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Report Highlights:

Australia is expected to produce another big grain crop in marketing year (MY) 2022/23 after a record setting winter crop and strong summer crop production in MY 2021/22. Another favorable set of conditions around the time of winter grain planting across most production regions of Australia bodes well for another big planted area of wheat and barley for MY 2022/23. However, yields are set to come down from the records set in the previous year, resulting in smaller crops. This is set to lead to a decline in wheat and barley exports in the forecast year from record volumes estimated this year. Sorghum production is forecast to decline in MY 2022/23, after making big gains in MY 2021/22 and achieving record yields. Sorghum exports are forecast to decline, but only after an estimated record export program in MY 2021/22. Rice production in MY 2022/23 is forecast to continue to grow for the third successive year with an increase in planted area driven by an anticipated improvement in irrigation water availability.

EXECUTIVE SUMMARY

After a record-setting winter crop and strong summer crop production in marketing year (MY) 2021/22, Australia is expected to produce another big grain crop in MY 2022/23. Another favorable set of conditions around the time of winter grain planting across most production regions of Australia bodes well for the forecast year of wheat and barley production in MY 2022/23, although production is still expected to be down from last year's huge crops. While overall grain area is anticipated to remain large, yields are expected to fall towards more typical levels from last year's exceptionally high yields. Wheat and barley exports are set to decline in the forecast year from a historically high volume estimated for this year due to the forecast of reduced production. Australian feed barley exports have diversified away from China and into Middle East markets in MY 2020/21 and 2021/22, and this could continue into MY 2022/23 due to the uncertainty of supply from the Black Sea region.

Sorghum production is forecast to decline in MY 2022/23, after making strong gains in MY 2021/22 to the third largest crop on record. Sorghum exports are also forecast to decline in MY 2022/23, but this is after an estimated record export program in MY 2021/22.

Rice production in MY 2022/23 is forecast to continue to expand for the third successive year following a huge rise in production in MY 2021/22. Further anticipated improvement in irrigation water storages in the lead up to planting the MY 2022/23 crop (starting October 2022) is set to drive an increase in planted area and overall production. With the production recovery, Australia has reverted back to becoming a net exporter of rice, after being a net importer during the drought-impacted marketing years.

POLICY AND OTHER INDUSTRY MATTERS

UK-AU FTA

The United Kingdom (UK) and Australia signed an in-principle Free Trade Agreement (FTA) on June 15, 2021 and has since been finalized and signed virtually on December 18, 2021.

The FTA was tabled in the Australian parliament on February 8, 2022, with an accompanying National Interest Analysis (NIA). Interested parties were invited to make submissions by March 18, 2022, before progressing towards acceptance by parliament.

After the FTA is formalized the Australian grain industries are expected to receive immediate tariff-free quota for 80,000 MT of wheat and 7,000 MT of barley to the UK, and after four years tariffs will be eliminated. Although this is welcomed by the Australian grain industries and provides a further significant market access option, it is anticipated that Australia will continue to focus its trade mainly to its nearby Asian markets.

India-AU Trade Agreement

An interim trade agreement with India (called the Australia-India Economic Cooperation and Trade Agreement) was signed by the two parties on April 2, 2022 after negotiations were launched in May

2011. After nine rounds of negotiations up to September 2015, progress had stalled until they recommenced in October 2021 before progressing to the recently announced interim agreement. The Agreement is expected to enter into force in the second half of 2022.

This agreement is expected to allow greater access for some Australian pulses and oilseeds, but not have any impact on grain. Wheat, corn, sorghum and rice are excluded from the agreement. Wheat tariffs will remain at 40 percent, corn and sorghum at 50 percent, and rice at 70-80 percent depending on the type of rice. For barley, rye, and oats, as part of the agreement tariffs will be eliminated when the agreement enters into force, however tariffs were already at zero for all of these products.

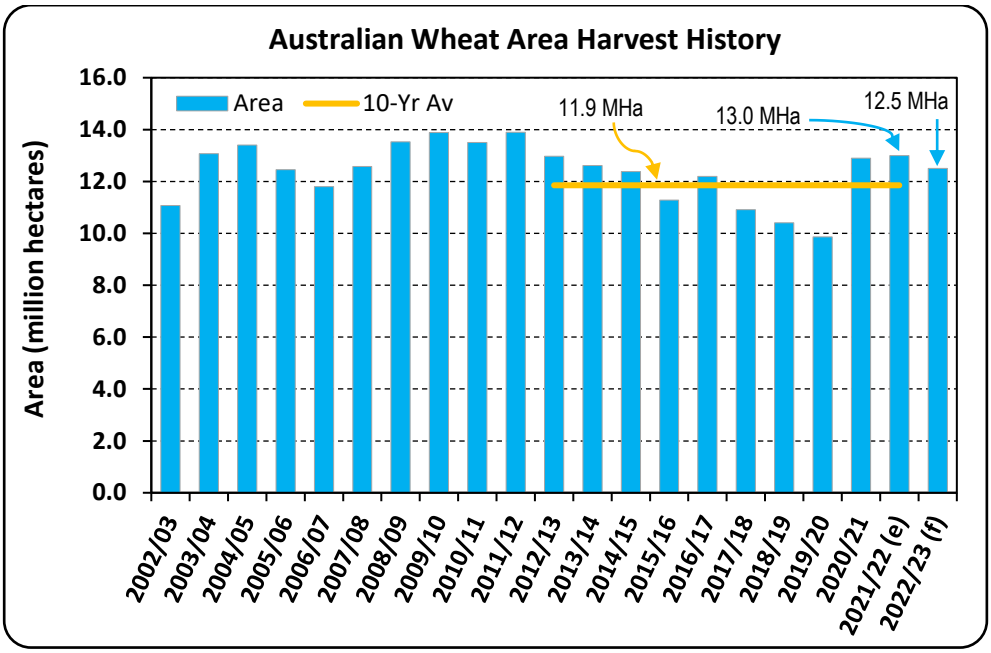
WHEAT

Production

FAS/Canberra forecasts wheat production to decline significantly to 29 million metric tons (MMT) in MY 2022/23, but if realized would still be a very large crop. This follows a 36.3 MMT crop in MY 2021/22, and a 33.3 MMT crop in MY 2020/21. Although soil moisture conditions in the wheat growing regions are generally good and prices are very high in the lead up to sowing, there is an expectation that there will be a small reduction in planted area. This is mainly because the three major input cost items of fertilizer, chemicals, and diesel have all skyrocketed in recent months, and the supply of some of these items is also proving to be challenging. Area for wheat is forecast to decline by four percent to 12.5 million hectares (MHa) from the previous season of 13 MHa. However, the forecast area is still 650,000 Ha above the previous 10-year average (see Figure 1) because of the attractive prices and ample soil moisture. There has been wheat harvested area in the past nearing 14 MHa, however since that time there has been significant growth in canola production and growers have essentially substituted some of their winter cereal crop area for canola area.

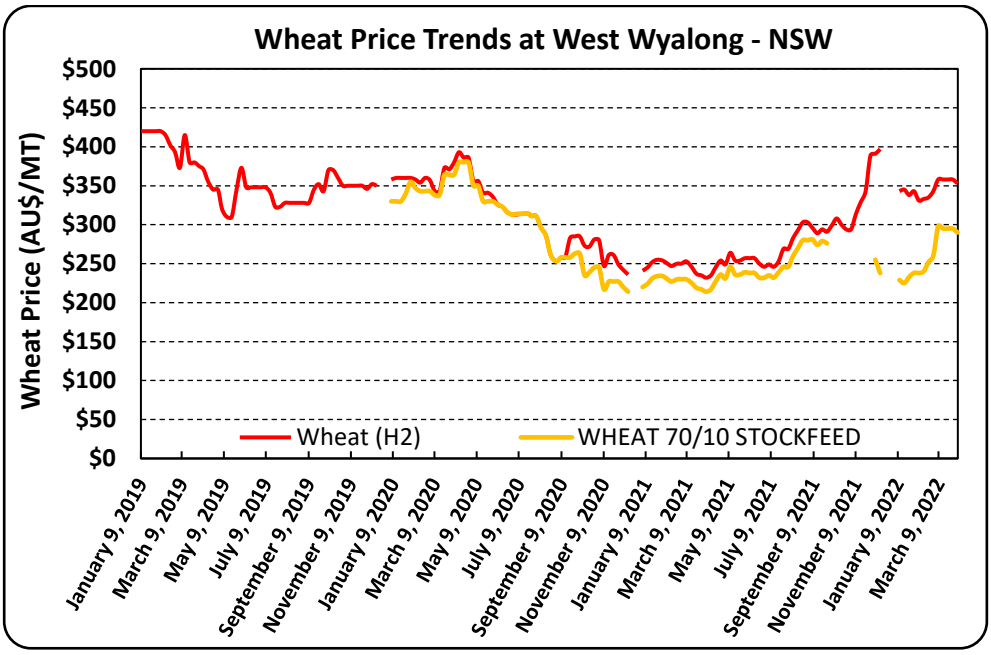
A key positive factor towards the large forecast crop production is very high prices currently available for wheat. Since the start of 2021 the wheat price has risen by almost 50 percent, with the peak price even higher (see Figure 2). Prices remained relatively flat from the start of harvest in October 2021 but started to rally from late November, peaking in mid-December and then started to fall through the end of February 2022. However, since the start of Russia’s invasion of Ukraine prices have rallied and remained strong. Although prices had been higher in 2018 and early 2019, these were drought-related spikes production was very low and domestic livestock feed demand was very high, and they were not reflective of world prices at the time. With recent record domestic crops and Australia exporting large volumes of wheat, domestic prices are more reflective of world prices. Futures prices for late 2022 at harvest for Australian producers are currently strong relative to historical prices which is providing encouragement for wheat farmers in their planting decisions.

Figure 1 – Australian Wheat Area Harvest History



Source: *PSD Online / FAS/Canberra*
Notes: *(e) = estimate, (f) = forecast*

Figure 2 – Wheat Market Prices

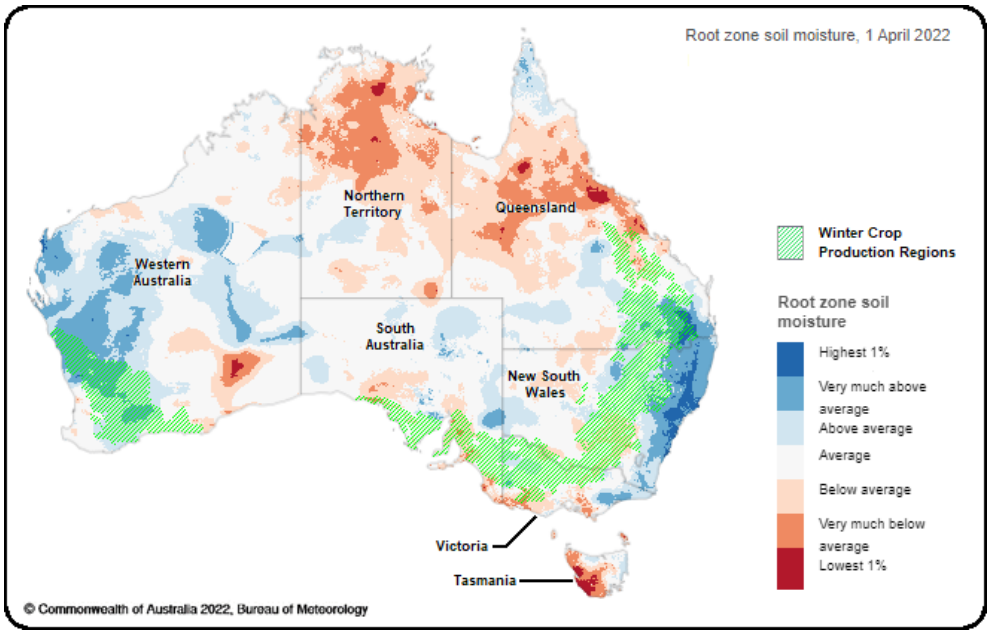


Source: *The Land newspaper*

Wheat is typically planted from April to June and harvested from October to December. The more northern production areas generally have earlier planting and earlier harvest compared to the more temperate climate in the southern areas. In the most southern higher-rainfall areas harvest is completed

in January. Most of the wheat-growing regions have average to above-average soil moisture this year as plating approaches, especially in the major production states of Western Australia and New South Wales (see Figure 3). Of the major winter crops, wheat and barley have a lower production risk and have lower input costs compared to canola. But with good soil moisture and strong prices growers will weigh this up against the high input prices, in particular nitrogenous fertilizer, in determining their optimum balance whilst broadly maintaining their crop rotation strategies.

Figure 3 – Australia Root Zone Soil Moisture – as at April 1, 2022



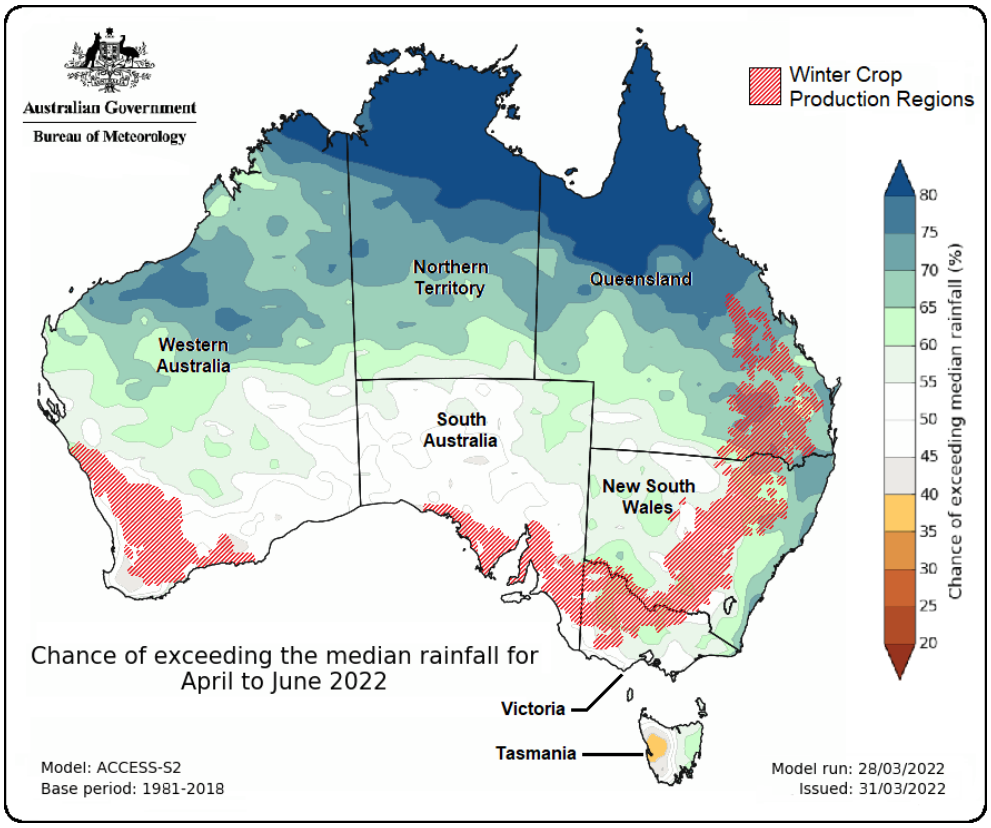
Source: Australian Bureau of Meteorology / FAS/Canberra

In the eastern states, although there is a large range of soil types, the soils in general hold soil moisture well. As a result, soil moisture levels and moisture depth during planting are important indicators of the degree of risk associated with achieving a successful crop. Ample soils moisture at depth and good soil moisture near the surface reduces the risk at crop establishment and early growth phases and bodes well for an above-average yield outcome and encourages higher nutrient inputs. Some areas in the eastern states have deep top soils that hold large amounts of moisture and in these circumstances can almost assure an above-average yielding crop even with very little in crop rainfall. High soil moisture levels at planting this year in the eastern states provides an indicator of the extent of the likely planted area and also the degree of likelihood that average to above-average yields will be achieved with normal in-crop rainfalls.

Soil moisture conditions around the time of plating in Western Australia is the most critical period influencing planted area of winter crops there, and Western Australia on average accounts for over one-third of Australia's total wheat production. Because of its importance in overall production, any variance in planting and yield in Western Australia has a substantial bearing on national wheat production. Due to

generally sandy soils in Western Australia's winter crop growing region, which do not hold moistures as well as soils in eastern Australia, soil moisture in the lead up to planting is not as important as rainfall around planting and in-crop rainfall. At the start of planting soil moisture conditions are generally very favorable for farmers in Western Australia, and they will also be somewhat encouraged by the forecast for an average chance of exceeding median rainfall over the April to June 2022 period, which covers planting and the early growth stages of the crop (see Figure 4).

Figure 4 – Australia Rainfall Forecast – April to June 2022



Source: Australian Bureau of Meteorology / FAS/Canberra

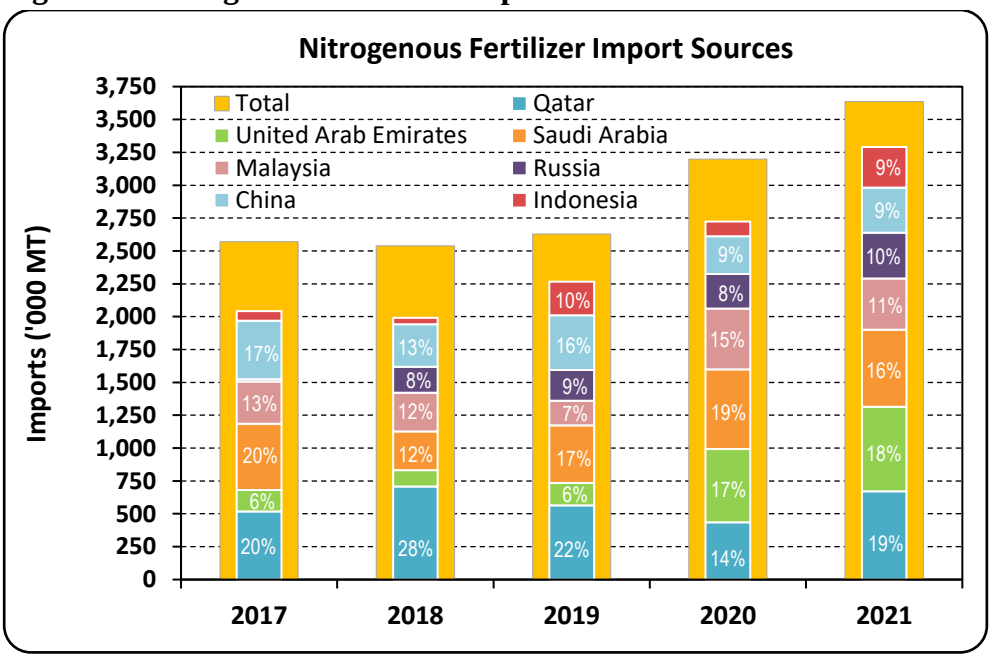
As mentioned, despite positive factors planted area of wheat is still expected to decline. A key concern for winter crop producers for the MY 2022/23 season is the escalation in the price of nitrogen-based fertilizer and chemicals (mainly herbicides) which have increased by two to three-fold in recent months. Of further concern is the escalation in world crude oil prices, triggered by the Russian invasion of Ukraine, which has led to a large increase in the cost of diesel for producers.

A key trigger for the rise in nitrogen-based fertilizer prices has been Chinese state-owned producers in September 2021 being banned from exporting fertilizer, which appears to be for the purpose of reducing their own domestic prices. However, non-state-owned fertilizer producers at this point are reportedly free to continue to export their products. In addition to the Chinese ban on fertilizer exports is the impact of the Russian invasion of Ukraine. Russia is a major exporter of fertilizers, in particular nitrogenous

fertilizers, and there is likely to be shortage of fertilizer on the world market which is evident by the recent large escalation in price.

A positive for Australian producers is that for many years Australia's primary source of nitrogenous fertilizer has been the Middle East, and only around 10 percent or less is typically sourced from either Russia or China (see Figure 5). With a strong spread of nitrogenous fertilizer sources, Australia has been reasonably well placed to secure most of its requirements in the lead up to the MY 2022/23 winter cropping season.

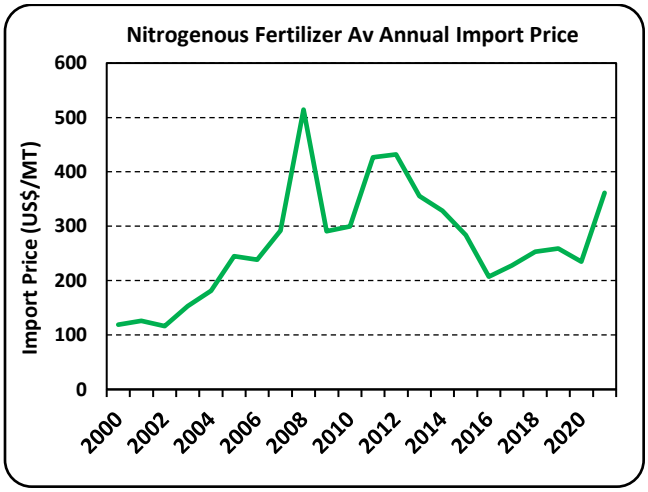
Figure 5 – Nitrogenous Fertilizer Import Sources



Source: *Australian Bureau of Statistics*

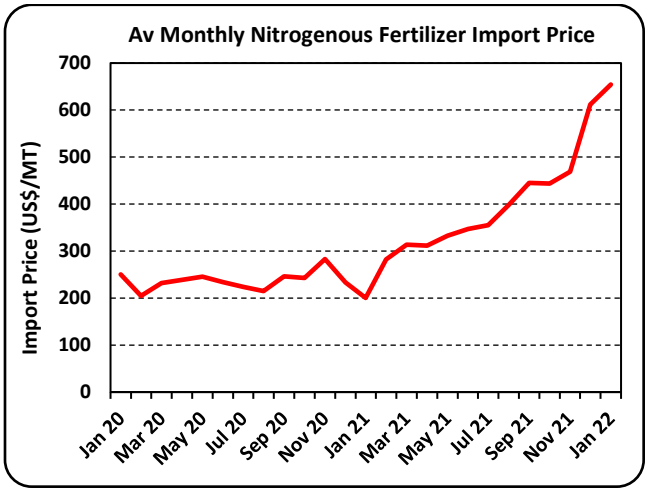
The average import price of nitrogenous fertilizers escalated dramatically from US$235 per metric ton (MT) in 2020 to US$362 per MT in 2021. Interestingly, the average import prices in 2008, 2011 and 2012 were far higher (see Figure 6). An average price in 2022 similar to that of 2021 would be manageable but the monthly trend of import prices over the last two years would suggest that prices in 2022 will be far higher than in 2021. Monthly prices were broadly flat across 2020 at around US$235 per MT but rapidly escalated from February 2021 to November 2021. Import prices further accelerated in December 2021 and January 2022 reaching US$654 per MT (see Figure 7). These increases are attributed to the rising energy costs in 2021 and the restriction of supply from China. The impact in prices due to the reduced supply from Russia and Ukraine are yet to be seen in the data but is unlikely that there will be any relief for Australian producers at planting and the early stages of crop growth.

Figure 6 – Nitrogenous Fertilizer Average Annual Import Price



Source: Australian Bureau of Statistics

Figure 7 – Average Monthly Nitrogenous Fertilizer Import Price



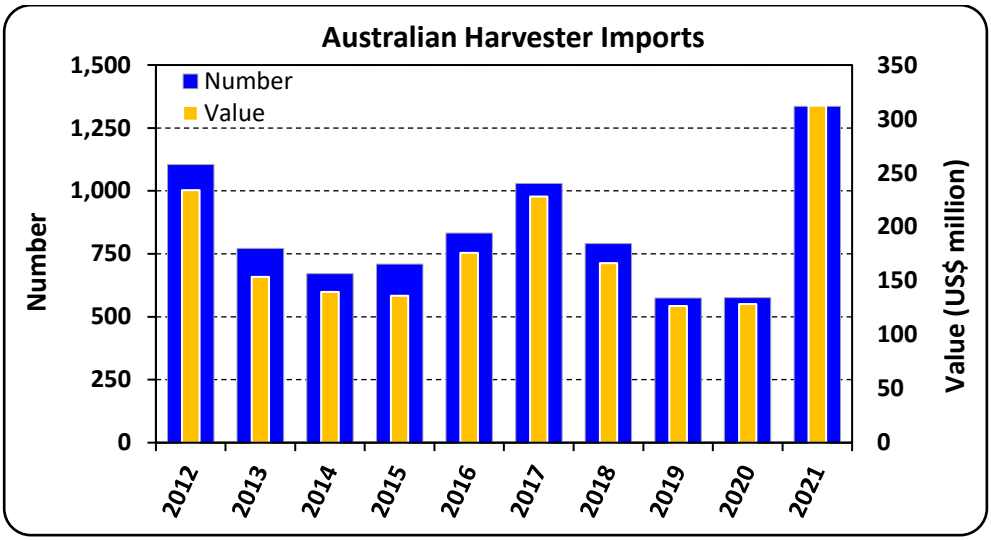
Source: Australian Bureau of Statistics

An important chemical used in cropping programs is glyphosate, much of which is sourced from China. The cost of producing glyphosate has reported to have increased by up to three-fold over the last year due to the rise in the cost of source ingredients and the increasing energy costs in China. Chemical costs will be a further consideration for winter crop producers when choosing the balance of planted area between the higher risk canola crop and lower risk wheat and barley crops.

Despite these rising input costs, after two bumper crops and high grain prices, Australian producers are relatively well placed financially to absorb higher costs. Somewhat indicative of grain farm financial performance is the change in the volume of imported harvesters. After successive drought years, a big harvest and strong grain prices at the end of 2020 (MY 2020/21) triggered a big spike in harvester imports in 2021 (see Figure 8). This result is the highest since 1993 and by far the highest by value since such data has been recorded. After an even bigger harvest at the end of 2021 (MY 2021/22), 2022 is likely to also have a big year of imported harvesters. However, there are reports that there have been further increases in shipping costs and greater delays at ports that may hinder results for 2022. Nevertheless, the big crops and high prices over the last two seasons has placed farmers in a good position to cope with the escalated fertilizer and chemical costs.

With fertilizer and chemicals being the two major costs for Australian producers there has been a great deal of discussion on how best to plan for the MY 2022/23 winter crop. On balance, with good soil moisture, and very high wheat prices on one hand but escalating fertilizer, chemical and diesel costs on the other, it is forecast that there will be some reduction in planted area and that some growers will be a little more frugal with their inputs.

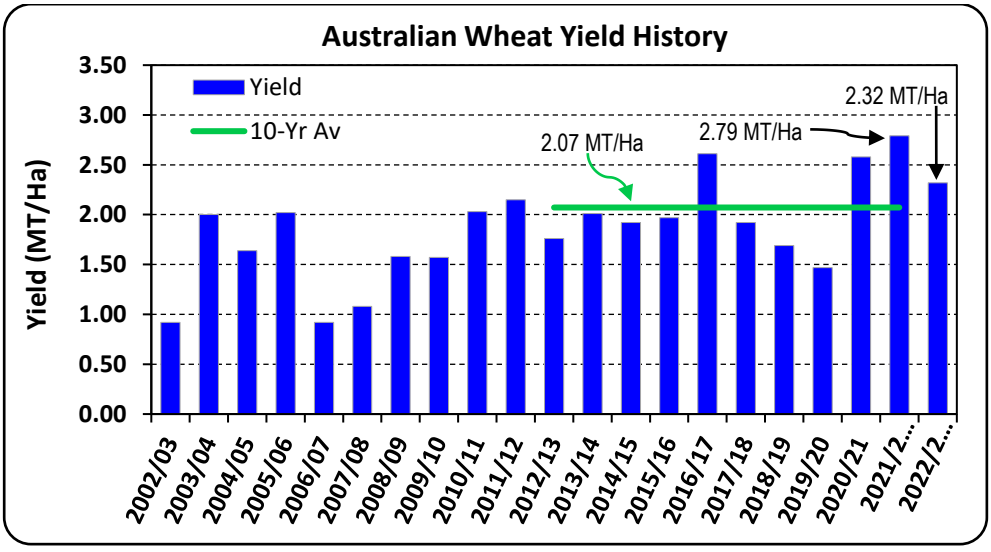
Figure 8 – Australian Harvester Imports



Source: *Australian Bureau of Statistics*

With broadly very good soil moisture at the start of planting and an encouraging rainfall forecast in the early crop growth period, there is a sound prospect of an above-average yield outcome for the forecast MY 2022/23 wheat crop. At this early stage, the wheat yield is forecast at 2.32 MT/Ha, 12 percent above the previous 10-year average. However, this is 17 percent below the estimated record breaking 2.79 MT/Ha yield of the previous MY 2021/22 season (see Figure 9). Unusually, despite the diverse area in which wheat is grown in Australia, nearly all regions had particularly good growing condition throughout the season which supported such an extraordinary high average yield for MY 2021/22. This is unlikely to be achieved again any time soon which has contributed to a more tempered yield forecast. In addition, as mentioned an expected reduction in input use will also contribute to lower yields.

Figure 9 – Australian Wheat Yield History



Source: *PSD Online / FAS/Canberra*

Wheat production for MY 2021/22 is estimated to have reached 36.3 MMT and is in line with the official USDA estimate and the Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES) estimate, finishing well above earlier expectations at the commencement of harvest. This was far higher than the record set in the previous year of 33.3 MMT due to a small increase in planted area but mainly due to achieving a record national average yield.

Consumption

FAS/Canberra's forecast for Australian wheat consumption in MY 2022/23 is 8.5 MMT, in line with the MY 2021/22 estimate. There is no change in livestock feed consumption anticipated and wheat utilized for milling is relatively stable from year to year.

The majority of the wheat demand by the livestock industry is for beef cattle feedlots, and to a lesser degree the dairy industry, along with the swine and poultry industries. Weather conditions for pasture production have generally been very positive over the last year which has continued into the current fall period. Forecast rainfall for the coming April to June 2022 period (see Figure 4) is also generally positive. Based on the current circumstances there is no expectation of any spike in feedlot cattle numbers, which generally happens due to drought, and consequently there is no anticipation of any significant change in feedlot cereal grains demand including wheat.

Domestic consumption for flour milling is expected to remain unchanged from recent past years at 3.5 MMT in MY 2022/23. Consumption of wheat for flour has typically only been increasing with population growth which is expected to remain relatively flat in the short term.

FAS/Canberra's wheat consumption estimate for MY 2021/22 is 8.5 MMT, 500,000 metric tons (MT) lower than the official USDA estimate of 9 MMT. This difference is related to livestock feed demand estimates which are somewhat subdued due to broadly very positive pasture production conditions across the livestock grazing industries.

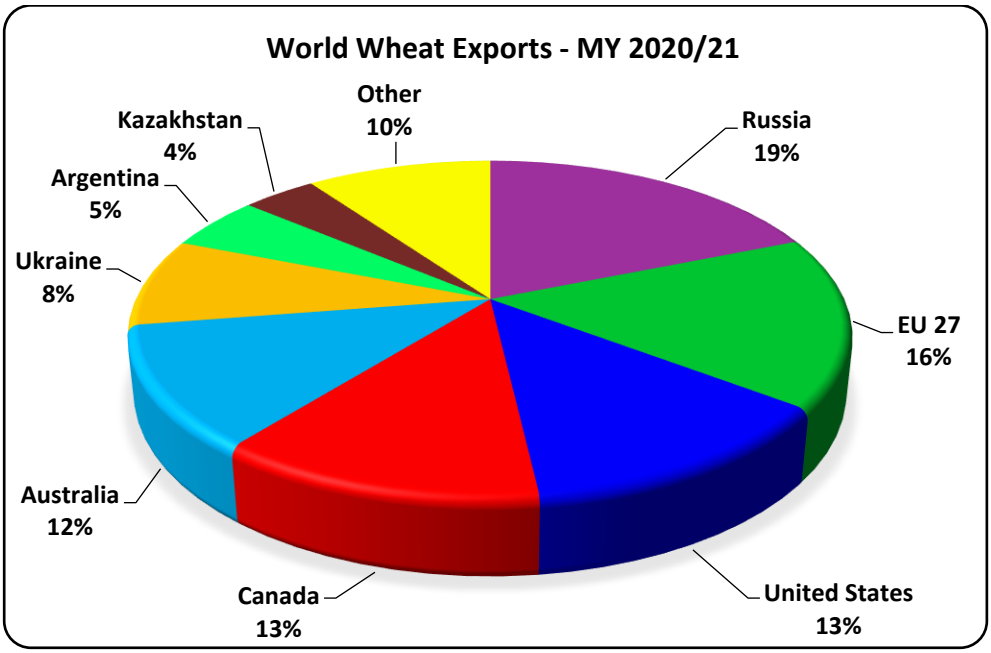
Exports

FAS/Canberra's forecast for wheat exports for MY 2022/23 is 22 MMT, a 5.5-MMT decline from the record MY 2021/22 estimate. Despite this large fall, if realized, this would still be the fifth largest wheat export program on record. This expected drop in exports is primarily driven by the forecast 7.3-MMT decline in production. Exports are not expected to fall by as much as production due to expected strong global import demand and possible supply constraints from key exporters.

Typically, around one-quarter of world wheat exports are from Russia and Ukraine (see Figure 10). The current invasion of Ukraine by Russia has created uncertainty around production and capacity to supply to importing nations. With this the world price of wheat has increased by around 35 percent (spiking at larger peaks) after the start of Russia's invasion of Ukraine from already high levels. Futures wheat prices for around the time of Australia's MY 2022/23 wheat harvest, although below current levels,

remain relatively high. The strong world wheat prices well into MY 2022/23 indicate that demand from importers of Australian wheat, one of the major suppliers on the world market, will remain strong in the forecast year.

Figure 10 – World Wheat Exports – MY 2020/21



Source: Trade Data Monitor

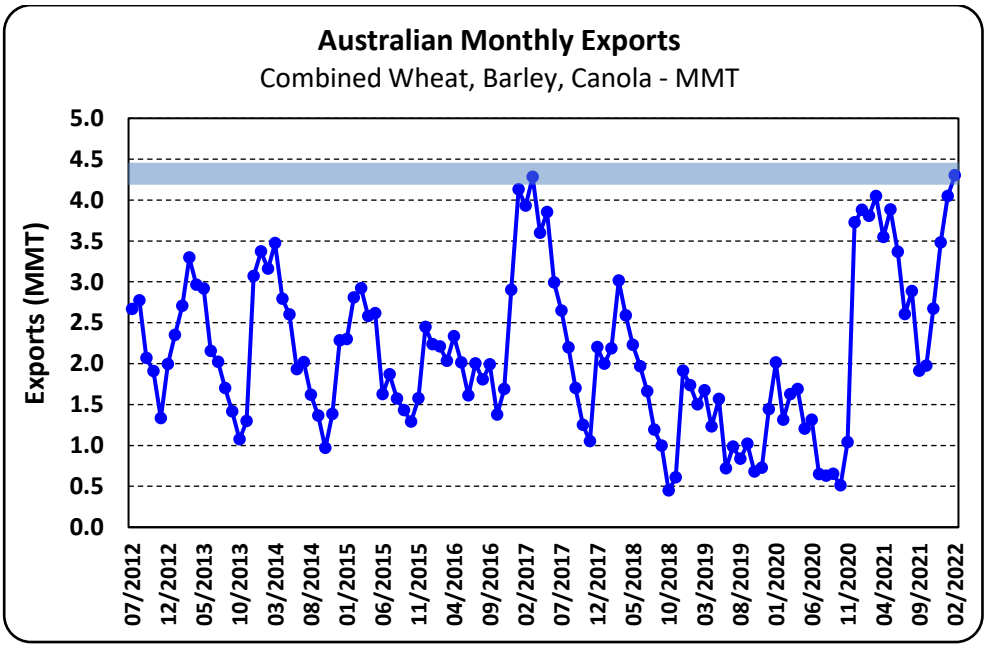
The Russian invasion of Ukraine has created even more demand for Australian grain. However, Australian monthly grain export volumes had begun to reach port and export supply chain capacity limits even before the invasion occurred, which is constraining the ability of Australia to significantly expand monthly shipments. As a result, it will take a few months before backlog export sales are worked through before any shipments can be expanded to meet new demand.

Australian wheat, barley, and canola typically are exported through the same ports and at similar times. Although typically Australian export and port capacity is more than sufficient to meet export requirements, the combination of strong global demand and record production this year for all three of these crops is resulting this year in sales bumping up against logistical export capacity. In the past, between 4-4.5 MMT of monthly exports of these crops was the peak that could be shipped (see Figure 11), and in January and February this level had already been reached.

Because of this pent-up demand, it is expected that Australian shipments of grain (especially wheat) will continue at peak levels longer than is usual for an export season. Typically, exports start to fall in June through to November (as the new harvest starts), but this year they are likely to remain high throughout the marketing year (see Figure 12). Because of this, FAS/Canberra's estimate for MY 2021/22 is 27.5

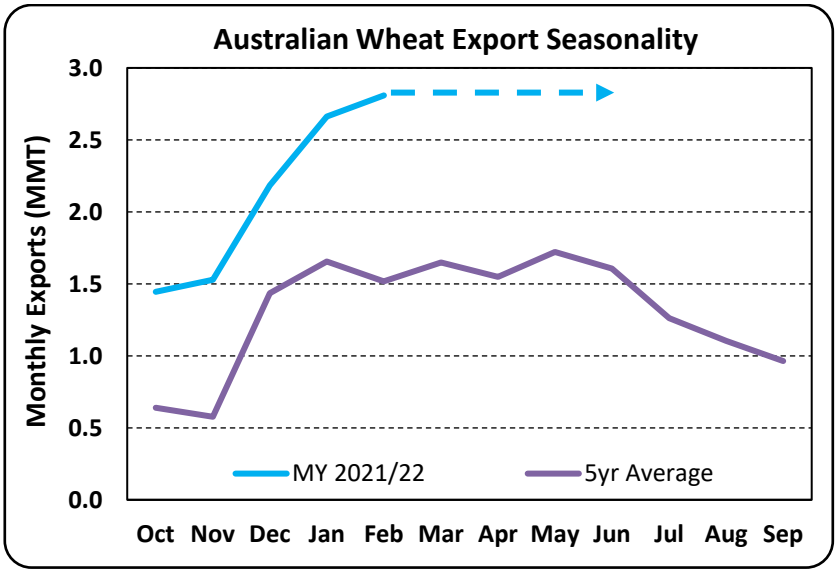
MMT, in line with the official USDA estimate. If realized, this would surpass the previous record set in MY 2011/12 by a substantial margin of 12 percent.

Figure 11 – Australian Monthly Exports – Combined Wheat, Barley and Canola



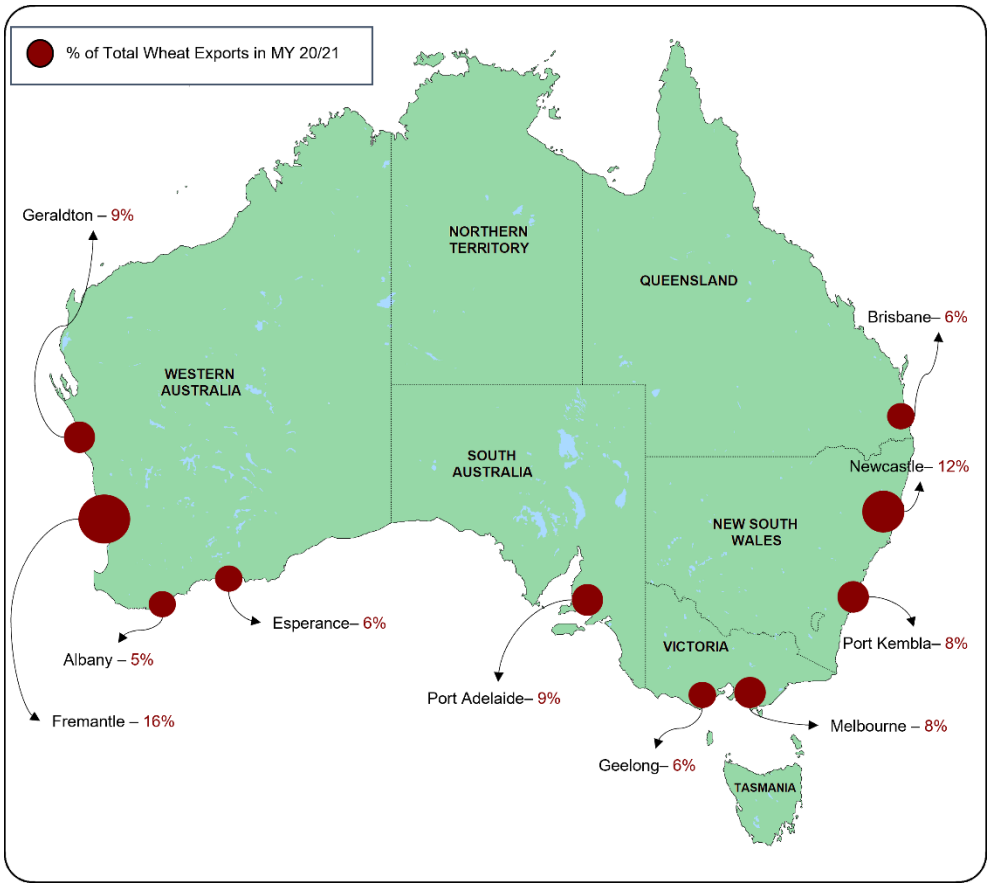
Source: Australian Bureau of Statistics

Figure 12 – Australian Wheat Export Seasonality



Source: Australian Bureau of Statistics, FAS/Canberra

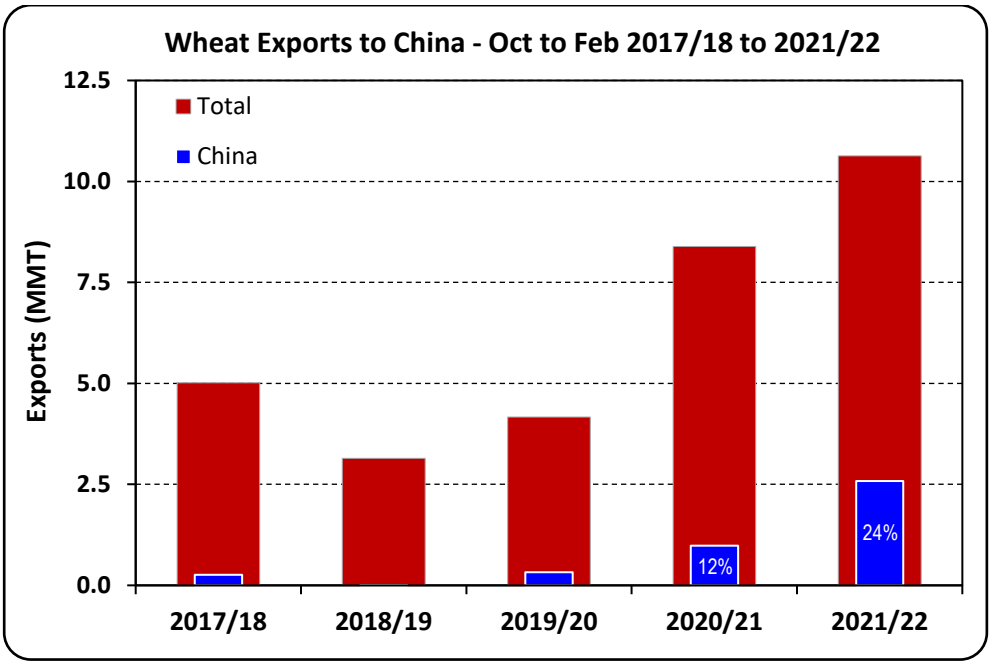
Figure 13 –Australian Wheat Exports by Port



Source: Australian Bureau of Statistics

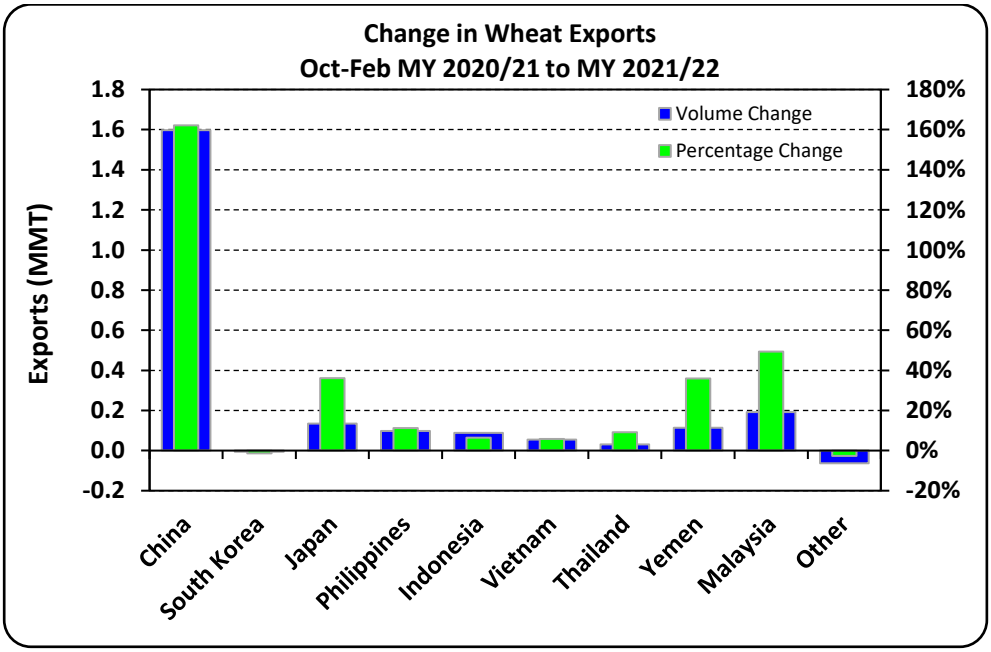
Australia has for many years had over 50 wheat export destinations and of these there are nine core customers that over the last five years have consistently accounted for 70 to 75 percent of all exports. Interestingly, of the nine core export destinations, China has not been particularly significant until the current marketing year. So far for MY 2021/22 (October 2021 to February 2022), 24 percent of overall wheat exports have been to China with 2.6 MMT of the 10.6 MMT exported so far (see Figure 14). This appears to be related to an expectation of lower wheat production in China. This has been an increase of 1.6 MMT (over 160 percent) compared to the same period in the previous year (see Figure 15). The other key major wheat export destinations for Australia (other than South Korea) also increased their wheat volumes but to a far lesser extent than China.

Figure 14 – Wheat Exports to China – October to February 2017/18 – 2021/22



Source: *Australian Bureau of Statistics*

Figure 15 – Change in Wheat Exports – October to February 2020/21 – 2021/22



Source: *Australian Bureau of Statistics*

Imports
FAS/Canberra's wheat import estimate for MY 2021/22 remains low at 200,000 MT and aligned with the official USDA outcome. Imports primarily consist of wheat products and pasta and volumes for this purpose have been relatively stable in Australia.

Stocks
Australia's ending stocks of wheat in MY 2022/23 are anticipated to decline slightly after lower forecast production, expected robust global demand, and strong export momentum carrying into the forecast year from MY 2021/22. FAS/Canberra forecasts MY 2022/23 ending stocks to decline from 4.9 MMT to 3.6 MMT.

The record busting wheat production along with estimated record exports for MY 2021/22 is pushing the limits of port export capacity which is anticipated to result in a rise in ending stocks for this year. With strong world wheat prices, it is anticipated that the high monthly export momentum will carry through into MY 2022/23, resulting in a reduction in wheat inventory in the forecast year.

FAS/Canberra's estimate of the MY 2020/21 ending stock of wheat is 4.9 MMT some 600,000 MT higher than the USDA official estimate. This mainly relates to FAS/Canberra's 500,000 MT lower feed consumption estimate for MY 2020/21 due to positive pasture production conditions for the grazing livestock industries limiting feed grain demand.

Production, Supply, and Distribution of Wheat

Wheat	2020/2021		2021/2022		2022/2023	
Market Year Begins	Oct 2020		Oct 2021		Oct 2022	
Australia	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested (1000 HA)	12900	12900	13000	13000	0	12500
Beginning Stocks (1000 MT)	2678	2678	4332	4403	0	4903
Production (1000 MT)	33300	33300	36300	36300	0	29000
MY Imports (1000 MT)	200	198	200	200	0	200
TY Imports (1000 MT)	464	464	200	200	0	200
TY Imp. from U.S. (1000 MT)	0	0	0	0	0	0
Total Supply (1000 MT)	36178	36176	40832	40903	0	34103
MY Exports (1000 MT)	23846	23773	27500	27500	0	22000
TY Exports (1000 MT)	19720	19720	27000	27000	0	23000
Feed and Residual (1000 MT)	4500	4500	5500	5000	0	5000
FSI Consumption (1000 MT)	3500	3500	3500	3500	0	3500
Total Consumption (1000 MT)	8000	8000	9000	8500	0	8500
Ending Stocks (1000 MT)	4332	4403	4332	4903	0	3603
Total Distribution (1000 MT)	36178	36176	40832	40903	0	34103
Yield (MT/HA)	2.5814	2.5814	2.7923	2.7923	0	2.32

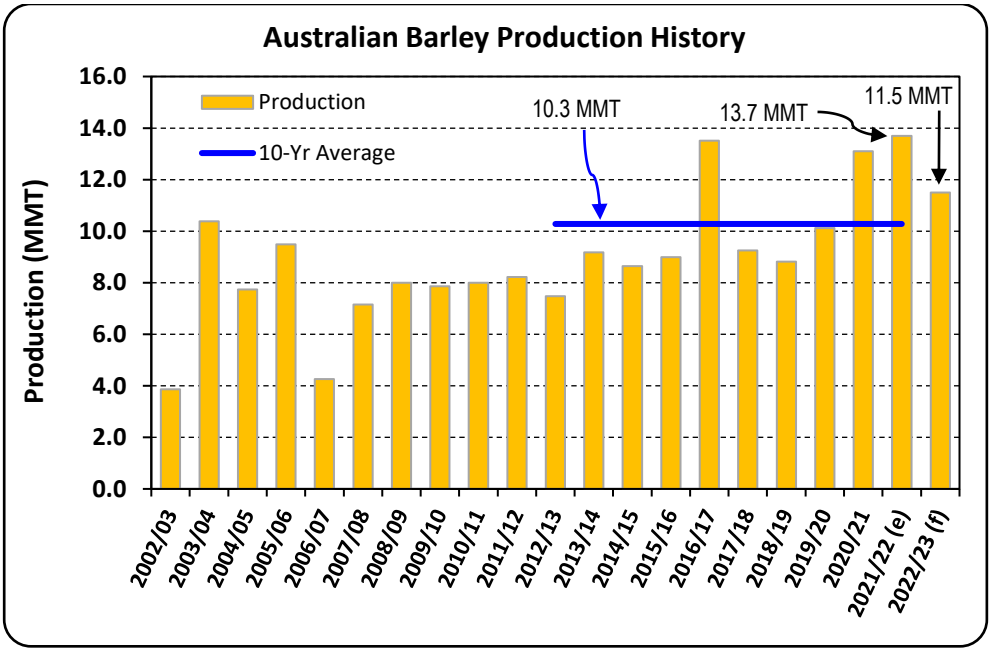
(1000 HA) ,(1000 MT) ,(MT/HA)
MY = Marketing Year, begins with the month listed at the top of each column
TY = Trade Year, which for Wheat begins in July for all countries. TY 2022/2023 = July 2022 - June 2023

BARLEY

Production

FAS/Canberra forecasts Australia's MY 2022/23 barley production at 11.5 MMT, 2.2 MMT below the record for MY 2021/22 of 13.7 MMT. The forecast production would still be a large crop, and if realized would be the fourth largest in Australia's history (see Figure 16). The lower production is in small part related to a forecast reduction in planted area, but mainly due to a lower average yield. This yield forecast, however, is still 12 percent above the previous 10-year average yield. A significant positive for MY 2022/23 is that at the start of planting in April 2022 soil moisture across most of the barley cropping areas is very good and rainfall during the early establishment period is forecast at around average or above. However, a key reason for the lower barley yield forecast is that despite strong barley prices, input cost prices have increased markedly over the months preceding planting.

Figure 16 – Australian Barley Production History



Source: *PSD Online / FAS/Canberra*

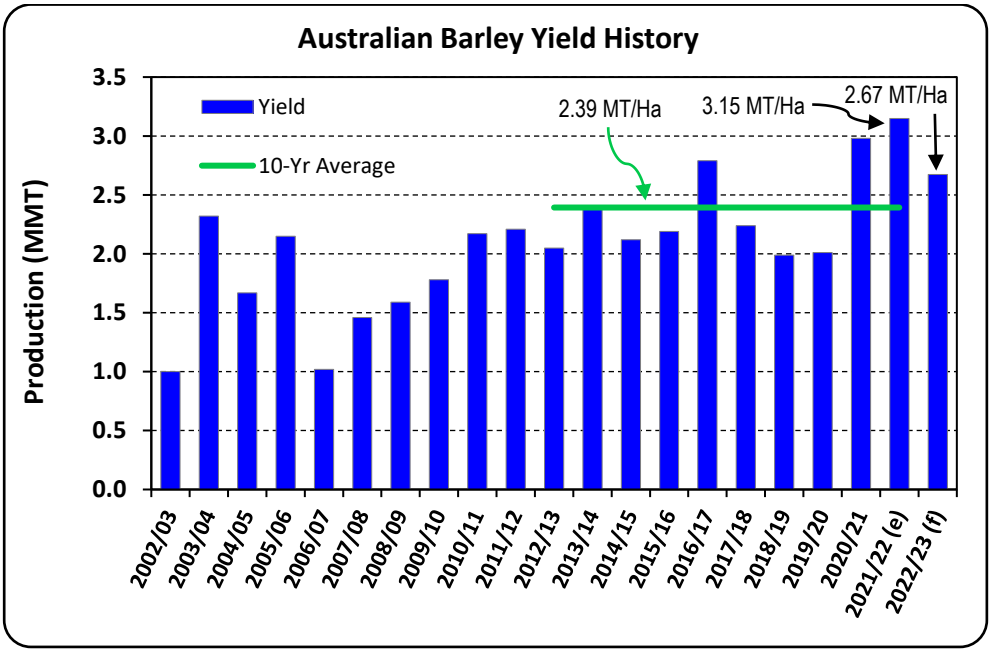
Notes: *(e) = estimate, (f) = forecast*

Similar to wheat, barley is typically planted from April to June and harvested from October to December. Those in more northern areas generally have earlier planting and earlier harvest compared to the more temperate climate in the south. As mentioned earlier most of the winter cropping regions have average to above average soil moisture at the start of planting this year (see Figure 3). Although there have been variations from region to region, it is essentially the third year in succession of good soil moisture conditions at planting across most of the winter crop producing areas in Australia. This is encouraging another big planted area of barley, forecast at 4.3 MHa for MY 2022/23, down slightly from 4.35 MHa in the previous record-busting production year.

Against the positive conditions for farmers at planting is that in the preceding months growers have had to weigh this up against the high input prices of fertilizer, herbicides and diesel. Of these, the increase in nitrogenous fertilizer prices in particular has had a big bearing on overall input cost prices. Of the three major winter crop grains grown in Australia - wheat, barley and canola - barley is the most reliable, least risk crop, and for this reason little change in planted area has been forecast. But the high input costs are expected to result in some of these inputs, mainly nitrogenous fertilizer, tempered a little from the prior year.

FAS/Canberra forecasts the MY 2022/23 yield at 2.67 MT/Ha, 15 percent below that of the previous record year of 3.15 MT/Ha but still 12 percent above the previous 10-year average (see Figure 17). With the expectation of very good soil moisture conditions across much of the barley producing areas, plus forecasts for rainfall over the April to June 2022 period at an average chance of exceeding median rainfall (see Figure 4), the scene is set for the forecast crop to still achieve above average yields. However, as mentioned input use is expected to fall, and expectations are still for a decline from the record average yield for barley achieved in MY 2021/22, which had excellent growing conditions across the barley producing regions.

Figure 17 – Australian Barley Yield History



Source: *PSD Online / FAS/Canberra*
Notes: *(e) = estimate, (f) = forecast*

Consumption

FAS/Canberra's barley consumption forecast for MY 2022/23 is 5.5 MMT, the same as MY 2021/22. Domestic consumption for malting purposes, which includes malt for export, is relatively stable with

livestock feed consumption being the primary variant from year to year. Malt exports are typically around 700,000 MT a year to Southeast Asian and East Asian markets.

The livestock industries have generally had above-average rains in 2020, 2021, and continuing in early 2022, which has kept on-farm supplementary feeding to a minimum. With the beef cattle sector in a herd rebuild phase, the number of cattle on feed at feedlots has slowly been rebuilding and this is expected to continue. This is anticipated to see a modest rise in demand for feed grains from the beef feedlot sector in MY 2022/23. However, with strong world demand for wheat and barley, particularly due to the uncertainty of supply from the Black Sea region, it is probable that this increased feed demand will be met by sorghum rather than barley, especially with plentiful domestic sorghum supplies. This is anticipated to increase the price spread of wheat and barley from sorghum resulting in those feedlots with the capacity to process sorghum grain to turn more towards it for their increasing requirements in MY 2022/23.

Exports

Australia's barley exports for MY 2022/23 are estimated at 6 MMT, 3 MMT below the estimate for MY 2021/22 of 9 MMT. Although this is a large drop it would still be at a 10-year average level of exports. This reduction is driven by the forecast 2.2-MMT drop in barley production while domestic consumption is forecast to remain stable. Global demand for Australian barley, however, is expected to remain strong.

Barley is not traded in high volumes on the world export market and there are only six nations that consistently export any significant volumes (see Figure 18). Ukraine is a significant exporter at around 15 percent of world barley trade. With significant disruption to production, transport and port logistics due to the Russian invasion of Ukraine, the reduced supply is expected to have a significant bearing on world trade in the forecast MY 2022/23 and the current MY 2021/22.

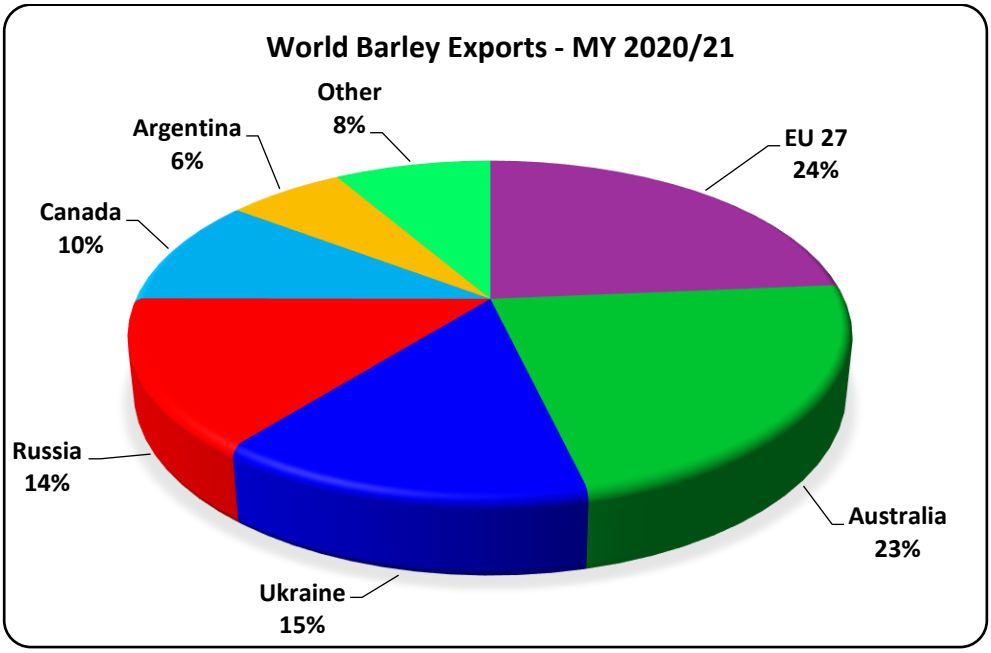
Australia over the last five years has been the second largest exporter of barley behind the European Union and ranges from 10 to 30 percent of world trade mainly due to the large variance in production caused by drought-impacted years. In MY 2021/22, FAS/Canberra estimates exports to reach a record of 9 MMT, in part due to supply disruptions in other key suppliers like Ukraine.

Early season barley exports in MY 2021/22 have started extremely strong, reaching 3.2 MMT between November and February and slightly above the 3.1 MMT for the same period the previous year - which achieved full year exports of 8.3 MMT. Similar to wheat, there is an expectation that the export seasonality for barley will have a stronger tail due to the current port capacity constraints, enabling the MY 2021/22 estimate of 9 MMT to be reached.

During the three years from MY 2017/18 to MY 2019/20 exports to China, Japan and Thailand accounted for over 85 percent of overall barley exports (see Figure 19). After the impact of China

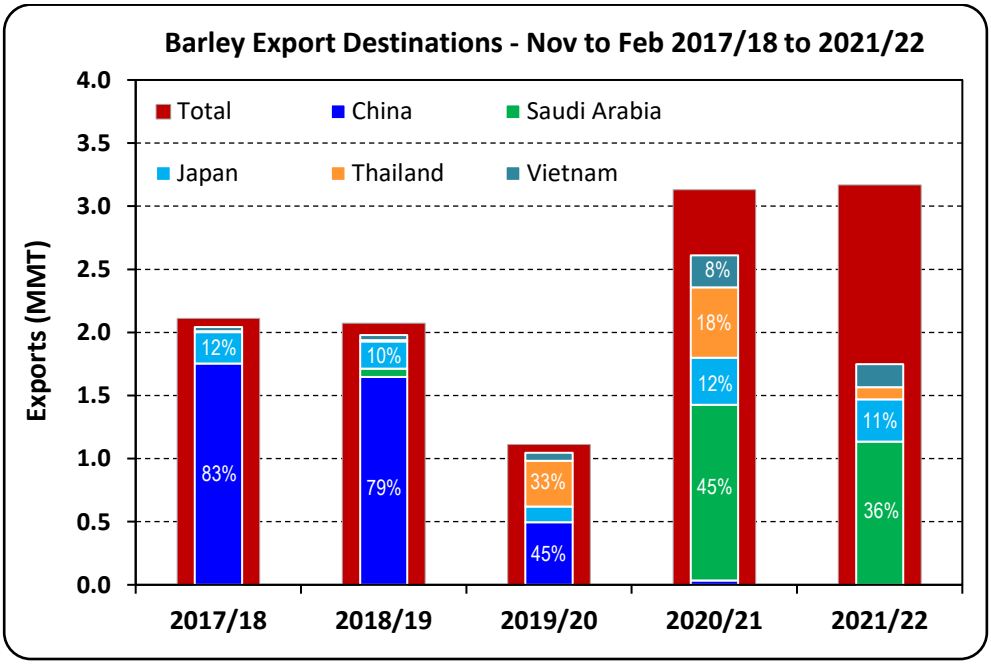
imposing a duty on Australian barley imports there was a big shift in Australian barley export destinations in MY 2020/21. Saudi Arabia became the main destination and along with Japan, Thailand and Vietnam, and these four nations accounted for 72 percent of overall exports. So far for MY 2021/22, however, these four nations have accounted for only 55 percent of overall barley exports.

Figure 18 – World Barley Exports – MY 2020/21



Source: *Trade Data Monitor*

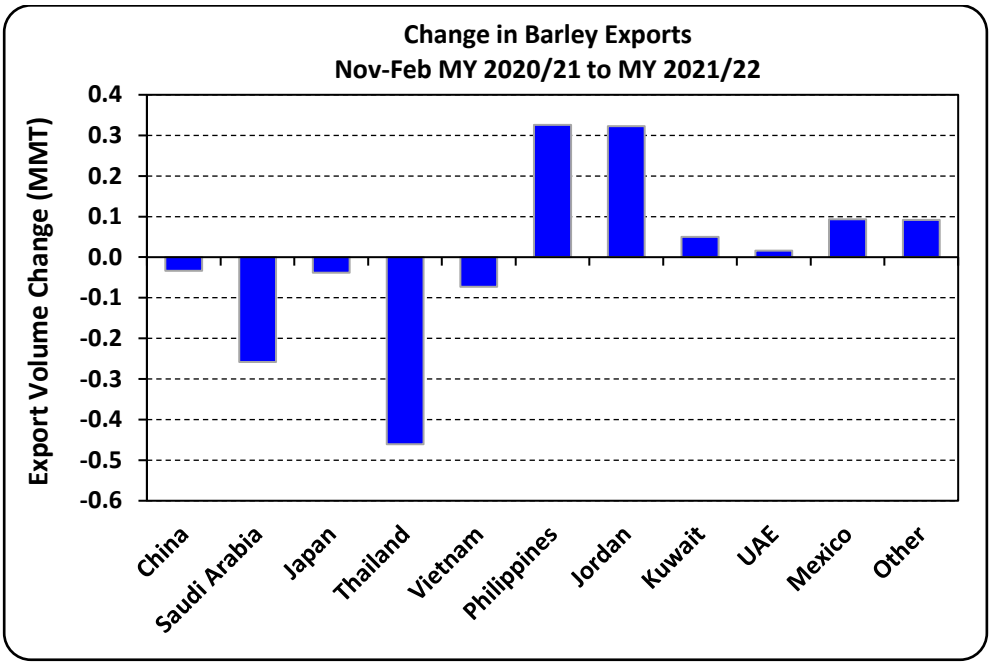
Figure 19 – Major Barley Export Destinations



Source: *Australia Bureau of Statistics*

Importantly for Australia there have been other nations that have stepped up their imports of barley from Australia, notably Philippines and Jordan, and to a lesser extent Kuwait and Mexico (see Figure 20). However, Saudi Arabia and Thailand have significantly reduced their imports for the first four months of MY 2021/22, although Saudi Arabia remains by far the largest export destination accounting for 36 percent.

Figure 20 – Change in Barley Export Destinations MY 2020/21 to 2021/22



Source: Australia Bureau of Statistics

Stocks

Australia's ending stocks of barley in MY 2022/23 are expected to remain low at 1.2 MMT as a result of the anticipated continued strong world demand for barley. The forecast 2.2 MMT reduction in barley production and reduced supply available for the export market will also contribute to maintaining low ending stocks in the forecast year.

Production, Supply, and Distribution of Barley

Barley	2020/2021		2021/2022		2022/2023	
Market Year Begins	Nov 2020		Nov 2021		Nov 2022	
Australia	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested (1000 HA)	4400	4400	4350	4350	0	4300
Beginning Stocks (1000 MT)	2711	2711	1969	1980	0	1180
Production (1000 MT)	13100	13100	13700	13700	0	11500
MY Imports (1000 MT)	0	0	0	0	0	0
TY Imports (1000 MT)	0	0	0	0	0	0
TY Imp. from U.S. (1000 MT)	0	0	0	0	0	0
Total Supply (1000 MT)	15811	15811	15669	15680	0	12680
MY Exports (1000 MT)	8342	8331	9000	9000	0	6000
TY Exports (1000 MT)	8007	8004	9000	9000	0	6000
Feed and Residual (1000 MT)	4000	4000	4000	4000	0	4000
FSI Consumption (1000 MT)	1500	1500	1500	1500	0	1500
Total Consumption (1000 MT)	5500	5500	5500	5500	0	5500
Ending Stocks (1000 MT)	1969	1980	1169	1180	0	1180
Total Distribution (1000 MT)	15811	15811	15669	15680	0	12680
Yield (MT/HA)	2.9773	2.9773	3.1494	3.1494	0	2.6744

(1000 HA) ,(1000 MT) ,(MT/HA)
MY = Marketing Year, begins with the month listed at the top of each column
TY = Trade Year, which for Barley begins in October for all countries. TY 2022/2023 = October 2022 - September 2023

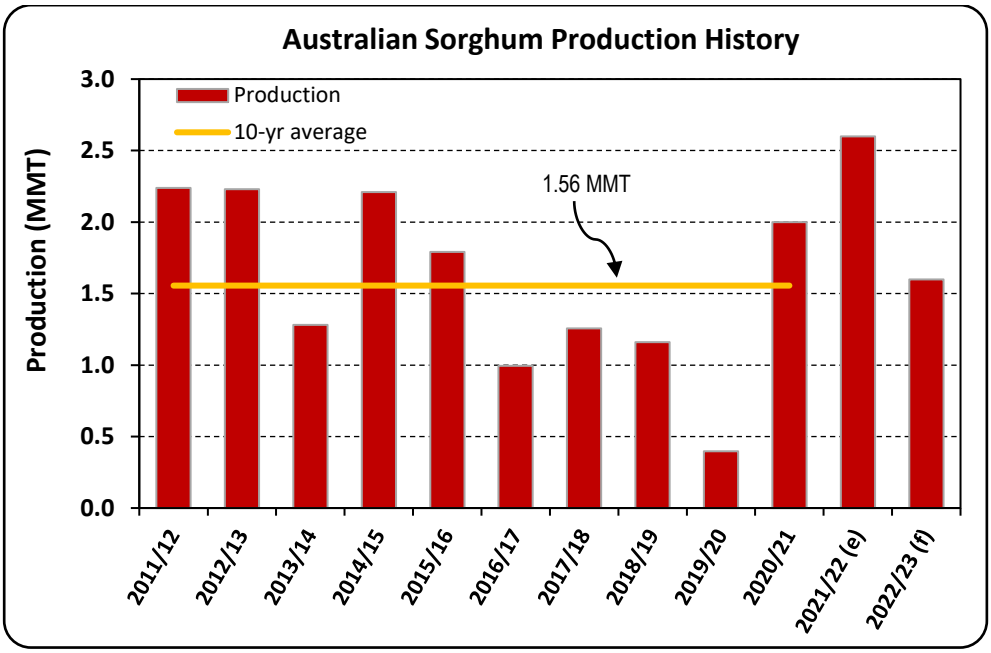
SORGHUM

Production

The FAS/Canberra's sorghum production forecast for MY 2022/23 is 1.6 MMT, down 1 MMT from the upward revised MY 2021/22 estimate, but in line with the 10-year average (see Figure 21). Harvested area is forecast at 550,000 hectares, down from an estimated 620,000 hectares in MY 2021/22, and yields are also expected to decline to around the 10-year average of 2.91 MT/Ha down from an estimated record 4.19 MT/Ha (see Figure 22). These large forecast reductions are mainly due to MY 2021/22 being an exceptional production season for most sorghum growing regions, unlikely to be repeated, rather than any significant concerns in relation to weather, market prices or input costs increases. (Note: The MY 2022/23 crop will mostly be planted from October to December 2022 and harvested from March to June 2023)

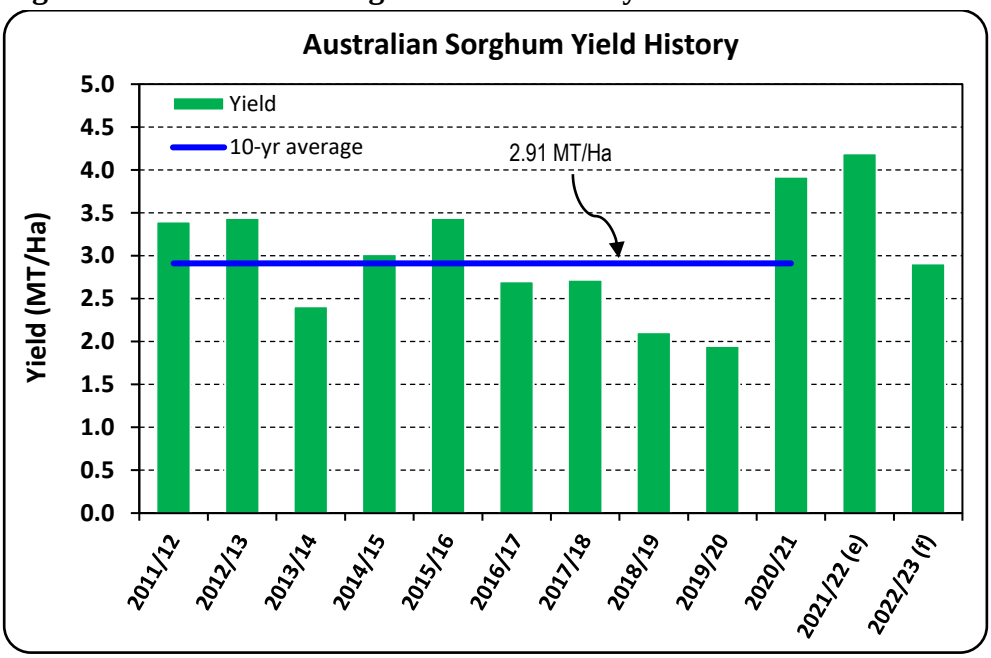
Queensland typically produces over two-thirds of Australia's overall sorghum production, much of which is in southern Queensland. Around one-third of the national sorghum crop is produced in northern New South Wales. In the main producing regions of southern Queensland and northern New South Wales the main planting period is from October to December, with harvest generally between March and June. The northern parts of the sorghum growing regions of central Queensland has a warmer climate which allows a greater planting window, typically from September to as late as February, which gives this region a greater capacity to be more opportunistic with their planting program and improving their chances of a successful crop outcome.

Figure 21 – Australian Sorghum Production History



Source: *PSD Online / FAS/Canberra*
Note: *(e) = estimate, (f) = forecast*

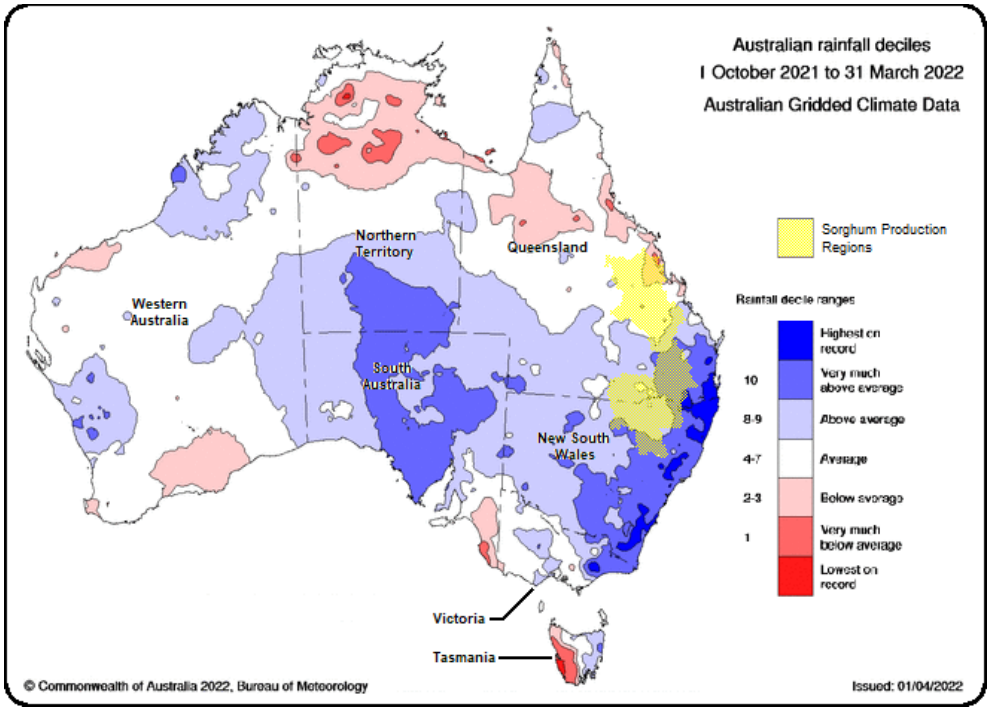
Figure 22 – Australian Sorghum Yield History



Source: *PSD Online / FAS/Canberra*
Note: *(e) = estimate, (f) = forecast*

The FAS/Canberra sorghum production estimate for MY 2021/22 has been upward revised to 2.6 MMT from the official USDA estimate of 2.3 MMT. If realized, this would be the third largest sorghum crop on record, with the two largest being 13 and 14 years ago. This higher estimate has been encouraged by well above average soil moisture levels at the start of planting along with plentiful rainfalls during the main growing period from October 2021 to March 2022 (see Figure 23). There are reports of very high yields being achieved from early harvested crops in February and in March 2022, but there have been some flooding rains in southern Queensland and northern New South Wales at the end of February and further big rains at the end of March, which are expected to have some negative impact on yields. Despite this, the average yield for MY 2021/22 is estimated to reach a record high 4.19 MT/Ha, seven percent above the peak set in the previous year. Soil moisture at planting and in crop rainfall for the MY 2020/21 season were particularly good but they have been even better for the MY 2021/22 crop.

Figure 23 – Rainfall Deciles for MY 2021/22 Sorghum Crop



Source: *Australian Bureau of Meteorology / FAS/Canberra*
Note: *MY 2021/22 crop growth period is mainly October 2021 to March 2022*

FAS/Canberra has upward revised the MY 2020/21 production result to 2 MMT from the official USDA and ABARES result of 1.5 MMT. With a small sorghum crop in MY 2019/20 and after drought years in 2018 and 2019 left grain stocks depleted in Australia, the sorghum export result of 1.689 MMT in MY 2020/21 indicates production significantly higher than current figures.

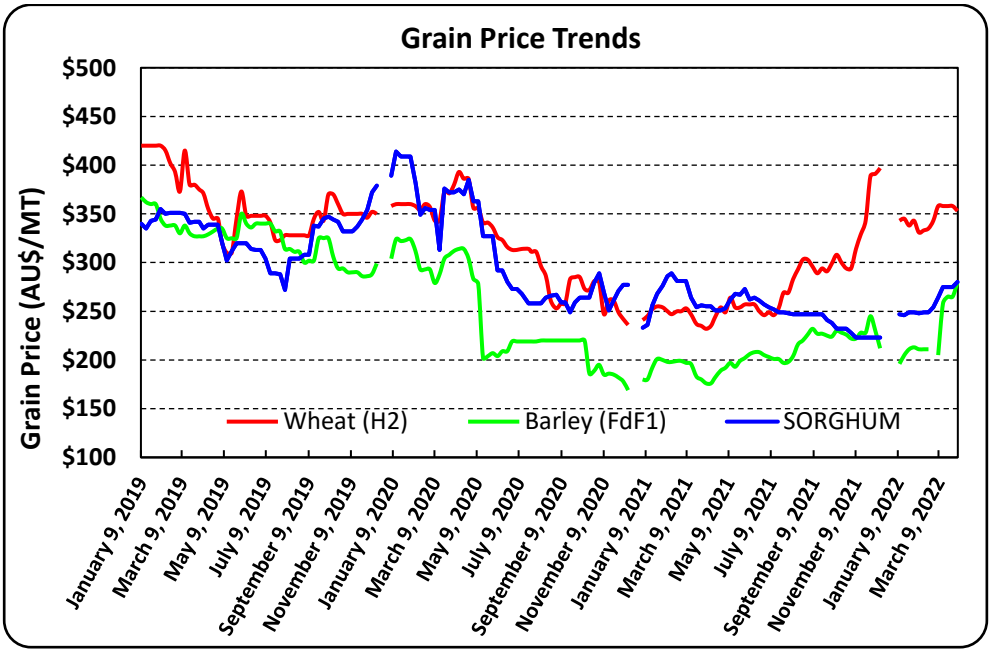
Consumption

FAS/Canberra forecasts sorghum consumption in MY 2022/23 at 510,000 MT, which is 50,000 MT higher than the MY 2021/22 estimate. This is a result of a 50,000 MT-increase in forecast feed consumption. The increased expected supply of sorghum from the estimated record MY 2021/22 crop harvest is anticipated to result in higher opening stocks in the forecast year. With this there is an expectation that sorghum prices will decline somewhat and led to the anticipated slowly increasing feedlot demand for grains to be met by a small improvement in sorghum consumption.

There is no expectation for industrial consumption of sorghum for the production of fuel ethanol as the only processing facility in Australia remains mothballed. The facility in the past has consumed around 150,000 MT of sorghum but indications are that prices would need to fall significantly to attract the recommissioning of the facility.

There has been a trend of increased sorghum feeding in recent years due to the large domestic supply. After the drought drove feed grain prices higher in 2019, the disparity in prices between the major feed grains - wheat, barley and sorghum - has in recent months moved closer to typical expectations with wheat now showing a strong premium over barley and sorghum (see Figure 24). With large supply of sorghum from the third largest crop on record in the MY 2021/22 season (which mostly commenced harvest in March 2022), there is an expectation that there may be some further downward price pressure on sorghum.

Figure 24 – Grain Price Trends



Source: The Land newspaper

Beef feedlots are the main driver of changes in feed grain consumption in Australia and with beef feedlots expected to modestly increase their feed demand in 2022 and 2023, the expectation is that this will mainly come from an increase in sorghum consumption. Feedlots primarily use wheat and barley and had turned further away from sorghum during the drought in 2018 and 2019 when grain supply was short, and lower-nutritional-value sorghum was priced as high as wheat. However, with sorghum prices currently closer to expectation relative to wheat and barley, and with a big sorghum crop likely to put further downward pressure on sorghum prices, it is anticipated that growth in livestock feed demand will mainly be met by sorghum.

The MY 2021/22 sorghum consumption estimate of 460,000 MT is unchanged from the official USDA estimate. This is almost entirely for livestock feed with nil for industrial consumption and 10,000 MT for seed.

FAS/Canberra's consumption estimate for MY 2020/21 has been upward revised at 310,000 MT as a result of the revised production estimate.

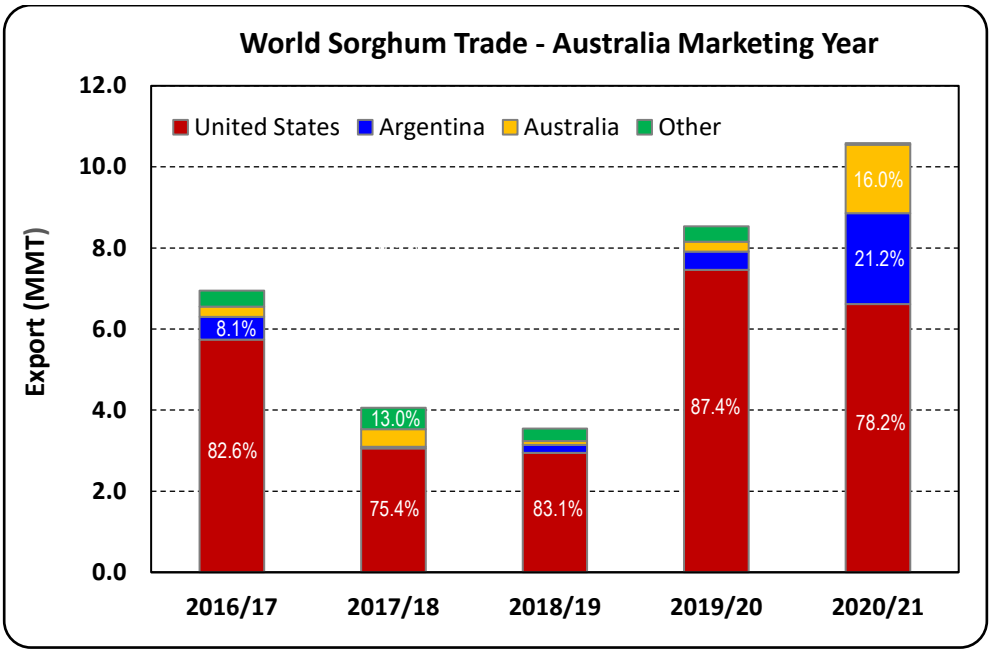
Exports

The FAS/Canberra sorghum export forecast for MY 2022/23 is 1.1 MMT, 42 percent lower than the MY 2021/22 estimate of 1.9 MMT, which if realized would be the highest sorghum export year on record. The lower export forecast is largely due to the expectation of an average production crop of 1.6 MMT in the forecast year in comparison to the exceptional crop estimated for MY 2021/22 of 2.6 MMT.

The United States is consistently the major world exporter of sorghum typically accounting for well over three quarters of world trade. Australia along with Argentina are the only other nations which from time to time contribute significantly to world exports of sorghum (see Figure 25). With Australia's forecast production and export program for MY 2022/23 expected to be significantly lower than MY 2020/21 and MY 2021/22, its importance to world trade is set to diminish.

China is traditionally the major export destination for Australian sorghum, and at times of low supply has taken almost all of Australia's exports. In MY 2020/21, with a big increase in supply of sorghum for export, China maintained its dominant position accounting for 82 percent of overall exports. Notably, Japan also became a significant export destination in MY 2020/21 at 11 percent of overall exports (see Figure 26). For the forecast year of MY 2022/23, with a lower export volume of 1.1 MMT expected than for MY 2020/21 (1.7 MMT), and with no know upcoming disruptors, China is again expected to be the major export destination for Australian sorghum.

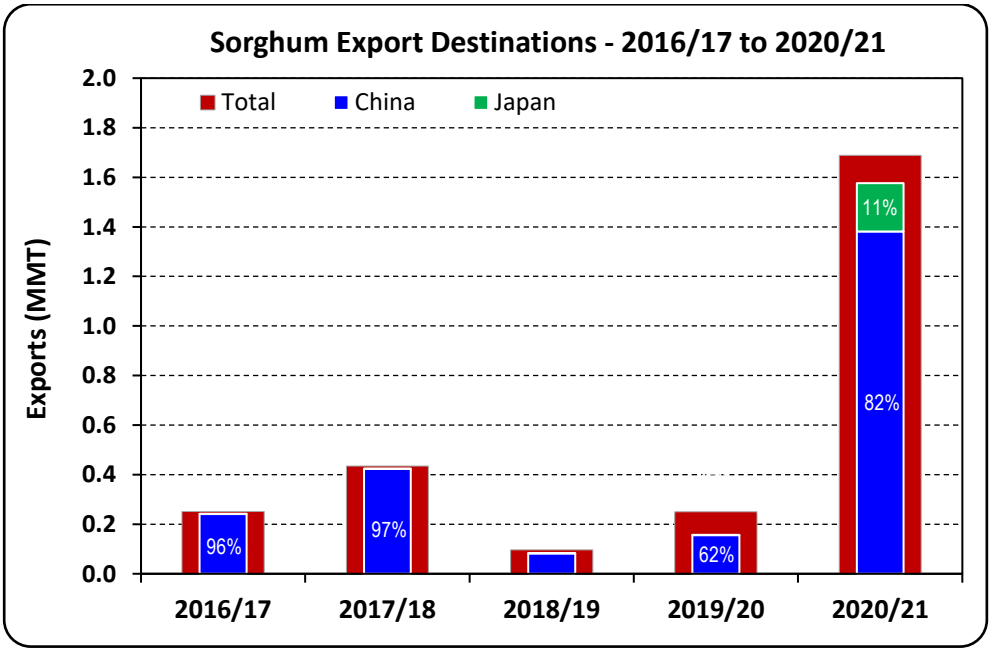
Figure 25 – World Sorghum Trade – Australia MY 2016/17 to 2020/21



Source: *Trade Data Monitor*

Note: *Australia Marketing Year is March to February*

Figure 26 – Australian Sorghum Export Destinations MY 2016/17 to 2020/21



Source: *Australia Bureau of Statistics*

FAS/Canberra's export estimate for MY 2021/22 is 1.9 MMT, and 300,000 MT higher than the official USDA estimate of 1.6 MMT. This variance is driven by FAS/Canberra's production estimate being 300,000 MT higher than that of the official USDA estimate.

Stocks

Stocks are forecast to remain relatively low but stable in MY 2022/23 after stocks had recovered following big production crops in the two preceding years.

Production, Supply, and Distribution of Sorghum

Sorghum	2020/2021		2021/2022		2022/2023	
Market Year Begins	Mar 2021		Mar 2022		Mar 2023	
Australia	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested (1000 HA)	510	510	620	620	0	550
Beginning Stocks (1000 MT)	154	154	44	155	0	395
Production (1000 MT)	1500	2000	2300	2600	0	1600
MY Imports (1000 MT)	0	0	0	0	0	0
TY Imports (1000 MT)	0	0	0	0	0	0
TY Imp. from U.S. (1000 MT)	0	0	0	0	0	0
Total Supply (1000 MT)	1654	2154	2344	2755	0	1995
MY Exports (1000 MT)	1550	1689	1600	1900	0	1100
TY Exports (1000 MT)	1209	1235	1600	1900	0	1100
Feed and Residual (1000 MT)	50	300	450	450	0	500
FSI Consumption (1000 MT)	10	10	10	10	0	10
Total Consumption (1000 MT)	60	310	460	460	0	510
Ending Stocks (1000 MT)	44	155	284	395	0	385
Total Distribution (1000 MT)	1654	2154	2344	2755	0	1995
Yield (MT/HA)	2.9412	3.9216	3.7097	4.1935	0	2.9091

(1000 HA) ,(1000 MT) ,(MT/HA)
MY = Marketing Year, begins with the month listed at the top of each column
TY = Trade Year, which for Sorghum begins in October for all countries. TY 2022/2023 = October 2022 - September 2023

RICE

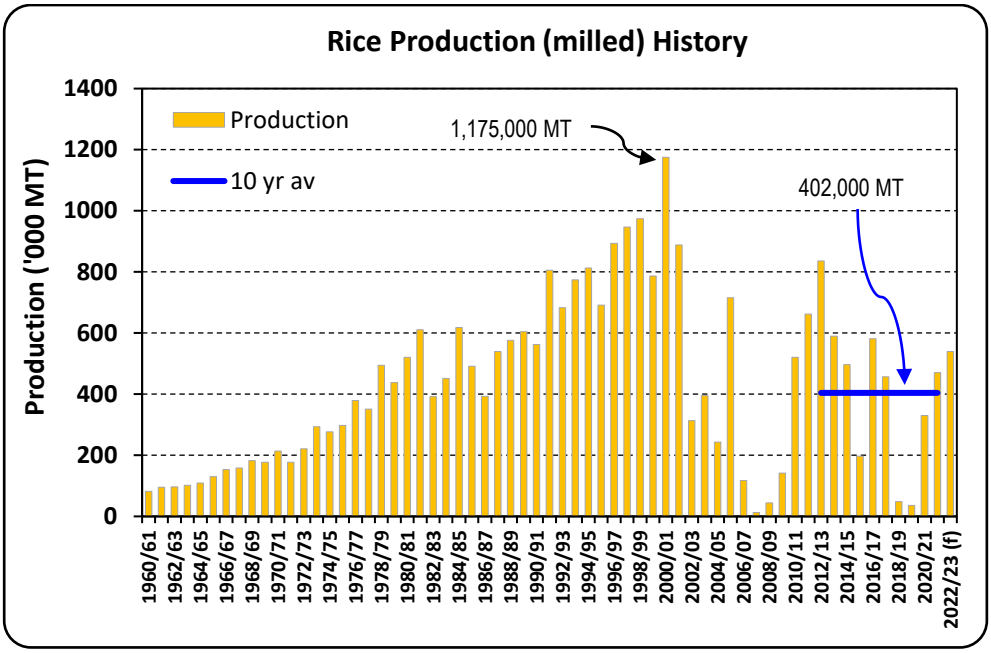
Production

FAS/Canberra forecasts milled rice production at 540,000 MT in MY 2022/23, a 15-percent increase over the MY 2021/22 estimate. The forecast increase is primarily as a result of an expected improvement in irrigation water storage levels and associated improvement in irrigation water availability for the MY 2022/23 rice crop (to be planted from October 2022). The forecast production, if realized, would be around 34 percent higher than the previous 10-year average and the largest since MY 2016/17 (see Figure 27).

The forecast production, although relatively high compared to the last 10 years, is still far below the peak of 1.175 MMT achieved in MY 2000/01. The overall decline in production from this peak is due to a series of factors. One key reason is the encroachment of cotton production in the main rice production region due to improved cotton varieties able to cope with the more southern cooler growing conditions, which has created competition for planting area but also water resources. A further important factor is

the growth in horticulture in the region and other regions which has also created competition for water resources and has caused a general increase in traded water prices, reducing the competitiveness of rice production. For these reasons there is no expectation that the rice industry will return to peak production of over 1 MMT, but rather the current forecast is likely to be at the upper end of the expected peak production in the coming years.

Figure 27 – Australian Rice Production History



Source: *PSD Online / FAS/Canberra*

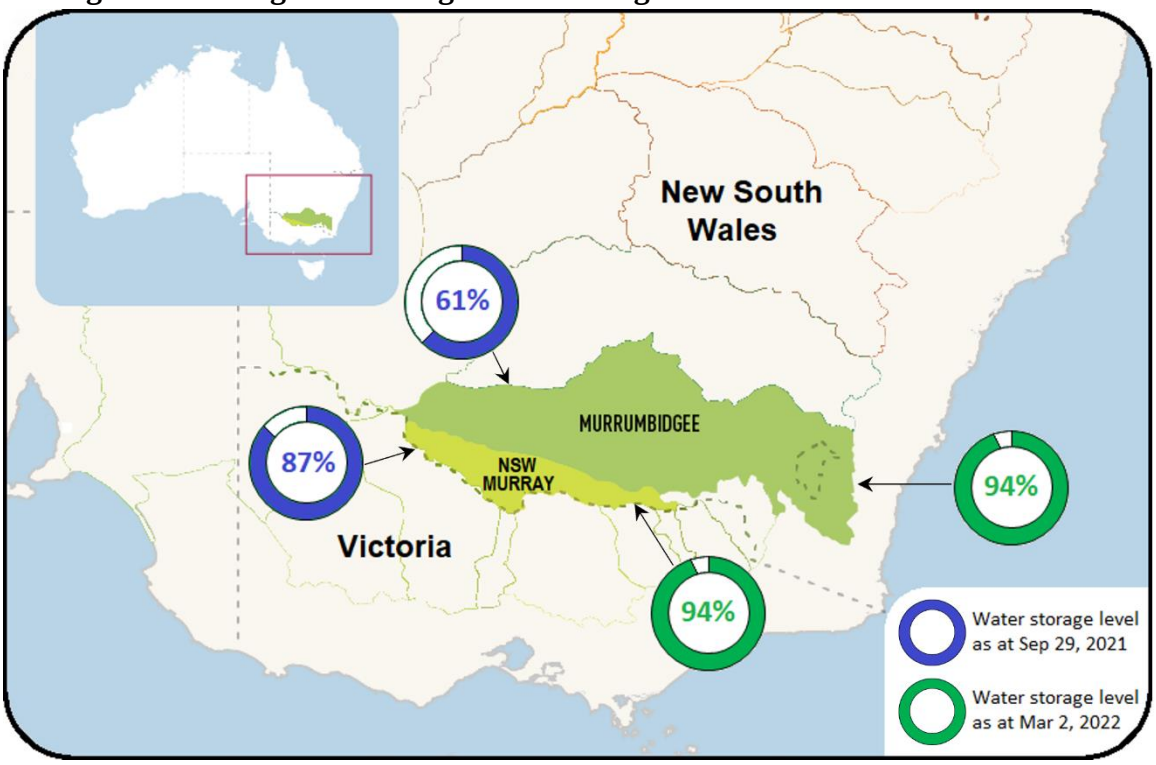
The 15-percent increase in forecast production for MY 2022/23 is primarily due to an anticipated expansion in crop area forecast to 75,000 Ha, from the MY 2021/22 estimate of 65,000 Ha. This forecast increase in area is mainly a result of a high degree of confidence that there will be a further improvement in irrigation water availability for producers compared to conditions experienced for the MY 2021/22 crop. Although the price of rice over the last year has not increased to the degree of the main competing summer crop, cotton, the price is strong in historical terms and the futures price for around harvest time of the MY 2022/23 crop is slightly higher than the current spot price. The strong rice prices in conjunction with the anticipated increased water availability is expected to support the increased planting area.

The average yield is forecast to remain stable and in line with the previous 10-year average. Over the last 10 years yields have been relatively consistent and close to the average over that period other than one year which was around nine percent higher and another that was around 16 percent lower.

Rainfalls across the rice growing season for MY 2021/22 have been so good that irrigation storage dam levels have in fact increased from the end of September 2021 (at the start of the main rice planting

period) to the start of March 2022 (nearing the end of summer crop irrigation demands). In fact, the irrigation storage dams at the start of March 2022 are all at or near capacity (see Figure 28). This is very unusual as irrigation storage dams typically rely on winter and spring rainfalls to increase their storage levels. There have been much higher-than-average rainfalls across the rice production regions in New South Wales since the start of this season's planting. This has led to much reduced irrigation water use combined with high inflows into the irrigation storage dams. The last time that irrigation storage dam levels in New South Wales, which support rice production, had risen during the rice growing period and been at or near capacity near the end of the growing season was 10 years ago in 2011/12.

Figure 28 – Irrigation Storage Level Changes 2021/22



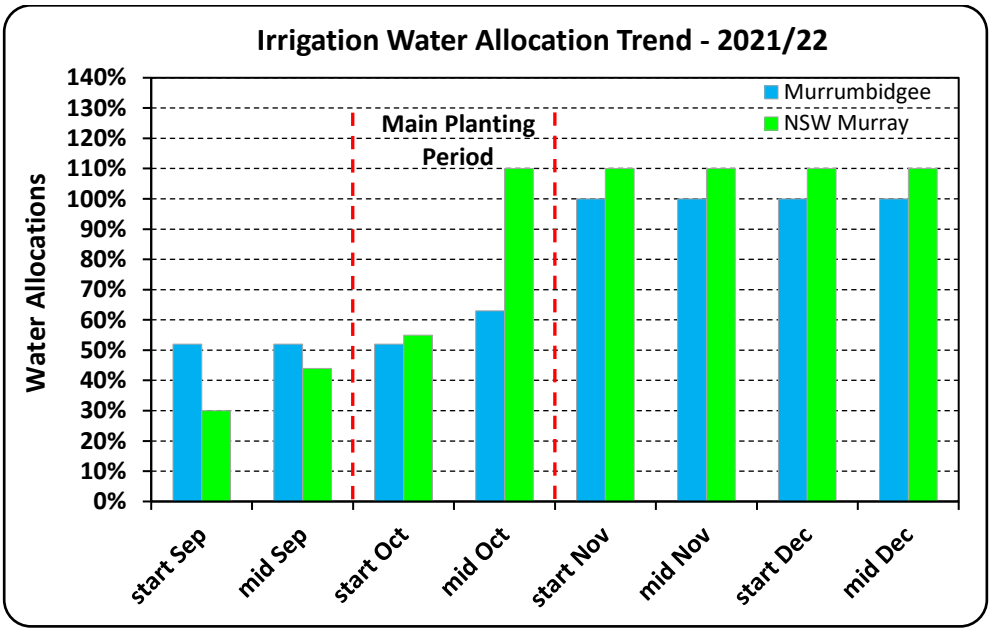
Source: Murray Darling Basin Commission

Rice producers are buoyed by the prospect that they are very likely to receive much higher water allocations by the start of October 2022. Available water allocations are announced by the major rice related irrigation schemes at the start and middle of each month during the irrigation season, which has a large bearing on rice planting programs. Rice producers in the two main irrigation systems at the start of October had water allocations of 52 percent and 55 percent of their entitlement, with a small increase to 63 percent for the Murrumbidgee Irrigation system in mid-October half-way through their planting period, but an increase to 110 percent for the NSW Murray Irrigation system (see Figure 29). In circumstances such as these, rice producers typically limit their rice crop planting to ensure the crop can be fully irrigated, based on water use per hectare in a typical season. Any rise in water allocations in November may encourage some to increase their planting area, but announcements at this point are generally too late to support any significant improvement in rice planted area. Even an announcement of

an increase in water allocation mid-way through planting is largely too late to have any significant influence on planted area. In this instance the Murrumbidgee Irrigation system, which has a far larger amount of rice production, did not receive its boost to full water allocation until early November when rice planting is largely completed.

With irrigation storage levels already at or near capacity at this point prior to the typical winter/spring inflows, growers are more confident that they will have much higher irrigation water allocations at the start of planting in October 2022. If this is realized as anticipated, and if rice prices remain strong, growers have already indicated that they will increase their planted area of irrigated rice.

Figure 29 – Irrigation Water Allocation Trend – 2021/22



Source: *WaterNSW*

FAS/Canberra's production estimate of 470,000 MT (milled) remains unchanged in in line with the official USDA estimate for MY 2021/22. This estimate is three percent higher than the ABARES estimate published at the start of March 2022 prior to harvest. Industry sources indicate that with more than half of the crop harvested, yields have generally been very good and at or slightly above expectation thus far.

Consumption

Domestic rice consumption for MY 2022/23 is forecast at 370,000 MT, up three percent from the estimated 360,000 MT for MY 2021/22. Prior to drought-influenced production (across MY 2018/19 to 2019/20) impacting domestic supply, consumption was relatively stable with a five-year average of around 365,000 MT. With a return to above average-production it is anticipated that consumption will move towards past average levels. COVID-19 related restrictions may have also contributed to declines

in consumption. There are now improved COVID-19 conditions in Australia with very few restrictions in place in most states since early 2022. International borders started to open in late 2021 for those fully vaccinated for COVID-19. Within Australia, by the start of 2022 state border closures had almost all lifted with minimal restrictions. With both international travelers to Australia and domestic travelers able to freely travel throughout most of the country, there is an expectation of a significant benefit to the domestic food service sector. This is anticipated to contribute to a slightly step-up in domestic rice consumption.

FAS/Canberra's rice consumption estimate for MY 2021/22 is 360,000 MT, which is also in line with the official USDA estimate.

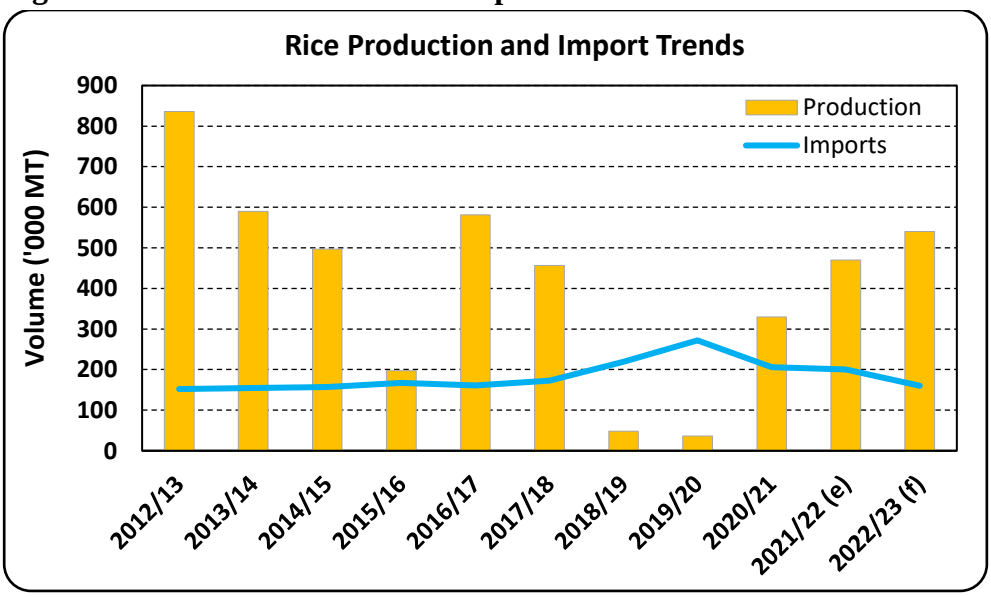
Trade

Imports

FAS/Canberra forecast imports of 160,000 MT in MY 2022/23, a 40,000 MT (20 percent) decline from the MY 2021/22 estimate. This decline directly relates to the large increase in rice production. With this return in domestic production after very low drought affected production, imports are forecast to return to pre-drought levels.

Prior to the drought-impacted production years across MY 2018/19 and MY 2019/20, rice imports were relatively stable with a slight increasing trend, parallel to a small increasing consumption trend. With a big drop in domestic rice production, imports had spiked to near double that of pre-drought levels to meet consumption requirements (see Figure 30). The further growth in forecast production in MY 2022/23 is anticipated to stabilize stock levels for processing throughout the year and with this there is an expectation that imports will revert back to around pre-drought levels.

Figure 30 – Rice Production and Import Trends

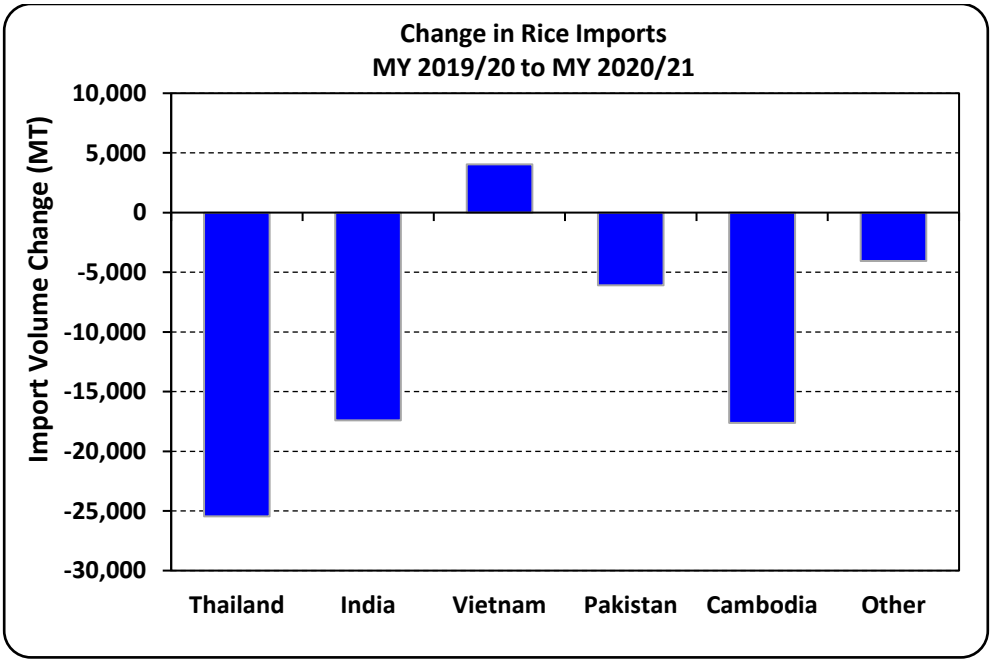


Source: Australian Bureau of Statistics / PSD Online / FAS/Canberra

FAS/Canberra's rice import estimate of 200,000 MT for MY 2021/22 remains in line with that of the official USDA estimate. With imports of 206,000 MT in the prior year a step down in imports is anticipated after a substantial increase in domestic rice production.

Thailand and India are by far the two largest rice suppliers to Australia consistently at around two-thirds of total imports over the last five years. The other three important sources of rice imports - Cambodia, Vietnam and Pakistan - contributed more strongly during the peak import demand period of MY 2019/20 of a total of 272,000 MT. But with a significant improvement in production while transitioning out of drought in MY 2020/21 imports fell to 206,000 MT. Of the major sources, the volume of imports fell the most from Thailand and India followed by Cambodia and Pakistan. Interestingly though, imports from Vietnam increased despite Australia's large overall drop in imports (see Figure 31).

Figure 31 – Change in Rice Imports – MY 2019/20 to MY 2020/21

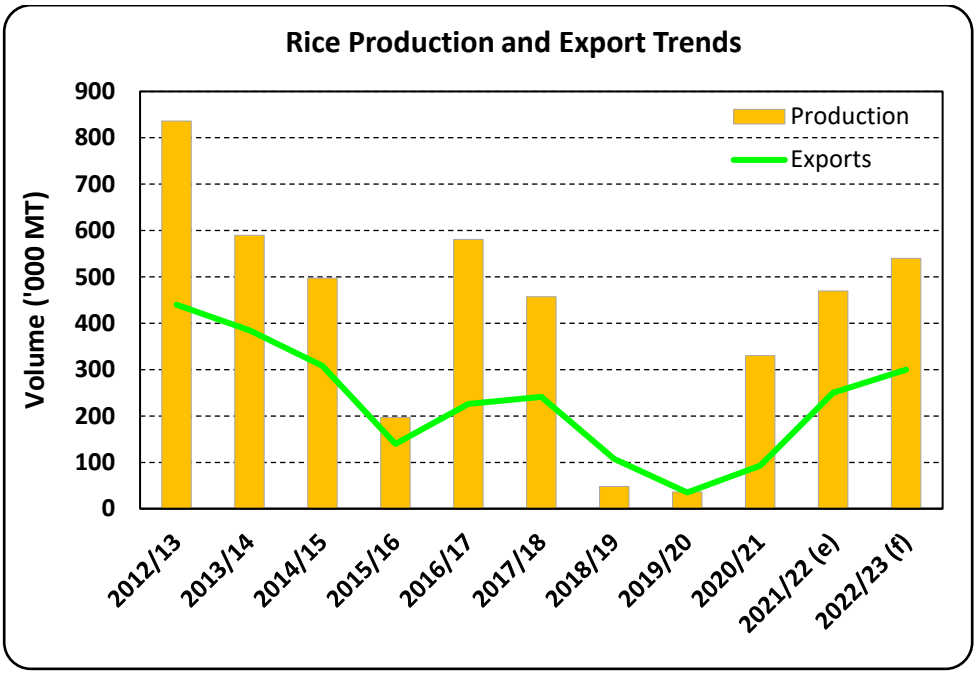


Source: Australian Bureau of Statistics

Exports

FAS/Canberra forecast exports of 300,000 MT in MY 2022/23, a 50,000 MT (20 percent) increase from the MY 2021/22 estimate. This increase directly relates to the 70,000 MT forecast growth in rice production. Over the past 10 years, the change in exports from year to year has relatively closely tracked the shift in production (see Figure 32), and this general trend is expected to continue into the forecast year.

Figure 32 – Rice Production and Export Trends



Source: Australian Bureau of Statistics / PSD Online / FAS/Canberra

FAS/Canberra's rice export estimate for MY 2021/22 at 250,000 MT is in line with the official USDA estimate and is a strong rebound from the prior year level of 93,000 MT. This growth is enabled after an estimated production increase of 140,000 MT in MY 2021/22. Although a big growth in exports it is merely a return to slightly above the previous 10-year average.

Stocks

Rice stocks are estimated to remain relatively stable in MY 2022/23 on the back of a large estimated crop for MY 2021/22 enabling stocks to recover. Rice stocks were heavily depleted at the end of MY 2019/20 due to two successive years of drought affected poor production which partially recovered in MY 2020/21 after improved rice production.

Production, Supply, and Distribution of Rice

Rice, Milled	2020/2021		2021/2022		2022/2023	
Market Year Begins	Mar 2021		Mar 2022		Mar 2023	
Australia	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested (1000 HA)	46	46	65	65	0	75
Beginning Stocks (1000 MT)	15	15	95	118	0	178
Milled Production (1000 MT)	330	330	470	470	0	540
Rough Production (1000 MT)	458	458	653	653	0	750
Milling Rate (.9999) (1000 MT)	7200	7200	7200	7200	0	7200
MY Imports (1000 MT)	200	206	200	200	0	160
TY Imports (1000 MT)	204	206	200	200	0	160
TY Imp. from U.S. (1000 MT)	10	10	0	0	0	0
Total Supply (1000 MT)	545	551	765	788	0	878
MY Exports (1000 MT)	110	93	250	250	0	300
TY Exports (1000 MT)	73	72	250	250	0	300
Consumption and Residual (1000 MT)	340	340	360	360	0	370
Ending Stocks (1000 MT)	95	118	155	178	0	208
Total Distribution (1000 MT)	545	551	765	788	0	878
Yield (Rough) (MT/HA)	9.9565	9.9565	10.0462	10.0462	0	10

(1000 HA) ,(1000 MT) ,(MT/HA)
MY = Marketing Year, begins with the month listed at the top of each column
TY = Trade Year, which for Rice, Milled begins in January for all countries. TY 2022/2023 = January 2023 - December 2023

Attachments:

No Attachments