in real terms) over the projection period to 2026–27 due to increasing supply more than offsetting increasing world demand. Should heightened uncertainty and greater disruptions to agri-food markets continue beyond the next 18 months, world prices would likely remain more elevated.

**Another large barley and sorghum crop forecast for 2021–22**

Barley production is forecast to increase to 13.7 million tonnes in 2021–22, the highest national barley harvest on record. Favourable seasonal conditions across major growing regions boosted yield potential despite an estimated fall in area planted to below 4.4 million hectares, 5% below the 5-year average to 2020–21. Higher relative margins for other crops have provided an incentive to shift out of barley, in part because of the loss of the Chinese market and its impact on prices. Sorghum production is forecast to increase by 75% to 2.6 million tonnes in 2021–22, the third highest on record. Above average sorghum production reflects favourable seasonal conditions and a 22% increase in area planted.

Year-on-year changes in area over the outlook period will reflect grower constraints related to crop rotations, rainfall in time for planting and input costs. The area planted to barley is likely to fall in 2022–23 due to high input costs and rotation considerations. Over the outlook period to 2026–27, the area planted to barley is expected to remain below the 5-year average, ranging from 4.2 to 4.3 million hectares, subject to soil moisture variability and the impact of the loss of the Chinese market.

Another year of favourable growing conditions in 2022–23 will ensure that Australian barley and sorghum production remains at above-average levels. Barley and sorghum production in 2022–23 is likely to be at around 11 million tonnes and 1.7 million tonnes respectively, lower than in 2021–22, supported by stored soil moisture and assuming average (decile 4) rainfall. Over the remaining 4 years of the outlook period, projections for Australian barley and sorghum production assume that seasonal conditions allow yields to reach the levels that are achieved with below-average to average rainfall (deciles 2 to 4). Production outcomes for barley could range from 9.4 to 10.4 million tonnes during the outlook period (Figure 5.2). Production outcomes for sorghum could range from 1.2 to 1.6 million tonnes.

Production over the outlook period will depend heavily on annual seasonal conditions. Less favourable El Niño like seasonal conditions would lead to lower Australian barley and sorghum production in 2023–24 in the faster recovery scenario and in 2024–25 in the slower recovery scenario. However, lower production is unlikely to significantly alter the domestic price due to the significant recovery in domestic stocks following the past consecutive high-production years. Stocks are likely to be more than sufficient to meet domestic demand and maintain average export volumes during the lower production years of the outlook period.
Record corn production lifts world coarse grain supply

World corn production is forecast to reach record highs in 2021–22, increasing by 7% to 1.2 billion tonnes. Despite unfavourable conditions associated with the current La Niña event, corn production in Argentina and Brazil is on course to reach a record output of 54 million tonnes and 114 million tonnes respectively in 2021–22. Higher US corn production is also forecast for 2021–22, increasing by 7% to 384 million tonnes.

In contrast, world barley production is forecast to fall in 2021–22, leading to a decline in world barley stocks to historically low levels. World barley production is forecast to fall by 9% to 146 million tonnes in 2021–22. Production in the European Union and Russian Federation is forecast to fall following reduced plantings. Also, drought conditions have limited the yield potential of barley in Canada, leading to a 35% fall in production to 6.9 million tonnes.

Strong world prices and supportive seasonal conditions are likely to influence planting intentions, leading to area planted expanding in 2022–23. However, input costs and availability are also likely to play a part in determining planting decisions. Assuming average yields, world corn production is forecast to increase by 2% to more than 1.2 billion tonnes in 2022–23. World barley production is forecast to increase by 8% to 157 million tonnes in 2022–23, reflecting a rebound in Canadian production. This will lead to a recovery in world barley stocks.

El Niño conditions would likely result in higher yields in South America and some key cropping regions in the United States, leading to higher world coarse grain supplies and lower grain prices. This would occur in 2023–24 in the faster recovery scenario and in 2024–25 in the slower recovery scenario. Growth in world production is then likely to slow for the remainder of the outlook period. Yields are assumed to continue to trend upwards over the outlook period because of the adoption of better practices and continued closure of yield gaps in emerging production regions.

World demand for coarse grains to remain strong

World corn consumption is forecast to rise by 3% to almost 1.2 billion tonnes in 2021–22 because of forecast record feed, food and industrial use. World barley consumption is forecast to ease in line with falling production yet remain high compared to previous years.

The Chinese pig industry’s efforts to contain African swine fever and rebuild the pig herd have driven growth in feed demand for coarse
grains. Chinese feed demand for corn is expected to increase in 2021–22. As a result of higher domestic production, Chinese corn imports are forecast to fall by 12% yet remain high at 26 million tonnes, almost 3 times the 10-year average. This includes strong Chinese imports of US corn, with large purchases by China projected to continue in 2022 and for the remainder of the outlook period. US corn exports are expected to remain high in 2021–22 at around 62 million tonnes. Chinese feed demand for barley is expected to remain unchanged from 2020–21 and imports are forecast to remain high at 10.5 million tonnes.

Domestic demand for coarse grains in the United States is forecast to remain stable in 2021–22, especially for corn as animal feed and for food and industrial uses. The blending mandate in the United States is a key determinant of ethanol production sourced from corn. Plans to increase the blending mandate were recently delayed, however, the mandated rate is expected to increase in the next 5 years. The use of corn for ethanol production in the United States is expected to increase in response to new renewable energy targets introduced over the outlook period.

Over the medium-term to 2026–27, world economic recovery and increasing incomes are likely to drive strengthening demand for coarse grains, particularly in Asia. Growth in demand for biofuels is expected to continue as economies recover from the impact of COVID-19 related restrictions.

Opportunities and challenges
Summer bushfires signal concern for key cropping regions in Western Australia
Uncertainty exists about the potential effects of recent bushfires in Western Australia on the upcoming 2022–23 winter cropping season. Conditions that are significantly drier and hotter than average may delay planting of the 2022–23 winter crop, leading to lower plantings and reducing production in affected regions.

Russia-Ukraine geopolitical tensions
Geopolitical tensions between Russia and Ukraine are raising concerns about potential disruptions to crop production in Ukraine. Ukraine is a major producer of corn and barley, therefore, any disruptions to crop production could lead to a tightening of world coarse grain supplies. This would likely result in higher world grain prices and contribute to price volatility.

Alternative markets for Australian barley
Australian barley exports to China effectively ceased in response to Chinese tariffs imposed on Australian barley in May 2020. This has led to Australian barley exports trading below the world barley price. Given that Australian barley is competitively priced in world markets, this provides an opportunity for Australian exporters to open new markets and increase market share in existing markets. This is reflected by robust demand from the Middle East (particularly Saudi Arabia), Thailand, Japan and Vietnam (Figure 5.3).
Figure 5.3 Australian barley exports market shares, 2015–16 to 2020–21

Note: Reported in marketing years, 1 November to 31 October
Source: ABS
6. Oilseeds

Shujia (Charlie) Qin

Canola Decreased canola price driven by recovering global canola production.

Key points

- Record value of canola production in 2021–22, reaching $5.8 billion.
- Value of canola production to fall in 2022–23, though still second highest on record.
- Canola prices are forecast to remain high, gradually easing due to recovering world supply of canola.
- Australian canola production forecast to be lower over medium term, remaining similar to historical averages.

Value of production to fall from record levels

Record production and prices supported the gross value of canola production to hit record levels in 2021–22, reaching $6.3 billion (Figure 6.1). Record production reflects very favourable Australian seasonal conditions, while record prices are driven by tight global supply. This is almost four times the value of production in 2018–19, and 2019–20.

In 2022–23, the gross value of canola production is forecast to fall to $3.5 billion, which will be the second highest on record. The fall from 2021–22 levels is driven by prices and production both falling from record levels. The canola price is expected to be the second highest price on record, due to tight world supply of canola, despite global production returning to normal levels in 2022–23. However, if disruptions to fertiliser and energy markets were to continue into 2022–23, the value of canola production in 2022–23 is likely to be to be higher due to elevated canola prices. This edition of the Agricultural Commodities Report considers two scenarios over the outlook period to 2026–27 (see the Agricultural Overview for a full explanation).

Over the medium term to 2026–27, the gross value of Australian canola production is expected to be significantly lower, primarily due to prices falling to long-term averages. The canola price is expected to decrease gradually over this period as the world canola supply continues to increase. Due to market uncertainty, supply chain disruptions and elevated fertiliser prices, canola prices are expected to decrease at a slower pace under the 'slower recovery' scenario. Falling prices result in the value of canola production averaging around $2 billion between 2023–24 to 2026–27 and rising over this period, under either scenario.
The value of canola exports increased 133% to $5.1 billion in 2021–22, reaching record levels. This is more than double the highest recorded value of exports before 2020–21 and is 223% higher than the 10-year average. In 2022–23, the value of canola exports is forecast to be the second highest on record, reaching $3.1 billion. Record levels of canola exports during 2021–22 and 2022–23 reflect high production alongside tight global canola supply driving up prices. The value of canola exports is projected to follow a similar trajectory to the gross value of production under the faster and slower recovery scenarios.

Canola prices expected to decrease gradually over medium term

Canola prices are forecast to remain high in 2022–23, gradually easing over the medium term due to recovering world supply of canola. The Australian (Kwinana) canola price is forecast to be $772 per tonne in 2022–23, down from the record high of $925 per tonne expected in 2021–22 (Figure 6.2). This is driven by significantly higher canola supply as Canadian canola production recovers following drought conditions in 2021–22. The Canadian canola price is expected to be US$604 per tonne in 2022–23, down from US$811 in 2021–22. Prices could average higher under the slower recovery scenario due to a lower growth in global production stemming from elevated fertiliser prices.

Over the medium term to 2026–27, the Australian canola price is expected to gradually decrease as world supply of canola continues to increase. The recovery of world canola supply is expected to be slower...
under the slower recovery scenario, primarily due to higher fertiliser prices which incentivise rationing fertiliser, reducing yields. As a result, the Australian canola price is expected to decrease at a slower pace under the slower recovery scenario.

**Soybean prices currently high and forecast to decrease**
Soybean prices are forecast to gradually decrease due to growth in world soybean production outpacing demand. Currently, the world soybean price is elevated and expected to average US$546 per tonne in 2021–22. This is due to recent dry conditions in South America which have reduced world supply. In 2022–23, the soybean price is forecast to decrease to US$490 per tonne due to higher soybean production. Over the medium term, growth in world soybean production is expected to cause soybean prices to decrease further.

**Australian canola production to fall, returning to historical averages**
Australian canola production is forecast to be 4.9 million tonnes in 2022–23, which is 32% above the 10-year average. This is driven by increased planted area in response to high prices. Yield is also forecast to be above average due to soil moisture levels and the positive rainfall outlook for the autumn planting season. Australian canola exports are also expected to be high, reaching 4 million tonnes in 2022–23. This is a significant decrease relative to 2021–22 due to the expected absence of La Niña conditions supporting production for the majority of the season.

Over the medium term to 2026–27, Australian canola production is projected to decrease further to be a similar level to the 10-year average to 2020–21. Although high canola prices are expected to support area planted for canola, substantial fluctuation in area is still anticipated due to changing seasonal conditions. The timing of drought like conditions are expected to significantly reduce production when they occur, with for example, production falling sharply in 2023–24 and gradually recovering over subsequent years under the faster recovery scenario. A drought occurring later in the outlook period would lead to the same pace recovery in production as seen under the faster recovery scenario.

**World supply of canola to slowly recover as global production normalises**
Currently, world supply of canola is tight due to global production decreasing 4% to 71 million tonnes in 2021–22 (Figure 6.3). This was driven by Canadian canola production which experienced drought conditions and decreased 35% to 13 million tonnes. World canola stocks are also at significantly reduced levels, reaching the lowest level in 18 years in 2021–22. In 2022–23, global canola production is expected to rebound to 76 million tonnes due to a return to normal growing conditions and yields across major producing regions. Despite high world prices for canola, not all regions are expected to increase area planted for canola. Notably, Agriculture and Agri-Food Canada’s January 2022 Outlook has forecast Canadian canola area to decrease 3% in 2022–23 as farmers shift to other cereal crops including wheat. This is expected to offset higher canola planted area in other regions including Australia and the European Union. Overall, world area planted in 2022–23 is expected to increase by 2% relative to 2021–22.
Over the medium term to 2026–27, world supply of canola is expected to gradually recover. Normal growing conditions across most major producing regions are assumed to facilitate high and stable levels of global canola production over this period. This is anticipated to support world canola stocks to continue improving. The recovery of world canola supply will in part be determined by the outlook for world fertiliser prices. As a relatively fertiliser intensive crop, recovery of world supply will be delayed if fertiliser prices remain high (slower recovery scenario).

Global supply of soybeans supported by growing soybean production

Strong growth in global soybean production is expected to support world supply of soybeans to recover. Global soybean production in 2021–22 has been revised 5% downward to 364 million tonnes since the Agricultural Commodities: December quarter 2021. This is due to recent dry conditions in key producing regions including Brazil and Argentina. In 2022–23, global soybean production is forecast to recover, increasing 7% to 389 million tonnes. This increase is driven by higher soybean area planted in response to current high prices. Over the medium term, global soybean production is forecast to maintain stable growth. The slower recovery scenario is expected to have limited impact on global soybean production as soybeans require relatively less fertiliser than other crops such as canola.

Strong vegetable oil demand driven by recovering fuel consumption

Demand for vegetable oil is supported by recovering biodiesel consumption and stable growth in food consumption of vegetable oil. Recovering biodiesel fuel consumption reflects increasing demand for transport fuels due to easing transport restrictions and the continuing global recovery. Notably, vegetable oil prices have seen a strong upward trajectory alongside the crude oil price over 2021 (Figure 6.4). The December 2021 Resources and Energy Quarterly forecast the crude oil price to remain high and average US$73 per barrel over 2022. Importantly, this forecast anticipates global fuel consumption will remain on an upward trajectory in 2022.
Over the medium term, demand for vegetable oil will be influenced by biodiesel policies. Recent EU renewable energy policy is anticipated to continue to support biodiesel demand for some oilseeds including canola, while demand for palm oil is expected to decrease (see opportunities and challenges section).

**Global protein meal demand influenced by China’s meat production**

A key driver of global protein meal demand includes changes in China’s meat production. China’s pig production has improved substantially following the containment of the spread of African Swine Fever and efforts to rebuild the pig herd. Higher pig production was enabled by increased protein meal production. Notably, China’s protein meal production is reliant upon imports which have supplied 85% of China’s soybeans over the past decade. China’s protein meal production is expected to continue growing in the medium term, but at a slower pace. This is due to recent policy announcements which target stable meat production at close to pre-ASF levels.

**Opportunities and challenges**

**EU renewable energy regulation to support biodiesel demand for canola**

Recent EU renewable energy policy will influence demand for biofuels including biodiesel. The 2021–2031 EU Agricultural Outlook highlights the anticipated impact of regulations which classify biofuels based on indirect land use change (ILUC) criteria. The outlook forecasts rapeseed (canola) oil use for biodiesel to remain at similar levels. In contrast, the outlook points out that palm oil for biodiesel use is expected to decrease due to difficulties obtaining required ILUC certification. Notably, the EU is Australia’s primary export market for canola and is estimated to make up 85% of global biodiesel demand for canola oil over the past decade. Strong EU demand supports Australian canola exports.

**High fertiliser prices to be costly for canola production**

High fertiliser prices are expected to increase input costs for production of canola, which is a relatively fertiliser intensive crop. GRDC Grow Notes estimates that canola requires higher levels of major nutrients including nitrogen, potassium and sulphur per tonne of grain, compared with cereals such as wheat and barley. On a per hectare basis, canola’s nutritional requirements are more similar because canola yield is usually lower than wheat and barley. Farmers may adapt to high fertiliser costs by employing strategies such as rationing fertiliser, leading to reduced crop yields.
7. Horticulture
Charley Xia and Hamish Morton

**Key points**

- Improving labour availability is expected to support rising production prospects over the medium term.
- Growing production in some fruit and nut industries contributing to higher exports.
- Policy changes will further improve access to seasonal workforce.

**Improving labour situation expected to support production prospects**

In 2021–22, the value of horticultural production is forecast to reach $12 billion, the second highest on record (Figure 7.1). Production of most fruit and vegetables over summer and autumn is expected to be plentiful, supported by favourable seasonal conditions and low water prices. However, farm and retail prices are forecast to remain elevated due to the increased costs of getting fresh produce to consumers. This comes as supply chain operations have been challenged by workforce shortages caused by the spread of the Omicron variant of COVID-19. The reduced workforce during summer has not only affected farm operations but also disrupted the distribution networks of major supermarkets, with staffing shortages causing some fresh produce to be temporarily unavailable in grocery aisles. Smaller greengrocers that source directly from wholesale markets and multiple suppliers have seen more consistent product availabilities, but they have also faced staffing shortages.

In 2022–23, the value of horticultural production is expected to rise by 4% to $12.5 billion. This is despite horticultural production being expected to fall moderately due to a return to average seasonal conditions. Production of most fresh produce will continue to remain at high levels overall, supported by high water storage levels and low water prices. The moderate fall in supply, along with consistent demand, are expected to support higher farmgate prices. Labour costs are expected to ease but will continue to place upward pressure on farm supply costs. This easing of labour shortages comes as working holiday makers are expected to return in greater numbers than the last two years. However, there remains a risk that a more staggered return of working holiday makers could constrain labour supplies further than anticipated, resulting in a scenario whereby higher labour costs could place greater upward pressure on farmgate prices. This edition of the *Agricultural Commodities Report* considers both scenarios over the outlook period to 2026–27 (see the Agricultural overview for a full explanation).

Over the medium term to 2026–27, production values under the two scenarios are expected to increase and reach above $15 billion in nominal terms and between $12.7 billion to $13.6 billion in real terms by the end of the projection period. Production is expected to remain more stable in the faster economic recovery scenario, supported by high water storage levels that will buffer against the earlier occurrence
of drought years in that scenario. In both scenarios, rising production is projected for some industries including almonds, avocados, berries, citrus, macadamia nuts and table grapes. Higher production in these industries will be driven by previously planted trees and vines coming into maturity.

Farmgate prices will be less affected by labour challenges over the medium term as international travel increases and farms extract benefits from previous investments made to improve on labour productivity. By the end of the projection period, farmgate prices and costs for domestically focused industries are expected to keep pace with general inflationary pressures, with differences between scenarios driven mainly by wage expectations and interest rates that impact on general price levels in the Australian economy. However, if stronger international demand and less supply chain disruptions are realised, as in the faster recovery scenario, the value of production for export focused industries will be higher. This is expected to lead to higher overall nominal value of horticultural production under the faster recovery scenario in later years.

**Policy changes to further improve access to seasonal workforce**

Key policy changes in the second half of 2021–22 to encourage international travellers to return to Australia are expected to help ease labour challenges in 2022–23 for horticultural industries. These build on previous policies and contribute to improved access to seasonal workforces, including working holiday makers and Pacific Island workers, over the short and medium term.

The improved outlook for labour availability in the short term will be supported by a series of visa measures implemented by the Australian Government to incentivise Student and Working Holiday Maker visa holders to return to Australia and participate in work. This comes as visa application charges will be refunded for any Student visa holder
returning to Australia between 19 January 2022 and 19 March 2022, and for any Working Holiday Maker visa holders returning to Australia between 19 January 2022 and 19 April 2022. In addition, since 19 January 2022 the Government has also:

- temporarily removed the limit on Student visa holders’ working hours across all sectors of the economy;
- temporarily relaxed the 6-month work limitation for Working Holiday Maker visa holders, while also removing limits on the time they can work for the same employer until the end of 2022.

The re-opening of international travel for all fully vaccinated visa holders since 21 February 2022 will also improve access to the working holiday maker workforce. This will be helped by exemptions from quarantine requirements and caps to international arrivals available for fully vaccinated foreign visa holders entering into all jurisdictions except Western Australia.

Sourcing seasonal workers from Pacific Island nations will also be streamlined by Australian Government programs aimed to increase Pacific labour mobility. From April 2022, the Seasonal Worker Programme and Pacific Labour Scheme will be replaced by a more flexible and efficient single program. In addition, the introduction of the Australian Agriculture Visa Program will provide further support for a shift to a stable and sustainable workforce by providing better access to a broader pool of international workers.

**Rising production in growth industries contributing to higher exports**

In 2021–22, the value of horticultural exports is forecast to increase by 8% to $2.9 billion (Figure 7.2). Favourable seasonal conditions supporting production and quality attributes are expected to increase exports of almonds, cherries, macadamia nuts, stone fruit, potatoes, and table grapes. However, costs of air and sea freight and shortages of refrigerated containers are expected to continue to constrain exports.

In 2022–23, horticultural exports are forecast to increase by 7% to $3.1 billion. Underpinning the export growth is favourable production prospects leading into and during the export period, improved trade access for citrus into the United States, and tariff reductions for Australian exports into the United Kingdom. Reduced costs of seasonal labour would help growers to better focus on mitigating weather damage and inspecting for produce quality. At the same time, an easing of disruption to export logistics would increase demand for Australian produce by lowering trade costs and ensuring more timely deliveries. However, there remains a risk that in a scenario where issues with labour costs and trade disruptions persist, then these concerns could lead to slower growth in export value.

Over the medium term to 2026–27, export growth will be largely influenced by the speed of the global economic recovery and resolution of supply chain disruptions. This comes as faster and stronger global economic recovery from the pandemic would help to lift international demand for Australian produce, especially in Asian countries. Less disruptions to export logistics would also support exporters to better service existing markets. Additionally, expansion into new markets will be facilitated by investing in marketing and supply chain relationships that help to grow demand. These favourable developments assumed under the faster recovery scenario would help to grow horticultural exports to $4.3 billion dollars in real terms by 2026–27. In contrast, there is a risk that staggered economic growth and prolonged disruptions to export logistics could constrain
growth of horticultural exports to reach $3.3 billion in real terms by the end of the projection period.

**Figure 7.2 Nominal and real value of horticultural exports, Australia, 2005–06 to 2026–27**

Export development important for improving some farmgate prices

Over the medium term, farmgate prices are expected to fall in some growth industries including avocados and berries as their production volumes are projected to rise. The development of export markets has become an increasing focus for these industries with emphasis on improving trade market access and their competitive advantage against southern hemisphere competitors. It is expected that higher exports in the faster recovery scenario will help to dampen price falls in the domestic market for those producers. However, disruptions to export logistics and slower international demand assumed in the slower recovery scenario would risk those prospects. In such a case, more supplies having to be traded in the domestic market would cause greater reductions in their farmgate prices. This would lead to falling profit margins that could contribute to greater industry consolidation.

**Opportunities and challenges**

**Horticulture Award new minimum hourly wage guarantee for pieceworkers to take effect from 28 April 2022**

From 28 April 2022, the Horticulture Award will include a minimum hourly wage guarantee and a requirement to record hours worked by pieceworkers. This comes following a decision by the Fair Work Commission which will see pieceworkers under the Horticulture Award guaranteed at least the minimum hourly rate for the pieceworker’s classification level plus, for a casual pieceworker, the 25% casual loading. The decision also requires employers to:

- fix the piece rate at a level such that a pieceworker working at the average productivity of a pieceworker competent at the piecework task will earn at least 15% more per hour than the minimum hourly rate plus the casual loading (if applicable); and
- record all hours worked by the pieceworker and the applicable piece rate at the time those hours were worked.

The implication of the new minimum hourly wage guarantee for farm businesses is unknown, but they are expected to induce more worker screening by farm employers in the short term and labour-saving investments in the longer term. Higher pay guarantees should induce more potential applicants for farm work. Farm businesses better able to adapt to these new rules by increasing their chances of hiring or retaining higher productivity workers stand to benefit against their competition. Similarly, those businesses making current investments...
into workforce efficiency and labour-saving technologies would be in better positions to save on labour costs in the longer term.

**A healthy diversity of increasingly agile value chains servicing Australian customers**

In the late half of 2021–22, there have been large disruptions to the distribution networks of major supermarkets. This has been contrasted with less disruptions to smaller retailers supported by more de-centralised wholesale markets. Consequently, this has re-ignited questions about the performance of various food supply chains in Australia, and which of them stand to benefit consumers and producers more broadly.

Major supermarkets operate long food chains that transport, distribute and supply vast amounts of consistent quality goods across Australia to reach a greater number of consumers. Such operations have helped to reduce transportation and distribution costs, address issues of asymmetric information typical in food safety and quality, and better deliver convenience and savings to consumers through a wider array of affordable farm products in one place.

On the other hand, the many smaller retailers and greengrocers servicing their local communities find efficiencies and savings in shorter chains. They often see less throughput than the major supermarkets in their area but offer a more customised shopping experience through speciality products not found in supermarkets.

Australian consumers have valued both convenience and connections to their food, and those prospects would help to support a healthy diversity of value chains servicing the Australian community. Reflecting Australian consumers’ preferences, we expect the diversity of value chains servicing the Australian community to continue. In addition, lessons learnt from the current Omicron pandemic have paved the way for workforce contingencies and investments to improve the adaptability of business operations against future workforce shortages.
8. Wine and wine grapes

Charley Xia

Key points

- Wine grape prices to fall in the short term in line with elevated inventories.
- Wine inventories to remain high into 2022–23 due to disrupted sales.
- Higher production value expected over the medium term, as global demand and supply chains recover.

Value of wine grapes to fall in short term before recovering

In 2021–22, the gross value of wine grape production is expected to fall by 28% to around $870 million, driven by lower prices and lower production (Figure 8.1). This comes as the average price of wine grapes is expected to fall significantly because of sharp declines in the prices paid for red varietal grapes. Vintage 2022 is also forecast to be smaller than last year's record volumes but is expected to remain above 10-year averages.

In 2022–23, the value of wine grape production is forecast to continue falling by 7% to $810 million. Exports and domestic sales are expected to pick up, but their rebounds will still be relatively small compared to further additions to already elevated inventories. The outlook is even more pessimistic in a scenario where global demand and supply chains remain disrupted in 2022–23. If this were to occur, the value of production can be expected to fall even further as grape prices continue to decline. This edition of the Agricultural Commodities Report considers both scenarios over the outlook period 2026–27 (see the Agricultural overview for a full explanation).

Between 2023–24 to 2026–27, there will be sizable differences between the production values under the two scenarios, which are expected to narrow only by the end of the projection period. This comes as year-on-year differences caused by the impacts of carryover inventories, drought years, and the uneven pace of economic recovery are expected to mostly dissipate over the medium term. However, higher production value accrued in earlier periods under the faster recovery scenario would provide greater incentive for industry investments to improve productivity or product differentiation. By 2026–27, the value of wine grape production is projected to be above $870 million in nominal terms, or range between $740 million to $820 million in real terms.
Elevated inventories and disrupted sales to lower exports

In 2021–22, the value of wine exports is expected to fall significantly to $2.3 billion (Figure 8.2). Efforts to export the record 2021 vintage have been constrained by high shipping costs and disruptions such as container shortages and port congestion. Business strategies aimed to diversify into established or new international markets continue to be hampered by marketing difficulties such as the inability to attend trade shows or perform face-to-face sales. These issues have compounded the difficulty of needing to re-direct a significant volume of red wine previously destined for China.

In 2022–23, export value is expected to increase 11% to $2.5 billion. This comes as the pace of exports is expected to accelerate as supply chain disruptions ease, but export prices would be expected to fall as costs of holding inventory rise and global demand remains weak. A risk to this outlook is in a scenario where disruptions to economic activities and supply chains are worse than anticipated. In such a case, the forecast is for some improvements to the pace of exports, but much greater falls in wine prices are expected.

Over the medium term to 2026–27, the value of wine exports is expected to peak between 2024–25 and 2025–26. This coincides with a much more adapted and stable global environment assumed under the two scenarios. Better operating contexts for wine exporters in those later years is expected to improve prices and help clear a backlog of wine inventories. Following those peak years, export value is expected to decline just as lower inventory levels begin to put constraints on export volume.

Figure 8.1 Nominal and real value of wine grape production, Australia, 2005–06 to 2026–27

Figure 8.2 Nominal and real value of wine exports, Australia, 2005–06 to 2026–27
Grapes prices to fall in short term

The average price of wine grapes in Australia is expected to fall in the short term between 2021–22 to 2022–23 (Figure 8.3). This comes as demand for newer vintage grapes is expected to fall as carryover inventories of wine remain high due to weak and disrupted sales. The loss of China as a major export market for Australia has significantly affected demand for red varietal grapes but is less of a factor for white varietal grapes. This is because China has not been a significant market for Australian white wine, with Chinese consumer preferences heavily skewed towards Australian red wine.

Prices of red varietal grapes are expected to decline by the greatest amount in 2021–22, just as the ratio of inventory-to-sales of red wine is forecast to reach record highs. This comes as many wineries have built-up inventories from the record 2021 vintage, and face difficulties in the current environment to re-direct their products that were previously destined for China. In 2022–23, red grape prices are forecast to rise modestly but there remains a risk that prices could fall further if elevated levels of inventory persist in the event of the slower recovery scenario.

Better price prospects for red varietal grapes are expected during the latter half of the projection period. These rises over the medium term would be in line with improving economic conditions and supply chain operability, which would better enable marketing opportunities to help grow demand for Australian red wine. By the end of the projection period, prices of red grapes are expected to average around $700 per tonne in nominal terms. These prices would be similar to levels seen prior to the booming period between 2015 and 2020, which was created by the addition of demand from China.

Prices of white varietal grapes are expected to rise modestly in 2021–22 as global inventories of white wine remain low. Sales of white wine are also expected to be slow, due largely to COVID-19 impacts on logistics and transportation costs. Lower demand from the restaurant and hospitality sectors in Australia and globally will also contribute to lower sales of white wine.

Over the medium term to 2026–27, a return to average production in major wine exporters is expected to help build global white wine inventories. The initial rebound in global supplies in 2022–23 is expected to put downward pressure on prices of white varieties in Australia. However, those prices are expected to gradually rise during later years, just as global demand and supply chains return to normalcy.

Figure 8.3 Real prices of red and white varietal grapes, Australia, 2005–06 to 2026–27
Wine grape production to remain above average in 2021–22

In 2021–22, wine grape production is forecast to be above average due to favourable seasonal conditions over spring and early summer in most growing regions. Production of red varietal grapes is expected to fall by 20% from the record level reached last year, but production of white varietal grapes is expected to fall more modestly by 2% (Figure 8.4).

Beyond 2021–22, area planted to wine grapes is forecast to remain largely unchanged, however varietal changes are expected as growers respond to changes in demand profiles. Production over the projection period will be reliant on vine yields, with water storage levels helping to buffer them against drier seasonal conditions. As water storages become more depleted later in the projection period, the timing of a dry year in 2024–25 assumed in the slower recovery scenario will cause bigger drops in production than if a dry year occurs in 2023–24 assumed in the faster recovery scenario.

Figure 8.4 Production of wine grapes, Australia, 2005–06 to 2026–27

Opportunities and challenges

Availability and costs of fertiliser and labour affecting production

Labour availability has become an increasing issue for medium to large wine businesses, with many reporting difficulties finding staff such as viticulturists and winemakers. The lack of availability of these skilled labourers is expected to constrain capacities of businesses to move inventories and fulfill sales. On the other hand, smaller wine businesses have been less affected by staffing issues.

Rising costs and international shortages of diammonium phosphate (DAP) are also likely to impact on wine production in 2022. DAP is a key ingredient used during the fermentation of grapes and the supply of this input in Australia has been reduced by export restrictions imposed by China. The flow-on effect of this will be felt more greatly
by small-to-medium wine producers, while larger companies are better able to secure sources from other countries through their bigger tenders.

Australia’s four largest wine companies – Accolade Wines, Casella Wines Pty Ltd, Pernod Ricard Winemakers and Treasury Wine Estates – produce many brands and account for about 28% of the industry’s revenue. This is down from nearly 40% a decade ago, indicating strong growth in the number of smaller wine producers.

**Supply contracts to reflect tougher operating environments**
A multi-year variable price supply agreement is the most common type of supply agreement in warm climate wine grape growing regions. This type of agreement obliges growers to commit to supply, and the winemakers commit to purchase, a specified tonnage of grapes of a particular variety well in advance of harvest.

With wine inventory levels expected to remain elevated in the short term, newly negotiated supply contracts between growers and winemakers will reflect less demand for grapes in the short term. However, this would also be balanced by winemakers’ considerations for future potential growth, with them reliant on a consistent supply of quality grapes from growers for developing their businesses. Factors such as the financial position, market expectations and variable costs of both growers and winemakers will all play a part in the outcome of those negotiations.

**Australia-United Kingdom Free Trade Agreement brings opportunities**
The Australia-UK Free Trade Agreement has eliminated UK tariffs on Australian wine, where tariffs as high as £26 per hectolitre were previously applied. Opportunities in the UK come as Australian wine businesses have progressively focused on increasing share in established markets. In 2021, Australian wine exports to the UK totalled $453 million, making it Australia’s new top export destination for wine, both in terms of value and volume.

While the Free Trade Agreement is expected to benefit Australian wine exports to the UK, changes to alcohol taxation planned by the UK government will reduce those competitive advantages. This is because under the proposed changes, taxes will rise on wine and other alcoholic drinks with an alcohol content of more than 11.5%. Most Australian wines currently exported to the UK have 12-15% alcoholic content, which would disadvantage them against European wines that typically have alcoholic content that falls below the 11.5% threshold.
9. Sugar

Hamish Morton

**Key points**

- Gross value of production forecast to rise in 2022–23 due to elevated global prices.
- Poor seasonal conditions in key producing nations to cause short-term production deficit.
- Recovering supply to drive down international raw sugar price in the medium term.

**Value of production rises to new highs**

The gross value of production of Australian sugar is estimated to reach $1.5 billion in 2021–22, representing the most valuable sugar crop in real terms since 2016–17 (Figure 9.1). The high value of production was driven by elevated international prices which rose on the back of tightening global supply throughout the year.

![Figure 9.1 Gross value of sugar production, Australia, 2010–11 to 2026–27](image)

In 2022–23 the gross value of Australian sugar production is forecast to rise strongly to $1.7 billion. Prices are forecast to remain high in 2022–23 due to supply constraints associated with droughts in Central South Brazil (a key producing region) and the availability of key inputs such as fertiliser. The pace of the global economic recovery from COVID-19 will be a key determinant in the gross value of Australia production. For example, there is modest upside potential for this forecast if the AUD depreciates against the USD in 2022–23, or global production falls further in a scenario where the global economy recovers more slowly than expected from COVID-19. This edition of the Agricultural Commodities Report considers both scenarios over the outlook period to 2026–27 (outlined in detail in the Agricultural Overview).
In 2023–24, if improved seasonal conditions in Brazil and easing supply chain disruptions are realised (‘faster recovery’ scenario), global production is expected to rise more strongly, returning the world to a production surplus. This would result in a fall in the value of Australian production in 2023–24, as excess supply drives down prices. Global markets would stabilise after this period resulting in a value of production of approximately $1.3 billion annually in real terms out to 2026–27.

If the global economic recovery is slower, with ongoing supply chain disruptions, sugar prices are likely to remain higher for longer as oil price volatility diverts global raw sugar production to ethanol, and fertiliser remains less readily available. The value of Australian production would reach a new record of $1.9 billion in 2023–24 (‘slower recovery scenario’) as Australian canegrowers expand area planted to sugarcane in response to elevated prices. Following a short window of elevated returns to cane growers it is expected that global supply would respond to higher prices, with value of production stabilising converging towards the faster recovery scenario by 2026–27.

**International price rises drive short term step up in export values**

The value of exported sugar is expected to rise by approximately 30% to $2.1 billion in 2021–22. Increases in export prices and Australian production will drive the rise in value.

**Figure 9.2 Value of sugar exports, Australia, 2010–11 to 2026–27**

The value of exports will increase to $2.0 billion by 2022–23 (Figure 9.2). Increases in export value will stem from higher international prices and higher production. Production is expected to rise on the back of increased area planted to cane in response to high prices in 2021–22.

Should more Brazilian sugarcane be diverted to ethanol, under the slower recovery scenario, there could be a stronger global production deficit in 2023–24 placing upward pressure on prices. This would allow for an additional year of high export values driven by a depreciated AUD and higher Australian production volumes. Following a period of elevated returns, the global production deficit would narrow, driving down international prices and export values.
**Australian prices to rise strongly before returning to average**

The average price of raw sugar is expected to rise by an estimated 33% to $538 per tonne in 2021–22. The rise will be driven by lower production volumes in Brazil, and less availability of cheap supply following reduced Indian government support for sugar exports in late 2021.

Australian sugar prices quoted in AUD per tonne are derived from the world benchmark raw “Sugar No.11 Futures” (ICE 11) contract, denominated in US cents per pound. Queensland Sugar Limited (QSL) provides several pricing products in a pool (derived from the ICE 11) to Australian millers and growers, that allow them to hedge price exposure. As such, Australian prices are heavily exposed to exchange rate fluctuations, international prices and the risk appetite of individual millers and growers.

**Figure 9.3 ICE 11 vs QSL Pool price, 2010–11 to 2026–27**

![Chart showing ICE 11 vs QSL Pool price from 2010-11 to 2026-27.]

Australian prices are expected to continue their strong upward trajectory and reach a new peak between 2022–23 and 2023–24 (Figure 9.3). This is due largely to Indian exports remaining unviable below 19.5 US cents per pound, and lower production in Brazil reducing raw sugar availability. Recovering global supply will then begin to place downward pressure on international prices through to the end of the outlook period.

Australian prices are expected to fall in line with projected reductions in the international price over the medium term. However, should the pace of the global economic recovery stall and energy prices remain high, Australian prices could increase for an additional year (‘slower recovery scenario’). This would bring prices to $596 per tonne in real terms by 2023–24, representing the highest price since 2011–12. Australian prices are expected to converge by 2026–27 under both scenarios.

**Australia reverses 5-year trend of declining production**

Since 2016–17 area harvested and cane production in Australia have been on a downward trend (Figure 9.4). Over this period, subsidised raw exports from India have flooded global markets, depressed prices and disincentivised investment in Australian sugarcane production. Industry consolidation has also taken place as smaller players exited the industry, decreasing the number of farms from 3500 to 3000 between 2013–14 and 2020–21. The trend of falling production was reversed in 2020–21, with volumes increasing for the first time in five years as wet weather allowed for a healthy crop.
With elevated prices and improved weather conditions forecast in the short term, Australian cane growers will attempt to maximise their gains. As such, area harvested will expand in the short term, increasing raw production volumes, before falling in later years (Figure 9.5).

Raw sugar production will rise to 4.5 million tonnes by 2022–23 (Figure 9.6). Production over the period to 2026–27 will then depend on seasonal conditions and global prices. As prices fall, returns to cane growers will fall resulting in decreases in area planted and lower production volumes. However, should global production stall and prices remain higher for longer, then it is likely that Australian production volumes will remain elevated in the short term. Average seasonal conditions and improved access to fertilisers in the medium term will see production volumes converge to 4.5 million tonnes across both scenarios.
World maintains production deficit in the short term
Global raw sugar supply and exports will increase to 180 million tonnes and 67 million tonnes respectively in 2021–22. In the years leading to 2021–22 volumes had fallen on the back of depressed prices and poor seasonal conditions in key producing nations. This trend was reversed in 2021–22, however, global consumption has continued to outpace supply. As a result, global sugar stocks have been drawn down. This is expected to continue over the short term with production adjusting to meet consumption by 2024–25 returning the world to a production surplus in the medium term.

Brazilian exports down in 2022–23
Hot and dry seasonal conditions are expected to reduce soil moisture at the beginning of the 2022 planting season reducing yields, production, and exports. Brazil is the largest producer and exporter of sugar in the world accounting for approximately 43% of global exports on average since 2015–16. A poor start to the Brazilian growing...
season will severely reduce global stocks of sugar and place upward pressure on prices in 2022–23.

**WTO rule against Indian export subsidies**

India is the second largest sugar producer in the world and has recently overtaken Thailand as the second largest exporter behind Brazil. Indian sugar exports are expected to reach 7 million tonnes in 2021–22, filling global supply gaps left by lower production in Brazil and Thailand. India’s sugar industry is highly supported by subsidies for raw sugar exports and domestic support measures for sugar cane producers, which were introduced in 2014. As a result, in the seven years following the introduction of these support policies, Indian sugar exports averaged 56% higher than the previous seven years (Figure 9.8). In December 2021, the WTO ruled that, between 2016 and 2018, the value of the domestic support measures far exceeded the permitted 10% of the total value of sugarcane production allowed under the Agreement on Agriculture (AoA), and its export subsidies for sugar were inconsistent with WTO export subsidy prohibitions. Over that period, the WTO ruled that the expansion of exports supported by the subsidy arrangements suppressed international market prices. The Indian government appealed the ruling to the WTO Appellate Body. However, because there are currently no sitting members available to review the ruling, India is unlikely to implement the recommendations of the Panel report for the foreseeable future.

The Indian Minister of State for Food and Consumer Affairs has not yet announced export subsidies for the 2021–22 marketing year. However, domestic price support measures have remained in place and an estimated 4.6 million tonnes of raw sugar have been contracted for export as of February 2022 without export subsidies. According to the Indian Sugar Mills Association, millers are refraining from entering further export contracts at this time on expectations of higher prices in the future. In the medium-term, India is likely to maintain their position as a price insensitive supplier to the world suppressing global prices.

**Figure 9.8 Raw Sugar Exports, India, 2007–08 to 2021–22**

Source: USDA

**Consumption growth continues to slow**

Global demand for sugar is relatively stable with consumption being driven by population growth and urbanisation in developing countries. As people relocate to urban environments from rural areas they increase their consumption of processed goods, takeaway foods and soft drinks all of which contain higher levels of sugar. Despite this, the pace of consumption growth has been trending steadily downwards since the early 2000’s as consumers become more health
conscious opting for artificial sweeteners or sugar free products. Governments around the world have also increasingly implemented sugar consumption taxes further contributing to the decline.

Consumption is expected to fall in 2022–23 before returning to steady growth driven by population increases (Figure 9.9). The fall in consumption could be intensified under a slower recovery scenario as consumers in key nations would have access to less discretionary income due to inflationary pressures.

![Figure 9.9 Raw sugar consumption growth, world, 2000–01 to 2026–27](image)

**Figure 9.9 Raw sugar consumption growth, world, 2000–01 to 2026–27**

result, higher oil prices drive higher petrol prices in Brazil, which makes ethanol more attractive to consumers. The increased demand for ethanol then increases prices which in turn makes ethanol production more attractive to millers when compared against raw sugar production.

There have been calls from some members of parliament for Petrobras (a state-run oil company) to introduce a price cap on fuel to rein in inflation. If this was to happen, it is likely that raw sugar production would become more competitive to Brazilian mills in 2023–24. This would result in increased exports driving down global prices further than currently forecast.

**Indian appeal to World Trade Organisation**

Between 2014 and 2021 the Indian government provided domestic support for sugar cane productions and subsidised sugar exports. This allowed cheap supply to enter global markets driving down international prices. In 2021 the WTO ruled that India’s export-contingent payments to sugar mills were inconsistent with WTO export subsidy prohibitions and exceeded the permitted 10% of the total value of sugarcane production allowed under the Agreement on Agriculture (AoA). The Indian government appealed that ruling to the Appellate Body. However, because there are currently no sitting members available on the appellate body to review the ruling, India is unlikely to implement the recommendations of the panel report in the foreseeable future. If an Appellate Body is formed and the ruling is maintained over the outlook period, then India will be under pressure to implement the recommendations. This could reduce India’s price insensitive supply to global markets limiting the smoothing effect that Indian sugar exports could have on international prices over the outlook period.

**Opportunities and challenges**

**Will Petrobras reign in fuel prices?**

Brazil’s decision of whether to focus production towards sugar or ethanol has a large impact on global sugar supply. Most vehicles in Brazil can run on ethanol or petrol mixed with ethanol, which allows consumers to purchase fuel depending on price competitiveness. As a
10. Natural fibres

Cameron Van-Lane

Key points

- Value of Australian cotton production to hit a record high in 2021–22.
- International freight disruptions drive cotton prices up in 2021–22.
- Value of the Australian wool clip to grow strongly as flock rebuilding continues.
- Demand for fine and super-fine wool will lift the Eastern Market Indicator higher.

Large increases in cotton and wool production value

The gross value of cotton production is forecast to increase by 157% to $4.3 billion in 2021–22. The large increase has been driven by a sharp rise in production volumes and strong international prices. Production value is expected to decrease in 2022–23 to $3.6 billion in real terms due to lower international prices. Over subsequent years, reduced rainfall and a drawdown in water storages will lead to a decrease in cotton production volumes and production value.

The timing of drought conditions (decile 2 rainfall), persistent supply chain disruptions and expectations of global income growth will impact the prospects for Australian cotton production. The combination of drought conditions in 2023–24, a swift resolution to supply chain disruptions and a faster economic recovery would see the value of cotton production exceed $1.3 billion in real terms in 2026–27. However, drought conditions in 2024–25, a continuation of supply chain disruptions into 2024–25 and a slower economic recovery would result in the value of cotton production reaching $1.0 billion (in real terms) in 2026–27 (Figure 10.1). This edition of the Agricultural Commodities Report explores these scenarios (see the Agricultural overview for more detail).
The gross value of wool production is forecast to increase by 20% to $3.2 billion in real terms in 2021–22. High rainfall over the past 18 months has led to flock rebuilding across major grazing regions of Australia, as well as increasing the wool cut per head. Flock rebuilding is expected to continue into 2022–23, although wool cut per head is expected to decrease due to average (decile 4) rainfall. The value of wool production in 2022–23 is forecast to increase to $3.8 billion.

Global income growth and the timing of drought conditions will be the key drivers of Australian wool production value over the medium-term. A faster economic recovery and drought conditions in 2023–24 are expected to drive strong growth in the Australian sheep flock, resulting in wool production value increasing steadily to reach $4.6 billion (in real terms) in 2026–27. A slower economic recovery and drought conditions in 2024–25 are projected to drive a decline in the Australian sheep flock to 2025–26 due to decreasing pasture availability, followed by a slight recovery in 2026–27. Under this scenario, wool production value is projected at $3.4 billion (in real terms) in 2026–27 (Figure 10.2).

Record export value for cotton, wool exports recovering strongly
Cotton export value is forecast to increase by 404% to $3.4 billion in 2021–22, with the export of cotton available from the large 2020–21 crop, an even larger 2021–22 crop and strong international prices. Australian cotton export value will increase further in 2022–23 to $4.1 billion with favourable production conditions to continue. In a scenario of slower global recovery, international prices would remain elevated and export values would be higher.
Cotton export value is expected to fall over subsequent years due to a combination of drier conditions reducing production volumes and the easing of supply chain disruptions lowering international cotton prices, reaching $1.4 billion in real terms in 2026–27. If supply chain disruptions continue until 2023–24, cotton export value will decrease slightly for the first couple of years, with decreasing export volumes offset by international prices remaining elevated. Once the disruption to supply chains dissipates, prices would be expected to decrease and cotton export value to fall more rapidly to $0.9 billion (in real terms) in 2026–27.

Wool export value is forecast to increase by 24% to $3.5 billion in 2021–22 due to increasing production volumes and higher international prices. Export value is expected to increase further in 2022–23 to $4.1 billion (in real terms) due to rising wool prices and the continued growth of the Australian sheep flock resulting in higher shorn wool production. Increasing production volumes and stronger international prices prompted by a faster global economic recovery would see wool export value increase steadily over the outlook period, reaching $4.9 billion (in real terms) in 2026–27. Under the slower recovery scenario, lower price growth and fluctuations in the size of the Australian sheep flock and wool production volumes result in reduced growth in wool export value over intermediate years, before increasing to $3.9 billion (in real terms) in 2026–27.

**International cotton prices surging, wool prices edging higher**

The Cotlook ‘A’ index (a benchmark of international medium grade raw cotton prices) is forecast to average US116 cents per pound in 2021–22, up by 35% compared to 2020–21. The combination of strong demand for cotton and global supply chain disruptions have caused cotton spinning mills to seek additional buffer stocks, driving up international prices. Although demand for cotton is expected to grow, an easing of supply chain bottlenecks will result in lower international cotton prices in 2022–23, averaging US98 cents per pound in real terms. If supply chain issues persist into 2022–23 (as per the slower recovery scenario), cotton prices would be expected to remain elevated.

Over the subsequent years, movements in the Cotlook ‘A’ index are expected to be determined by income growth and timing of the resolution of supply chain constraints. A faster global economic recovery is expected to drive greater demand for cotton textiles and a faster increase in global cotton prices. The Cotlook ‘A’ index is expected to average US115 cents per pound (in real terms) in 2026–27 in the faster recovery scenario. However, should recovery take longer and international freight issues persist, higher average prices for the Cotlook ‘A’ index are expected into 2024–25. By 2026–27, there is an expected convergence of nominal prices largely due to a higher inflation rate in the slower recovery scenario.

An analysis of historical cotton stocks–to–use ratios indicates current global stock levels are not tight and international supply and demand would support an average price of US86 cents per pound in 2021–22. However, disruptions to international freight have proven to be a significant barrier to trade. The world’s largest exporter of cotton, the United States, is struggling to get its recent 2021–22 cotton crop to major import markets. Despite having 15 million bales committed, outstanding sales (bales yet to be exported) have soared to near-record levels, and shipments to December 2021 were down by 45% compared to the same time the previous year. The USDA have attributed the poor export pace to low beginning stocks, lags in
harvesting and processing, and logistical issues. In China, the world’s largest importer of raw cotton, August to December imports were also significantly down. In response, the Chinese government sought to ensure supply and shield spinning mills from high prices by extending state reserve auctions until the end of November.

The ICE Cotton Futures contracts suggest that the current high prices will soon come to an end. A decline in futures contract prices across maturity dates through 2022 suggest an easing of supply constraints or decreased demand going forward. Currently, futures contract prices indicate cotton prices will return below US$100 cents per pound in 2023.

The Eastern Market Indicator (EMI) is forecast to average 1,390 cents per kilogram in 2021–22, up 16% compared to 2020–21. Strong economic growth in key wool textile markets has driven a recovery in demand for wool, despite increasing wool production from Australia. In 2022–23, wool prices are expected to increase further to 1,663 cents per kilogram. As with cotton, a faster recovery is projected to provide increased disposable incomes and demand for wool products. Wool prices are expected to increase steadily over the five years to 2026–27, reaching between 1,903 and 2,052 cents per kilogram depending on the growth in consumer incomes. However, global wool production is expected to continue its long-term decline, with substitution towards other natural and synthetic fibres to prevent dramatic increases in wool prices (Figure 10.3).

Since the dip in prices during the initial wave of the COVID–19 pandemic, in which the EMI fell to 930 cents per kilogram in October 2021, demand for fine and superfine micron wool has been much stronger. Since October 2021, 17-micron wool has increased by 47% to January 2022, but 28-micron wool has slipped by 33%. The uncertainty generated during the initial wave of the pandemic resulted in a build-up of wool stocks on-farm and in warehouses. The large auction volumes in early 2021 suggests the stockpile has cleared, but the growing Australian flock is providing a steady increase to supply. Despite the increases in supply across the micron spectrum, the strong growth in fine wool prices reflects strong demand for apparel grade wool. Demand for coarser grade wool, used in furnishings, has remained soft.
The competitiveness of synthetic alternatives to natural fibres is largely determined by oil prices. Current futures prices for crude oil show an expected decrease in oil prices over the outlook period to 2026–27. As a consequence, synthetic fibres are anticipated to become relatively cheaper over the medium-term compared to natural fibres. As the relative prices of natural fibres increase, sustained substitution away from cotton and wool is likely to continue. Consistent with long-term trends, natural fibres will make up an increasingly smaller proportion of textile consumption. Furthermore, the substitutability of synthetic fibres will limit the price increases of natural fibres over the medium term.

**Wet conditions push cotton and wool production higher**

Australian cotton planted area is expected to increase by 121% to 657,000 hectares in 2021–22. The estimated planted area is also a 20% increase from the December 2021 *Agricultural Commodities Report*, following a much larger than expected dryland planting. The large planted area has been driven by favourable cotton prices and weather patterns. The La Niña event of 2020–21, followed by a negative Indian Ocean Dipole throughout winter 2021, has brought significant rainfall across cropping regions of eastern Australia, recharging on- and off-farm storages, increasing water availability for irrigated cotton. Another La Niña event in 2021–22 has also brought significant in-season rainfall and prompted growers to plant a large dryland cotton area. If the favourable conditions continue throughout the remainder of the growing season, along with a relatively dry finish, above average yields are to be expected. Australian cotton production is expected to increase by 91% to 1,158,000 tonnes in 2021–22.

Cotton planted area is expected to decrease slightly in 2022–23 to 623,000 hectares. The decrease in area is predicated on average (decile 4) rainfall in 2022–23 leading to a significant reduction in dryland cotton planting. However, good water availability for irrigated crops is expected to continue into 2022–23 leading to an increase in irrigated cotton planted area. Despite the decrease in overall planted area, the higher yields associated with a relative shift towards irrigated cotton plantings is projected to drive Australian cotton production to near-record volumes. In 2022–23 cotton production is expected to increase a further 3%.

Over the subsequent years, cotton planted area and production are expected to decline significantly as stored water availability and in-season rainfall decrease. The timing of drought conditions is a key driver of cotton planted area and production over the outlook period. Drought conditions in 2023–24 (as per the faster recovery scenario) would be expected to result in a decline to 209,000 hectares in 2024–25 and production falling to 335,000 tonnes. A subsequent increase to decile 4 rainfall in 2025–26 and 2026–27 would see small increases in planted area and production. However, if drought conditions were to occur in 2024–25 (as per the slower recovery scenario), the greater depletion of water availability would be expected to result in a more significant decline, with cotton planted area reaching 179,000 hectares in 2025–26 and production falling to 279,000 tonnes. Planted area and production would then be projected to increase slightly due to improved seasonal conditions in 2026–27 (Figure 10.4).
The Australian sheep flock is forecast to increase by 6.3% to 70.4 million in 2021–22, as rebuilding continues following severe drought between 2017 and 2019. Since 2020–21, above average seasonal conditions have resulted in strong pasture growth and sheep flock rebuilding, especially in eastern Australia. The favourable seasonal conditions have also driven wool cut per head higher, increasing 2.3% to 4.54 kilograms in 2021–22. The increases in the Australian sheep flock and the wool cut per head is forecast to increase shorn wool production by 9.4% to 320,000 tonnes in 2021–22.

Shorn wool production is projected to increase to 332,000 tonnes in 2022–23, despite a decrease to average rainfall conditions. The Australian flock size is projected to increase a further 2.1% to 71.9 million in 2022–23, while the wool cut per head is expected to decrease 3.0% to 4.40 kilograms.

Much like cotton, the Australian sheep flock and shorn wool production would also be impacted by the timing of drought conditions over the outlook period to 2026–27. Overall, reduced rainfall results in decreased pasture availability, a smaller sheep flock, lower wool cut per head and therefore decreased shorn wool production. Drought conditions in 2023–24 (as per the faster recovery scenario) would result in shorn wool production decreasing to 319,000 tonnes. A subsequent return to average rainfall conditions would see shorn wool production increase steadily to 350,000 tonnes in 2026–27. However, drought conditions in 2024–25 (as per the slower recovery scenario) would see a much larger decline in shorn wool production to 295,000 tonnes. A return to average seasonal conditions in the remaining years to 2026–27 would result in an increase in shorn wool production to 315,000 tonnes in 2026–27.
World cotton production to increase, wool production to decrease

In 2021–22 global cotton production is forecast to increase by 8.1% to 27 million tonnes. The increase in 2021–22 production is a consequence of increased production in the United States, Brazil, Pakistan and Australia, despite decreased production in the world’s two largest producers, China and India. Over the medium-term, global cotton production is projected to increase steadily in the five years to 2026–27, reaching 27.5 million tonnes. The growth in global cotton production is entirely driven by increasing yields. Despite cotton area increasing in some major producers, such as Brazil and India, global cotton area is expected to continue its long-term decline.

A reprieve in drought conditions in the major cotton growing region of west Texas helped boost US cotton production by 20.1% to 3.8 million tonnes in 2021–22. However, the re-emergence of La Niña in 2021–22 has seen a return to drought conditions across west Texas, as well as below average rainfall for production areas of Arizona and California. As a consequence, US 2022–23 cotton production is likely to decline. In Brazil, sowing is drawing to a close across cotton producing areas, and the outlook appears very promising with above average rainfall forecast for the coming months. In the previous season, 2020–21, dry conditions resulted in a relatively poor crop. A recent production forecast from Brazil predicts a 12.8 million bale crop (an increase of 23%).

The 2021–22 cotton crop in China is estimated at 26 million bales, down from 28.2 million bales in 2020–21. Although growing conditions were mixed, the decline in production is largely the result of decreased cotton plantings in eastern provinces (Yellow River and Yangtze River regions). In India, the 2021–22 cotton crop was estimated at 26.5 million bales. Rainfall across many growing regions late in the season delayed harvesting and may have caused some abandonment and/or quality issues.

Global wool production is expected to increase by 2% to just over 1 million tonnes in 2021–22. Global wool production has been in long-term decline and is projected to continue to decline over the medium-term, albeit at a slower rate. Since the collapse of the reserve price scheme in the early 1990s, real wool prices have never returned to the heights reached in the 1980s. The decline in wool prices has caused many growers around the world to shift into more profitable enterprises, such as sheep meat production or cropping. The decline in global wool production has been most significant for merino fine grade wool, as opposed to coarser cross-bred wool. Given Australia is the largest producer of fine wool, the forecast increase in the Australian wool clip will temper the global production decline in the short term.

The Beef and Prime Lamb 2021 Benchmarking Review, conducted by Aggregate Consulting, found beef and wool producers in south-eastern Australia were more profitable than prime lamb producers in 2020–21. However, difficulties in securing shearing labour over recent months may prompt some growers to consider alternative enterprises. According to results from Meat and Livestock Australia and Australian Wool Innovation’s recent Wool and Sheepmeat Surveys, the proportion of merinos in the breeding ewe flock has declined below 75% over the past year.

Income growth pulling up demand for natural fibres

Growth in world demand for natural fibres is largely driven by population growth and increased disposable incomes. Under the faster recovery scenario, world demand for cotton is expected to increase
more rapidly in 2022–23 and 2023–24, but taper off in subsequent years, reaching 27.6 million tonnes in 2026–27. Under the slower recovery scenario, world demand for cotton is expected to increase more slowly in 2022–23 and 2023–24, before growing more strongly in subsequent years, with cotton demand reaching 27 million tonnes in 2026–27.

Disruptions to international trade have been especially problematic for spinning mills in India and Bangladesh, where freight capacity has been severely constrained. As a result, mills in the subcontinent have been demanding large volumes and high premiums for raw cotton. Indian cotton futures prices have traded at a significant premium to international futures, reflecting the strong import demand. Cotton futures prices in China have been somewhat more restrained, with freight capacity less constrained, and government cotton reserve auctions bolstering domestic supply.

Global demand for wool is forecast to increase by 2.5% to just over 1 million tonnes in 2021–22. Under both economic recovery scenarios, wool consumption will decline in 2022–23, with a tapering in the decline over subsequent years to 2026–27. While people increasingly working from home may decrease demand for some wool products, such as suits, increasing incomes are expected to continue to drive demand for wool.

On the positive side, China recently increased its import quota for Australian wool to 40,203 tonnes. The 5% increase in the import quota aligns with the commitments made by China under the China-Australia Free Trade Agreement. Australia remains the world’s largest fine wool exporter and China the world’s largest processor of fine wool.

**Opportunities and challenges**

**Macroeconomic risks a threat to natural fibre demand**

Advanced economies around the world have responded to the economic fallout from the COVID–19 pandemic through a combination of loose monetary policy and generous fiscal stimulus packages. While their efforts have been rewarded with a return to positive economic growth, the increased spending power has exacerbated inflationary pressures brought about by supply-side disruptions. Demand for natural fibres is essentially driven by increases in real incomes, and therefore increasing disposable income and purchasing power. However, the real incomes of some of the largest economies in the world went backwards in the fourth quarter of 2021, primarily due to inflation eating away at headline GDP growth (Figure 10.6). Action by central banks to counter inflation by increasing official interest rates will further depress demand for natural fibres through decreased credit availability and lower income growth.
Changing demand patterns for wool
The COVID-19 pandemic has had a large negative impact on a traditional staple market for Australia’s fine and super-fine wool: men’s suits. The sudden shift of many white-collar workers to remote working triggered a large drop in demand for formal work attire. It is not yet clear whether workers will return to the office as before and demand for woollen suits will rebound. There may be a gradual transformation in the work arrangements for many workers. If true, fine and superfine wool may need to diversify its end-use customer base.

One alternative market the Australian Wool Initiative has set its sights on is the athleisure industry, having recently renewed its North American Feel Merino marketing campaign in late 2021. The premium athleisure market is large and growing, and a well-suited market to absorb the fine grade wool Australia produces.

Low carbon transitions
The global push to reduce greenhouse gas emissions is gathering pace, and the potential consequences for natural fibres industries is unknown. For example, the European Union is looking to implement a carbon border adjustment mechanism (CBAM) to prevent carbon leakage, as industries try to avoid the European Union’s emissions trading scheme by relocating elsewhere. Initially, the CBAMs will only be applied to a limited number of industrial products but are expected to be extended to manufactured goods over time. Other countries may soon follow with their own carbon accounting systems for trade. Depending on how emissions are accounted for, it may provide natural fibres such as wool and cotton an advantage against synthetic competitors. On the flipside, reduced demand for oil, as a consequence of decarbonisation, could make the price of synthetic fibres more appealing in the long run, exacerbating substitution away from natural fibres.
11. Beef & veal

Jonathan Wong

Key points

- Gross value is forecast to increase 8% to a record $15.7 billion in 2021–22.
- Average saleyard prices are forecast to increase 14% to a record 789 c/kg in 2021–22.
- Saleyard prices are forecast to fall in 2022–23 due to slower restocking.
- Global beef prices are forecast to stay high throughout the outlook period.

Higher cattle prices to boost gross value of production

The gross value of production for beef and veal is forecast to increase 8% to a record $15.7 billion in 2021–22 due to record cattle prices (Figure 11.1). High rainfall across much of eastern Australia has led to greater pasture availability and widespread restocking. Graziers, eager to capitalise on pasture availability and facing a low national cattle herd, have broken cattle price records buying scarce cattle. High world beef prices have given graziers confidence they can pay high prices now and profit from future sales. The difference between the domestic cattle and world beef prices can be referred to as a confidence premium. Such a strong confidence premium has made Australian cattle amongst the most expensive in the world.

Rebuilding momentum is likely to slow into 2022–23, resulting in higher production, falling prices, and gross value increasing to $16.3 billion. Rainfall returning to average (decile 4) levels will weigh on restocking momentum and remove most or all the current confidence premium from prices. Domestic price falls will be limited by world beef prices, which are expected to remain relatively high throughout the outlook period. Higher food price inflation would result in higher world beef prices in a scenario of a slower global recovery from COVID-19 disruptions. If this were to occur, the gross value of beef and veal production could be higher in 2022–23. This edition of the Agricultural Commodities Report considers both faster and slower economic recovery scenarios over the outlook period to 2026–27 (see the Agricultural overview for a full explanation).

In 2026–27, gross value will reach $19.9 billion due to strong world prices and increased beef production. World beef prices and Australian beef production could be slightly lower in the slower recovery scenario, resulting in a gross value of $19.2 billion. The most significant risk to these projections is climate variability, which can prompt graziers to increase or decrease their herd size, impacting future prices and production.
Increased competitiveness to boost exports

Exports are forecast to increase 11% to $9.1 billion in 2021–22. Exports are expected to remain at $9.1 billion in 2022–23 as production increases balance price falls. Through the outlook period, increasing beef production will result in greater export volumes, with falling domestic cattle prices expected to make Australian beef more competitive against other beef exporters. World prices are also expected to remain relatively strong through the outlook period. In 2026–27, exports will range from $10.2 billion under the faster recovery scenario to $10.3 billion under the slower growth scenario, with the difference largely being driven by global meat prices.

Cattle prices to fall in 2022–23

Australian cattle prices are forecast to fall to 711 c/kg in 2022–23 (Figure 11.2). Average (decile 4) rainfall will slow pasture growth, herd rebuilding and demand for younger cattle, compared to that seen in 2021–22. This will erode the ‘confidence premium’ keeping Australian prices high relative to competitors. Domestic price falls will be limited by world prices for beef, which are expected to remain relatively high through 2022–23. Slightly higher than expected world meat price inflation would result in higher average saleyard prices for Australian cattle, with prices only falling to 725 c/kg in the slower recovery scenario.

Under the faster recovery scenario domestic prices will fall again in 2023–24, as graziers consider reducing herd sizes due to the dry conditions (decile 2 rainfall). They will follow a similar but delayed pathway under the slower growth scenario, which has the driest year in 2024–25. Prices are expected to recover towards the end of both scenarios as the world returns to more stable economic conditions and demand for beef increases. Prices will also be supported by more favourable climatic conditions which will allow graziers to maintain their herd sizes.
Australian production to increase with larger herd, drier conditions

Australia’s beef and veal production is forecast to fall by 3% to almost 1.9 million tonnes in 2021–22 (Figure 11.3). COVID–19 related disruptions, ongoing labour shortages, high domestic cattle prices and lower cattle availability have acted as a ceiling on production.

Slaughter volumes have been low over the last 12 months, suggesting that cattle that could have been slaughtered are remaining on farm for longer and increasing their weights. It should be noted that despite the drought breaking rains in parts of Australia and subsequent cattle price spike in early 2020, female slaughter only dropped below 47% (which traditionally signifies a herd rebuild) nationally in the March quarter of 2021. The most recent data from the December quarter of 2021 places national female slaughter at 43%, the lowest rate since the December quarter of 2012.

Production is forecast to increase to 2.1 million tonnes in 2022–23 due to greater cattle availability, cheaper cattle, and additional processing labour. A year of national herd rebuilding will make more cattle available for markets. COVID–19 related labour shortages for the meat supply chain are likely to somewhat ease as more stable economic conditions return, borders reopen, and government policies take effect, but they may still limit some processors

Herd growth will slow with less favourable climatic conditions (Figure 11.4). In the faster recovery scenario, turn off will accelerate in 2023–24 with low (decile 2) national rainfall causing farmers to destock. This will result in higher numbers of lighter cattle being sent for slaughter.

Slightly more favourable climatic conditions will see marginally higher production in the slower growth scenario. This is because processors will have access to heavier cattle, despite lower turn off. Graziers will be able rebuild herds for longer, with a larger base herd in the following years. The scenarios differ most in 2025–26, with dry periods at different points resulting in different numbers of cattle available.

COVID–19 related processing disruptions are expected to continue with lower frequency and smaller impacts. Processing labour is assumed to return to pre–pandemic levels through the outlook period as borders reopen, government policies take effect and supply chain disruptions become resolved. More information on agricultural labour is included in the Agricultural Overview.
Exports are forecast to increase following higher production

Exports are forecast to increase 6% to over 1 million tonnes in 2022–23. Higher exports will be enabled by greater domestic production, which is expected to occur even in a slower recovery scenario. Similarly, exports are forecast reach around 1.2 million tonnes in 2026–27 under both scenarios. Increasing beef production will result in greater export volumes, with falling cattle prices and lower exchange rates expected to make Australian beef more competitive against other beef exporters like the US and Brazil. They will also make it more profitable to export Australian beef to the US.

Tariffs will continue to fall under a range of free trade agreements including those with Korea, China, Indonesia, and the Trans-Pacific Partnership. However, tariffs will also fall for competitors (notably the US to Japan and Korea). The Australia–United Kingdom Free Trade Agreement is expected to increase beef exports to the UK, and beef exports to the US will become virtually tariff free in 2023. Boxed beef exports to South-East Asian markets are likely to increase with strengthening economic growth and rising incomes, although they will do so slightly quicker in the faster recovery scenario. Combined with Australia’s existing market access to a wide range of countries, these options should help buffer exports from bilateral trade or market access issues should they arise.

Global supply chain disruptions are still causing issues for many beef exporters globally, including those in Australia. There continue to be reports of refrigerated containers costing more and taking longer to acquire, impacting exporter margins. These will be resolved quicker in the faster recovery scenario than the slower recovery scenario. More
Live exports to resume growth through outlook period
Live exports are forecast to fall 16% to 649,000 head in 2021–22. Strong domestic prices and limited availability have made cattle too expensive for some live cattle importers. Additionally, pandemic-related economic slowdowns in key South-East Asian markets reduced incomes and meant less consumers were buying beef from Australian live cattle. A weak start to the financial year has been somewhat offset by higher exports in December and January, as live cattle importers secure cattle in preparation for the Ramadan and Eid periods. Despite this spike, high prices and limited cattle availability are expected to continue keeping live export volumes low for 2021–22.

Live exports will increase through the outlook period as more cattle become available, cattle become more affordable, and consumer incomes increase. Consumer incomes and demand for beef will rise quicker in the faster recovery scenario. The lower exchange rates in the slower recovery scenario may also make Australian cattle more affordable to live cattle importers in South–East Asia.

There are likely to be further shipments of live cattle from Brazil to Vietnam, following the first shipment in September 2021. Falling cattle prices will narrow the price difference between Australian and Brazilian cattle, however shipping costs and availability are likely to play an equally important role in the competitiveness of the two countries’ exports to Vietnam through the outlook period.

World beef supply forecast to slightly increase
US beef production is forecast to fall slightly from 2021 to 2023 as the contraction phase of their cattle cycle continues. The US has maintained its exports to Japan and South Korea despite its increased export footprint into China. This has also occurred in the face of logistical issues, strong US beef prices and pandemic impacts on demand.

Frozen beef supplies are forecast to slightly increase through the outlook period. Brazilian beef exports are expected to recover following the recommencement of exports to China. Brazilian market access was suspended in September 2021 due to two cases of atypical bovine spongiform encephalopathy (BSE). Brazilian beef production has slowed with less domestic and export demand, but production for export is likely to increase in 2022–23 and continue to do so through the outlook period.

Indian buffalo meat exports are expected to slowly increase through the outlook period. This is more likely to affect markets where Indian buffalo meat competes with beef from Australian live cattle such as Indonesia and Vietnam.

World demand for beef and veal to rise steadily
World demand for beef is expected to rise over the outlook period, with forecasts for positive but slowing economic growth across major export markets. Developing countries are expected to continue the upwards trend of beef consumption due to increased wage growth and urbanisation, but the magnitude of demand recovery will be dependent on which scenario eventuates. Consumer incomes will take longer to rise (particularly in developing countries) in the slower recovery scenario. This would mean that beef exports to Australia’s
higher value export markets would likely be minimally impacted, but exports to lower value markets could be lower (as could live cattle exports).

As the US herd contracts, more cows have been slaughtered, creating greater domestic supplies of processing grade beef. This will slightly reduce demand for imported processing beef and is likely to continue through 2022 and into 2023. However, high meat price inflation in the US has provided opportunities for all its beef import partners. Meat price inflation is expected to ease through the outlook period, although the slower recovery scenario is expected to see inflation higher for longer, and a lower exchange rate. Both factors will support Australian exports to the US. US herd rebuilding from 2024 will see cows remain on farm for longer and increase demand for frozen beef.

North Asian markets are expected to have strong demand throughout the outlook period. China’s beef demand continues to outstrip their domestic production, leading to high volumes of beef imports in 2021. Beef demand increased in 2021 despite the significant increase in Chinese pork production. Beef demand in China is being driven by increasing incomes and increasing urbanisation. Together, these factors suggest China’s demand for beef will continue to be high. Japan and South Korea are also expected maintain relatively strong demand for beef during the outlook period.

Opportunities and challenges
The investment of recent profits will shape the industry beyond the outlook period
Many producers have benefited from the profits of high livestock prices and increasing equity (from rising land prices and low interest rates). Some of these profits will be invested in farm upkeep and repairs, and some will go off farm, but where the rest of the profits go could change how the cattle industry approaches the next price cycle.

If profits are invested in increasing production capacity, farm businesses will be able to create greater efficiencies and collect more returns from greater production. If, on the other hand, profits are invested in measures that allow the supply chain to be more responsive to consumer demands and increase productivity, this could see farm businesses produce new products for different markets. This could include investment in genetics, certification schemes, or specific machinery and infrastructure. This option will help producers chase constantly evolving premium markets and may have the greatest impact on the value of the industry beyond the outlook period.

Low–cost producers could find gains by moving into Australia’s frozen markets
Low–cost producers have filled gaps left by the fall in Australian beef exports in recent years. However, when Australia moves back into such markets, like China and the US, these additional players will still be present with beef that is potentially still cheaper than Australian products. If quality and reputation are what keeps consumers buying more expensive Australian beef, then producers must ensure their quality profiles are higher than those of other exporters through and beyond the outlook period. If producers were to aim to sell on price alone, it would be difficult to compete with emerging low–cost beef producers as they find further production efficiencies.
12. Sheep meat

Harry Coë

Key points

• The value of the sheep meat industry is expected to surpass $5 billion in 2021–22.
• Australia’s sheep meat exports are expected to rise over the medium term.
• Rising supply of sheep meat will allow Australia to respond to growing global demand.

Gross value to rise over the next five years

The gross value of production of the sheep meat industry is forecast to break a new record of over $5 billion in 2021–22, supported by record high prices and rising sheep meat production.

Global inflation is expected to ease by the middle of 2022 and global incomes are expected to rise. As a result, lamb prices are expected to rise by 5%, averaging 934 cents per kg in 2022–23. Sheep prices are expected to average 678 cents per kg in the same year.

Prices could rise more quickly if global inflation remains high (see the Agricultural Overview for a full explanation of the scenarios). In this scenario, inflation is expected to come down in 2024–25. This longer period of inflation would support sheep meat prices in the short term to 2023–24 but weigh on prices over the medium term to 2026–27.

By 2026–27, the value of the sheep meat industry is expected to range between $5.6 billion and $6.1 billion depending on the path of global economic recovery (Figure 12.1).

Figure 12.1 Value of the sheep meat industry, 2000–01 to 2026–27

Sheep meat exports to reach a record high in 2021–22

The value of Australian sheep meat exports is forecast to reach $4.4 billion in 2021–22. This is being driven by strong sheep meat exports to the United States. Between July and November 2021, exports to the United States were 45% higher than the same time in
In the United States, meat prices have been rising faster than general price inflation and domestic sheep meat production has been relatively low. These two factors have been driving up the value of Australia’s sheep meat exports to the country.

Between 2022–23 and 2026–27, the value of Australia’s sheep meat exports is expected to continue rising. By 2026–27, dependent on the scenario, the value of exports is expected to be between $4.6 billion and $5.1 billion.

In the slower economic recovery scenario, meat prices in the US are expected to continue rising faster than general inflation over the next two years. US meat vendors are expected to receive higher returns for their product at the supermarket. This will encourage US meat vendors to pay more for imported meat, such as sheep meat from Australia. Meanwhile, in the Middle East higher oil prices will lead to rising incomes in the short term. This will allow the region’s sheep meat demand to recover more quickly.

However, strong global inflation is not assumed to last forever. In the slower economic recovery scenario, US sheep meat demand would start to ease around 2024–25 as central bank measures to control inflation weigh on economic growth (see the Economic overview). Also, consumer incomes in major export markets are expected to grow more slowly in this scenario. Consumers in these markets will therefore have less money to spend on Australian sheep meat by the end of the outlook period. As a result, the value of Australian sheep meat exports is expected to be about $500 million lower by 2026–27 in the slower economic recovery scenario.

**Lamb and sheep prices to reach record highs in 2021–22**

In 2021–22, lamb saleyard prices are expected to increase 14% to 893 cents per kg, whilst sheep saleyard prices are expected to rise 7% to 648 cents per kg.

Lamb prices in the current financial year have been supported by strong export demand from the United States.

Lamb and sheep prices are expected to rise over the short-term to 2022–23 due to strong export demand in the United States (Figure 12.2). If the pace of the global economic recovery is slow, prices are expected to continue increasing until 2023–24, as higher global inflation supports global demand for sheep meat.

However, over the medium term to 2026–27, domestic lamb and sheep prices will also be influenced by seasonal conditions. Although the timing of a dry year is uncertain, the occurrence of drought-like conditions is expected to weigh on saleyard prices in both scenarios. (see the Seasonal climate overview for more information).
Slaughter and production to rise

In 2021–22, the quantity of sheep meat produced in Australia is expected to rise by 5% to around 690,000 tonnes, due to rising numbers of sheep and lambs slaughtered. Lamb slaughter is expected to rise by 1% to 21.0 million head in 2021–22, while sheep slaughter is expected to rise by 11% to 6.0 million head (Figure 12.3). Slaughter is increasing due to ongoing flock rebuilding, which means more lambs and sheep are available for slaughter than last year. In 2021–22, the increase in sheep meat production is expected to lead to higher export volumes, which are forecast to rise by 12% to around 480,000 tonnes.

Lamb and sheep slaughter forecasts are not expected to be significantly impacted by the outbreak of the Omicron variant of COVID–19 in Australia. Due to the outbreak, many workers in the sheep meat processing industry have been required to self-isolate after testing positive for the virus. The resulting processing constraints weighed on sheep and lamb slaughter in January 2022. Lamb slaughter fell by 20% year-on-year in January 2022, while sheep slaughter fell by 32%. However, lamb and sheep slaughter recovered to pre-Omicron levels in February 2022.

Sheep meat production is expected to rise over the medium term to 2026–27, in line with rising slaughter, reaching around 750,000 to 780,000 tonnes. Lamb slaughter is expected to be around 21.7 million to 22.7 million head by 2026–27, while sheep slaughter is expected to be around 7.2 million to 7.9 million head. Slaughter is expected to rise more quickly in the slower economic recovery scenario than in the faster economic recovery scenario, since Australian sheep meat producers are expected to take advantage of high global prices in the short term. However, higher slaughter will lead to a decline in the Australian sheep flock size. Therefore, by 2026–27 slaughter is higher in the faster economic recovery scenario as there are more sheep available.

In both scenarios, sheep meat production is expected to be constrained by the small Australian sheep flock. The size of the Australian sheep flock has fallen from 72 million sheep in June 2017 to 63.5 million sheep in June 2020. By 2026–27, the flock size is expected to recover to 75.1 million sheep. However, it could be as low as 68.5 million sheep in the slower economic recovery scenario due to higher slaughter rates early in the outlook period.
Over the next five years, sheep meat export volumes are expected to rise in line with sheep meat production, reaching around 500,000 to 530,000 tonnes by 2026–27.

New Zealand’s sheep meat supply to ease in the short term

China and the United States are Australia’s largest sheep meat export markets, in which we compete with New Zealand. New Zealand is the largest exporter of sheep meat to China and the second largest exporter of sheep meat to the United States.

According to New Zealand’s Ministry of Primary Industries, New Zealand’s sheep meat export volume is forecast to fall in 2021–22 due to lower production, before falling again in 2022–23. This is likely to support global demand for Australian sheep meat in the short term to 2023–24 in both scenarios.

Strong sheep meat demand across major export markets

Exports to all major markets are expected to rise in the short term. Sheep meat exports to China are forecast to increase in 2021–22, despite the significant increase in Chinese pork production. Sheep meat demand in China is being driven by increasing incomes and urbanisation. These factors suggest China’s demand for sheep meat will continue to rise through the outlook period, even as China continues to recover from African swine fever.

The value of Australia’s sheep meat exports to the United States has reached record highs in recent months. Low sheep meat production in the United States has supported Australia’s export volumes to the country. Meanwhile, high meat price inflation in the United States has encouraged the country’s importers to pay high prices for Australian sheep meat. High inflation in the US is expected to continue until at least the middle of 2022. Inflation could continue until 2023–24 if the global economic recovery is slowed. More persistent inflation would encourage US importers to continue paying high prices for Australian sheep meat. However, US export prices would eventually ease over the medium term to 2026–27, as inflation is brought under control.

Australia’s sheep meat exports to the Middle East have been subdued since June 2020, due to the ongoing effects of the COVID–19 pandemic. Pandemic-related travel restrictions and depressed oil prices weighed on incomes in oil-exporting Middle Eastern countries in 2020. Oil prices have since returned to pre-pandemic levels. Therefore, Australian sheep meat exports to the Middle East are expected to
increase over the medium term to 2026–27 as incomes in the region recover.

**Opportunities and challenges**

**The live sheep export industry has made considerable gains in animal welfare**

Animal welfare concerns have previously caused social licence issues for the live sheep industry.

In recent years, the Australian Government has introduced regulations to reduce the mortality of live sheep onboard ships. These include increasing the minimum amount of space allocated to each sheep, as well as prohibiting live sheep exports to the Northern Hemisphere during the hottest part of the Northern Hemisphere summer (June to mid-September).

These regulations have helped to reduce the live sheep mortality rate from 0.8% in 2016 (1 mortality per 125 sheep loaded) to approximately 0.2% for the calendar year 2021 (1 mortality per 500 sheep loaded). Historically, the highest monthly mortality rates occurred during voyages departing Australia between June to September. As a result of the Northern Hemisphere summer prohibition, mortality rates fell to zero in June, July, and August 2021.

These regulations could renew public confidence in the live sheep industry, which would in turn provide live sheep exporters with greater certainty to grow their businesses. Renewed confidence in the industry would also benefit farmers in Western Australia, where most live sheep are exported. In 2020–21, Western Australia contributed over 90% of Australia’s live sheep exports, but only 18% of the country’s sheep meat exports.
Key points

- Farmgate milk price to hit 58 cents in 2021–22 and remain high over the outlook.
- Domestic production expected to decline due to lower cow numbers.
- Global production expected to recover once high feed and fertiliser costs ease.
- Slower recovery could lead to economic scarring, lower incomes, and lesser prospects over the medium-term.

High prices to drive high value of production

The gross value of milk production is forecast to increase by 6% to just over $5 billion in 2021–22 due to a higher farmgate milk price (Figure 13.1). Strong export demand from China and tight global milk supply have caused prices to surge in January and February of 2022.

In 2022–23, the value of production in real terms is expected to increase to $5.3 billion because of higher farmgate milk prices. The greatest downside risk factors to this forecast are higher than expected global milk production and lower than expected demand for Australian dairy exports, particularly in our largest export market, China. For the outlook period of 2022–23 to 2026–27, two scenarios are considered in this edition of the Agricultural Commodities Report, each with its own set of assumptions regarding the speed of economic recovery from the COVID-19 pandemic and Australian climatic conditions (see the Agricultural overview for a full explanation).

The speed of economic recovery from COVID-19, normalisation of freight and supply chain issues and potential timing of drought-like conditions are expected to influence the medium-term prospects for Australian dairy. A faster normalisation of freight and supply chain issues is expected to lead to a fall in the value of production in 2023–24. Value of production is then expected to stabilise due to higher incomes in export markets, providing for a gross value of production of $4.8 billion in 2026–27 (faster recovery scenario). Should freight and supply chain disruptions persist, domestic farmgate milk prices are expected to remain elevated for longer due to lower global milk production caused by elevated input costs and supply chain issues (slower recovery scenario). However, should a slower recovery take place, the economic scarring of a drawn-out recovery will lead to lower incomes in some of Australia’s key markets, dampening medium-term prospects with the gross value of production expected to only reach $4.1 billion in 2026–27.
Export value rising on the back of strong global demand

The value of dairy exports in real terms is expected to increase by 31% in 2021–22 to $3.7 billion due to significantly higher export prices (Figure 13.2). In 2022–23, the value of exports is expected to fall to $3.1 billion due to easing supply chain bottlenecks and export quotas on fertiliser. This will reduce pressure on importing countries who had been willing to pay higher prices to secure necessary inventories of dairy products in 2021–22.

The medium-term outlook for the value of exports will be influenced by the speed of clearing supply chain bottlenecks, income levels in Australia’s export markets and the recovery in global milk supply due to easing input cost pressures. In the faster recovery scenario, earlier clearing of supply chain bottlenecks and recovering milk supply will reduce export value to $3 billion in 2023–24. Income driven demand is then expected to push value of exports up to $3.5 billion in 2026–27. Assumed higher incomes in 2026–27 are expected to increase demand for high value products such as cheese destined for Japan more so than skim and whole milk powder. In the slower recovery scenario, persistent supply chain bottlenecks and high cost of production in the European Union and New Zealand will keep export value higher in 2023–24 but suffer from lower prices due to lower incomes in the medium-term.

Farmgate milk price buoyed by historically high export prices

The Australian farmgate milk price is forecast to increase by 10% in 2021–22 to a nominal record of 58 cents per litre (Figure 13.3). Constrained global milk production and strong demand for Australian...
dairy exports has led to strong export prices, and flowed through to higher farmgate milk prices offered by processors. This forecast includes an expectation of further price ‘step-ups’ announced between March and June 2022.

The farmgate milk price is expected to increase to 59.5 cents per litre in 2022–23 due to strong import demand from China outweighing tight supply of milk in New Zealand. Processors are expected to offer record high opening farmgate milk prices on 1 June 2022 to secure limited milk supply and capitalise on high export prices. The farmgate milk price could increase further if supply chain bottlenecks persist longer than expected and cause importing countries to compete for limited availability of dairy products.

Over the outlook period, the farmgate milk price is expected to remain steady in the faster recovery scenario due to the easing of supply chain bottlenecks and improved flow of dairy products around the globe. Whereas, in the slower recovery scenario, these supply chain bottlenecks persist and apply more upward pressure on prices before the farmgate milk price falls sharply later in the outlook due to a stronger rebound in global milk supply. The farmgate milk price is expected to remain above the long-term average in real terms under both scenarios due to zero EU intervention stocks, continued constraints on global milk production and firm demand expected over the outlook.

Figure 13.3 Average farmgate milk price, 2000–01 to 2026–27

Source: ABARES; Dairy Australia

Milk production to steadily decline due to lower herd numbers

Australian milk production is expected to decrease slightly in 2021–22 to 8.8 billion litres (Figure 13.4). Extremely wet conditions in the latter half of 2021 reduced yields and constrained milk production below our earlier expectations. High beef and land prices have also given farmers an incentive not to rebuild dairy herd numbers and restricted the expected rebound in milk production over summer.

In 2022–23, milk production is expected to increase slightly to 8.9 billion litres. Milk yields are expected to increase as water and hay prices remain relatively low due to high water storage and on-farm feed storage levels. Dairy cow numbers are expected to fall due to historically high beef prices and firm live export demand for dairy
cattle into China. High beef prices combined with labour shortages are causing smaller scale dairy farmers to consider the option of switching to less labour-intensive beef production for a more flexible lifestyle.

Over the outlook period, milk production is expected to steadily decline in both scenarios. The timing of droughts over the outlook period will contribute to an expected fall in milk production. A later occurrence of drought conditions (decile 2 rainfall) is expected to have a larger effect on production because of lower levels of water and on-farm feed storages after two years of average conditions (decile 4 rainfall). The earlier occurrence of drought conditions is expected to have a smaller effect on production due to the buffer of high water and on-farm feed storages. In the faster recovery scenario, milk production will fall to 8.5 billion litres in 2023–24 but stabilise at 8.4 billion litres in 2026–27. Whereas, in the slower recovery scenario, milk production is expected to fall later in the outlook and finish at 8.1 billion litres in 2026–27.

Total export volumes will generally follow milk production levels, but individual dairy product export levels will be influenced by the relative profitability of the different manufacturing streams. Skim milk powder and butter are produced in the same manufacturing process. This processing stream is offering processors a relatively more profitable stream than whole milk powder in 2021–22, leading to higher production of skim milk powder and butter and less whole milk powder. This process of substitution in production will support higher prices in the future for whole milk powder and subdue prices for skim milk powder and butter.

**World milk supply growth expected to remain low over the outlook**

Milk production growth in the United States has averaged 1.8% year-on-year since 2011–12. It is expected to be well below average in
2021–22, at 0.5% growth year-on-year. Production in New Zealand has averaged 2.3% growth year-on-year since 2011–12 but production is expected to fall by 3.4% in 2021–22. High feed and fertiliser costs as well as labour shortages are expected to keep global milk production subdued during the first half of the outlook period with a moderate recovery in the later years. Global dairy cattle herd numbers are expected to steadily decline as dairy farmers face pressure to reduce methane emissions.

**Lack of intervention stocks supports higher prices**

The European Union’s intervention stocks of skim milk powder, cheese and butter have been emptied since 2018–19. This has allowed dairy prices to rise and skim milk powder has seen an uninterrupted surge in price. Low global production in 2021–22 has increased scarcity and sent prices higher again. Global production is unlikely to significantly rebound due to persistent high feed and fertiliser costs and therefore intervention stocks are expected to remain empty over the outlook period. This supports the forecast for higher dairy prices through to 2026–27. This situation would be exaggerated in the slower recovery scenario whereas the faster recovery scenario could see the prices of feed and fertiliser fall and global milk production rebound earlier than expected.

**World demand remains firm for dairy products**

High shipping costs and logistical delays are expected to persist over the remainder of 2021–22 and into 2022–23, constraining importing countries’ ability to secure product in a timely manner. This is expected to lead to higher demand earlier in the outlook period as importing countries attempt to secure sufficient inventory levels ahead of when they are needed. The clearing of these supply chain bottlenecks would reduce the urgency of securing dairy products. However, China’s goals of increasing dairy consumption, and the healthy, nutritious and immunity boosting perception of dairy within many export markets is expected to hold consumer demand firm.

**China’s cost of production holds key to Australia’s export demand**

The cost of producing milk in China has been at historic highs due to the high cost of corn and soybeans which are used for feed in intensive animal production systems. The high cost of domestic milk improves the competitiveness of dairy imports compared to domestic manufacturing in China. This has been a major factor in the strong demand for Australia’s dairy product exports in 2020–21 and 2021–22. If those costs were to decrease significantly, due to higher global supply of corn and soybeans for example, China has the capacity to cheaply produce large volumes of milk. Demand for Australian dairy exports would fall and lead to lower export prices and a lower farmgate milk price.

**Opportunities and challenges**

**Robotic or automatic milkers are improving flexibility in Australian dairies**

Adoption of robotic milking systems in Australia has surged in 2020–21. Although the technology is not new, the uptake of the technology on Australian dairy farms has been slow until recently. Robotic milking systems offer an improvement in animal welfare, labour efficiency and greater flexibility for small owner-operator farms. Instead of getting up at 4am and milking 3 times a day, the farmer can be less involved, and cows can volunteer themselves for milking at any time. The recent surge in adoption is likely due to lower debt levels and higher disposable income after 3 years of high profitability in the dairy industry.
14. 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)