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Grain and Feed Annual

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Report Highlights:
Post forecast Australian wheat production at 24 million metric tons (MMT) for 2018/19, while barley production is expected to reach 9.5 MMT due to higher commodity prices and an expansion in the harvested area. Post expects sorghum production to increase to 1.6 MMT in 2018/19 as a result of a larger harvest area and stronger export and domestic demand. Rice production is expected to remain around 0.8 MMT in 2018/19, despite the higher cost of irrigation water and competition for water supplies from other crops like cotton.

Post: Canberra
Commodities: Wheat, Barley, Sorghum, Rice

EXECUTIVE SUMMARY

Australian grain farmers experienced a difficult 2017/18 due to sustained dry periods, frost, and flooding, but Post expects more moderate and average seasonal conditions to prevail in 2018/19. With a more favorable seasonal outlook, Post forecasts increases in production of wheat, barley, and sorghum while the rice harvest is expected to remain the same as last year's level. Growing livestock sector demand and higher feed grain prices in eastern Australia could constrain exports.

Australian wheat production is forecast at 24 million metric tons (MMT) for 2018/19, assuming average seasonal conditions over the year. Barley production is forecast at 9.5 MMT due to an expansion in the harvested area and higher returns to growers. Post expects sorghum production to increase to 1.6 MMT in 2018/19 as a result of increased harvested area and higher grain prices. Rice production is also expected to be steady at 0.8 MMT in 2018/19 despite the higher cost of irrigation water and competition for water supplies from other crops like cotton.

SEASONAL OUTLOOK

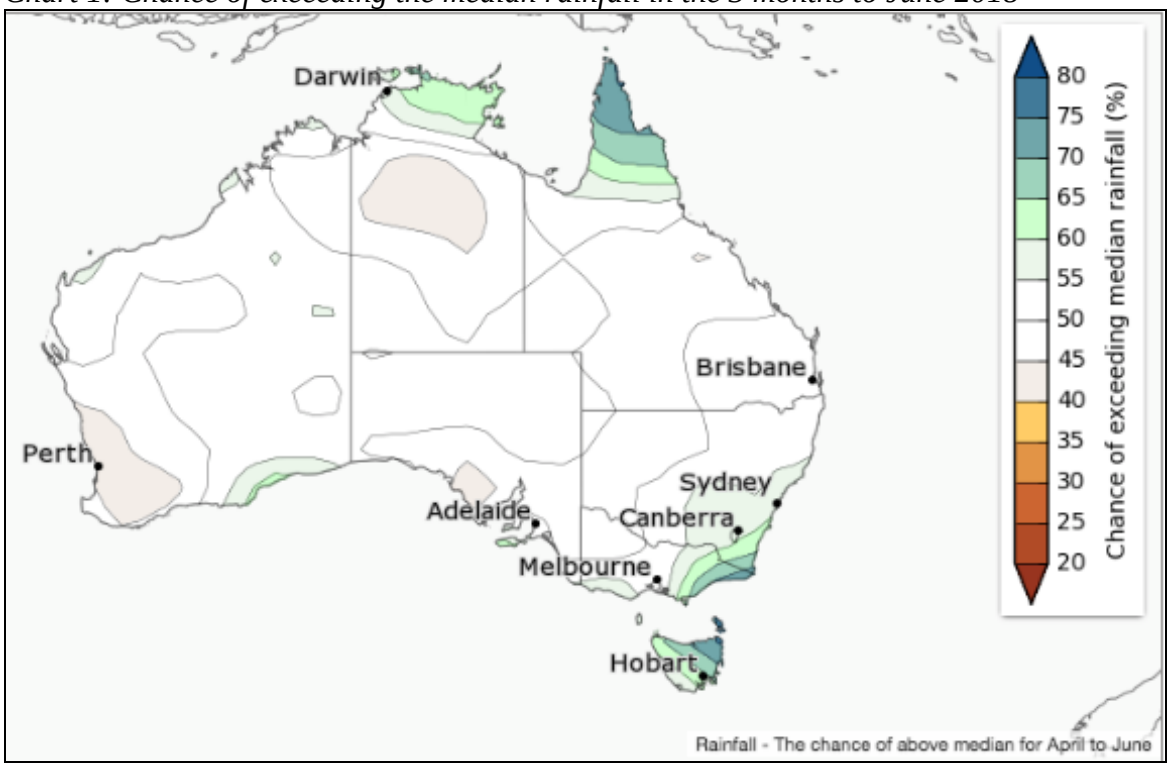
In recent years, different cropping regions in Australia have been exposed to significant variations in climatic conditions. 2017 for instance, was the third hottest year on record for Australia according to the Bureau of Meteorology (BOM). In the second half of 2017, many cropping regions in eastern Australia received below average rainfall and above average temperatures, which severely affected the growing season.

In a number of states including New South Wales (NSW), rainfall in December came too late for crop development and made the harvest more difficult. In Victoria, timely rainfall at the end of the year improved production and yields. Western Australia (WA) received useful rain in late 2017 and temperatures were milder than expected. Overall, yields in 2017/18 fell significantly in eastern Australia, but generally remained the same in Western Australia.

For 2018/19, the outlook appears comparatively favorable and timely rains in early 2018 have improved soil moisture in a number of cropping regions before the start of the winter planting window. The BOM forecasts average rainfall and temperatures for the three months to June 2018 (see Charts 1 and 2), but a dry April means that continued rainfall is still necessary for successful crop planting and development, especially in western NSW and Queensland.

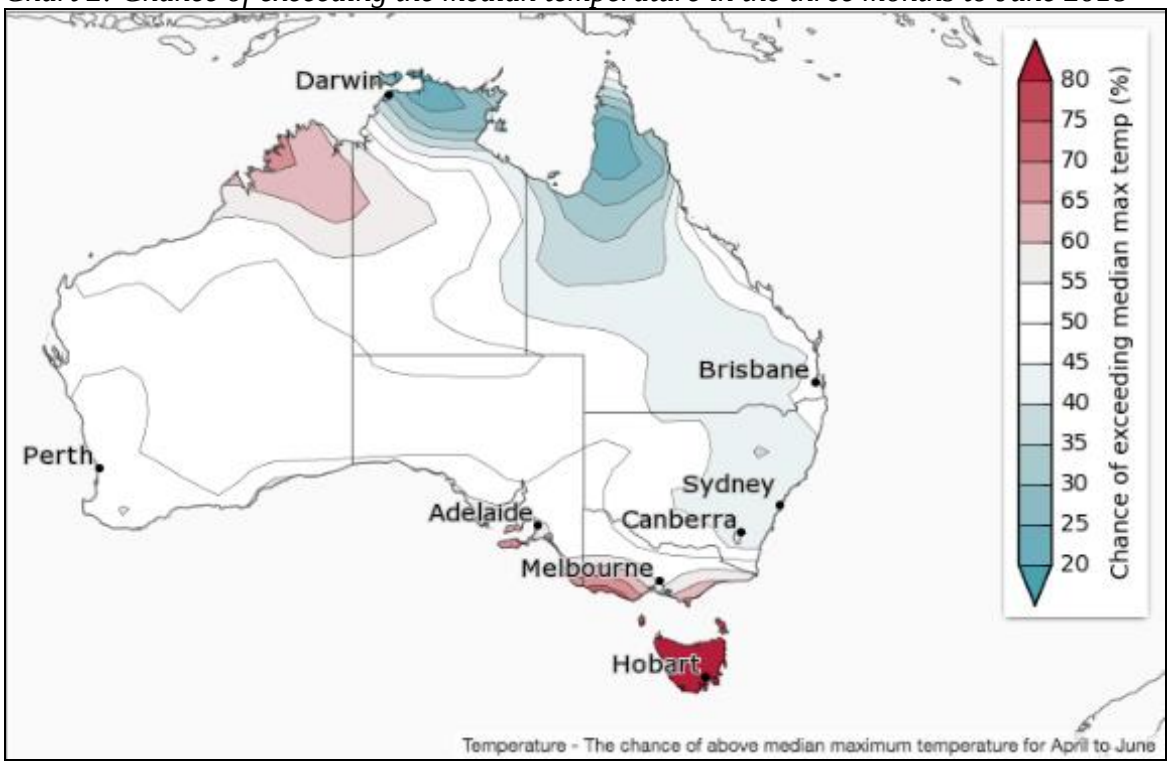
If rainfall is delayed in these regions, crops planted late in the traditional planting window would be less exposed to frost, but would be more susceptible to heat stress conditions during a late harvest. The moderate outlook for Western Australia and the shortage of feed grains in eastern Australia suggests that WA could well be the predominant supplier of wheat and barley exports.

Chart 1: Chance of exceeding the median rainfall in the 3 months to June 2018



Source: Bureau of Meteorology (2018).

Chart 2: Chance of exceeding the median temperature in the three months to June 2018



Source: Bureau of Meteorology (2018).

THE AUSTRALIAN DOMESTIC MARKET FOR FEED GRAINS

The Australian domestic feed market normally accounts for around 10 percent of wheat supply; however, demand has expanded in recent years, partly because of significant variations in seasonal conditions and regional shortages of pasture and grains. The domestic animal feed industry includes beef, dairy cattle, layer and poultry chickens, pigs, sheep, horses, aquaculture, and a number of smaller industries with the bulk of feed grains consumed by the beef, dairy cattle, and chicken industries. An estimate of annual feed use by industry sector is provided in Table 1.

Table 1: Estimated annual feed use by industry sector ('000 MT)

Industry	NSW	Victoria	Queensland	SA	WA	Tasmania	Total	Share (%)
Poultry meat	955	713	592	461	192	29	2,942	24
Poultry layer	272	198	202	37	77	9	793	6
Pig	289	292	349	318	150	9	1,407	12
Dairy	432	1,966	215	194	118	187	3,111	26
Beef	881	199	1,850	86	123	37	3,176	26
Sheep	19	34	2	14	103	1	174	1
Horse	123	82	83	20	16	6	329	3
Aquaculture	5	2	40	5	2	85	139	1
Other	37	36	21	10	14	3	121	1
Total	3,012	3,522	3,354	1,145	795	364	12,192	100
Share by state (%)	25	29	28	9	6	3	100	

Source: Australian Feedlot Association

The feed grain sector consist of raw grains, such as wheat, barley, sorghum, triticale, oats, maize, lupins, field peas, faba beans and whole oilseeds, including canola. In addition, vegetable protein meals are produced from processed oilseed (canola, soy, sunflower, and safflower). Higher feed grain demand is expected to be driven by the livestock and dairy industries. In addition, feedlots in NSW and Queensland are often located close to grain growing areas, thus, farmers in these locations can opt to sell their grain on the domestic market for a relatively high price and avoid the freight, insurance, storage, and other costs associated with exporting.

Hotter and drier than average seasonal conditions during late 2017 and early 2018 in Queensland and northern NSW are likely to increase livestock producer demand for feed grains. It is important to note that grain regions in Australia are separated by considerable distances and high freight rates, which makes it less economical to trade between states, even if Western Australia has a major surplus and eastern Australia has a feed grain shortage.

April 2018 grain prices (provided in Table 2) indicate increasing feed grain demand in NSW and Queensland, which is partly driven by last year's poor harvest. Chart 3 illustrates the stock feed grain prices in selected states across Australia between April 2017 and 2018.

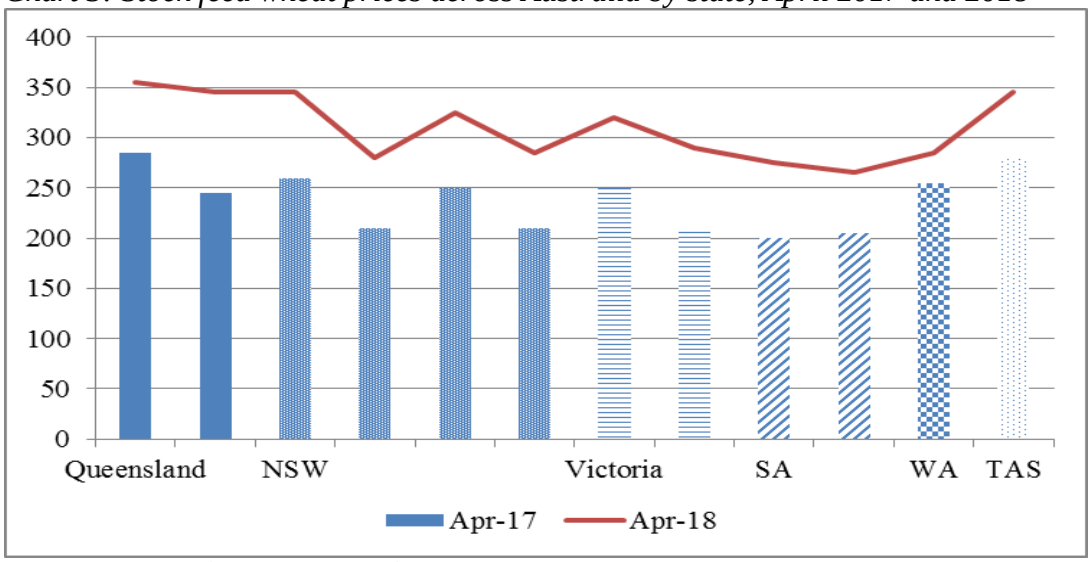
Table 2: Stock feed prices across Australia by region, April 2018 (A$/MT)

Region	Wheat	Barley	Maize	Sorghum
Atherton Tableland, Queensland	355	495	420	380
Darling Downs, Queensland	345	345	360	340
North Coast of NSW	345	340	365	350
Central West NSW	280	280	300	295
Bega Valley, NSW	325	325	350	425
Goulburn Valley, NSW	285	270	290	395
Gippsland, Victoria	320	305	340	420
South-west Victoria	290	275	350	430
South East South Australia	275	260	370	450
Central South Australia	265	275	355	450
South West Western Australia	285	300	320	180
Tasmania	345	340	370	455

Source: Dairy Australia

In 2018/19, Post expects that high domestic feed prices in eastern Australia will limit wheat exports from this region compared to Western Australia, which has sufficient volume. WA exports around 90 percent of its total harvest and accounts for around 40 percent of Australia's total exports.

Chart 3: Stock feed wheat prices across Australia by state, April 2017 and 2018



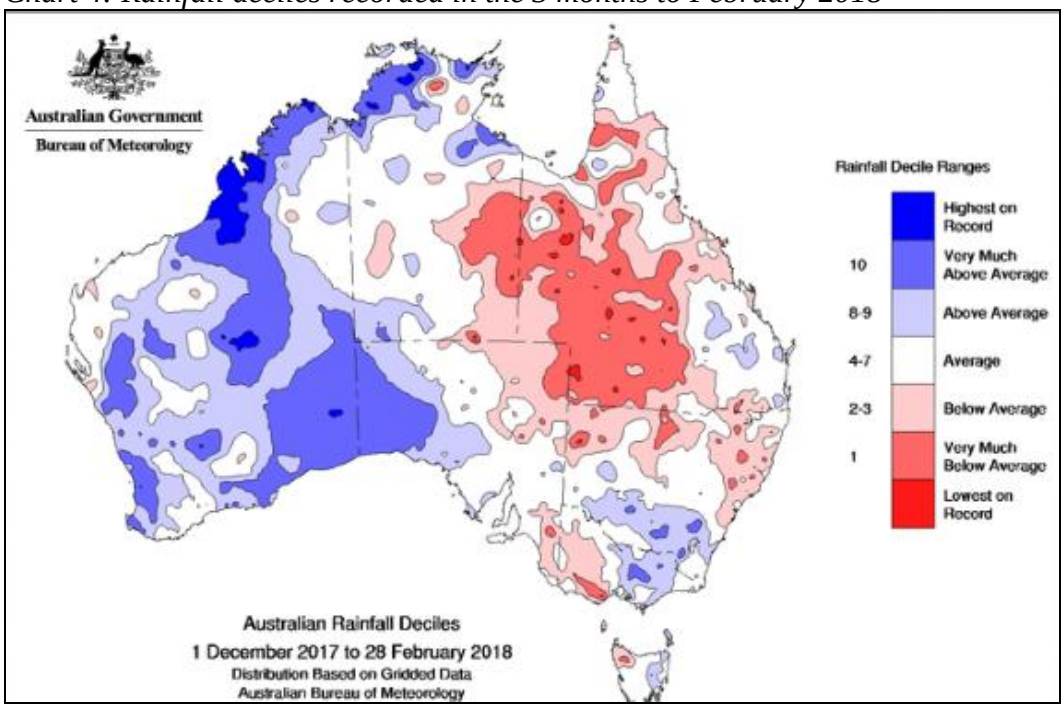
Note: Wheat prices are for the relevant stock feed wheat available in a region, such as ASW, AGP, SFW1 or FED1).
Source: Dairy Australia

WHEAT

Production

Australian wheat production is forecast at 24 MMT for 2018/19, the same as the official forecast, due to better than expected end of the season rainfall and milder temperatures across major wheat growing areas. The harvested area is expected to be stable at 12.2 million hectares. Moderate and beneficial rainfall in early 2018 (Chart 4), especially in Victoria and Queensland, has improved soil moisture for the winter wheat crop, although additional rainfall is still necessary during the planting window across many regions, especially in eastern Australia.

Chart 4: Rainfall deciles recorded in the 3 months to February 2018



Source: Bureau of Meteorology (2018).

In 2017/18, Australian wheat production fell to 21.5 MMT, down more than 31 percent from a revised harvest of 31.3 MMT in 2016/17. In NSW, the wheat harvest was almost 60 percent below the previous year and yields were below average because of the hot and dry conditions. In WA and Victoria, the wheat harvest was around 20 percent below the previous year due to less favorable seasonal conditions. In South Australia, a decline in wheat production of almost 40 percent occurred because of relatively low rainfall and hot conditions.

Wheat is the major winter crop in Australia, with sowing starting between April and July. The main producing states are WA, NSW, South Australia, Victoria, and Queensland. Central Queensland's harvest starts in August, progresses down the east coast to Victoria, and ends in January. On the west coast, the wheat harvest starts in October and is completed by the end of January. WA's wheat production normally accounts for more than 40 percent of exports, while a greater proportion of the east coast harvest is consumed domestically. Australian wheat farmers are increasingly using new technology, such as autonomous tractors, robotic weed killers, drone monitoring, and other satellite sensing systems. Increasing wheat output in Australia is mainly due to increases in planted area rather

than long term yield increases, reflecting the widespread and significant fluctuations in seasonal conditions.

Consumption

Wheat domestic consumption is estimated at 7.3 MMT for 2018/19, due to an anticipated increase in production. Higher domestic consumption is expected to come primarily from increasing feed grain demand, which is expected to rise to 3.9 MMT while human wheat consumption is expected to remain stable at 3.4 MMT.

Domestic milling demand typically accounts for almost 10 percent of the Australian wheat supply and is expected to remain steady because of the relatively low income elasticity of demand for grain products. The major grain processors for the domestic consumer market are George Weston Foods, Uncle Toby's, Manildra and Goodman Fielder, which are involved in flour milling and breakfast cereal production.

Higher quality wheat is used mainly in the production of breads, noodles, and pastas while lower grades are used as animal feed. Major types of wheat include Prime Hard, Hard, Premium White, Standard, Soft, and Durum. The quality of wheat is based on protein, size, and moisture content. Wheat consumption in Australia has declined slightly in recent years due to changes in diets such as a consumer shift to gluten free products. Australians consume around 70 kilograms of flour per capita annually and the domestic market is comparatively mature.

Australia has a number of regional markets for feed grain, which are usually separated by the comparatively high cost of road and rail transport between Western Australia and various regions of the country. Post notes that grain for domestic feed stock markets is generally transported by truck while most domestic milling wheat is transported via rail to manufacturers such as Manildra Mills, Weston Mills, and Allied Mills. The movement of grain to the ports is generally through a combination of trucks and rail, depending on cost, proximity, and available transport.

Trade

Australian wheat exports are forecast at 17 MMT for 2018/2019, above last year's estimate of 16.5 MMT because of higher forecast production in 2018/19. Typically, 75 percent of wheat production is exported. Australia is the world's third largest wheat exporter, but its exporters are expected to face stronger competition from Black Sea wheat exporters, particularly for feed wheat. Details of Australian wheat exports are shown in Table 3.

Australian premium hard wheat exporters compete in Southeast Asia against traders from the United States and Canada. Indonesia is Australia's largest wheat export market and has imported an average 4.1 MMT of wheat annually for the last 5 years. WA is the world's major supplier of wheat for Japanese white salted udon noodles and is supported by a long-term collaboration between the Australian industry and Japanese flour millers.

Table 3: Australian exports of wheat by country, volume and value, 2011-2017 ('000 MT)

Country	2011	2012	2013	2014	2015	2016	2017

Indonesia							
(‘000 MT)	3,593	4,594	3,665	4,072	4,153	3,469	5,170
(US$/MT)	325	299	317	280	250	210	202
China							
(‘000 MT)	794	2,283	870	1,198	1,378	1,499	1,712
(US$/MT)	279	259	314	296	258	219	192
Vietnam							
(‘000 MT)	2,403	1,994	1,347	1,377	1,306	1,507	1,913
(US$/MT)	298	284	326	292	254	220	217
Yemen							
(US$/MT)	713	859	816	850	1,057	782	938
(US$/MT)	300	286	318	284	251	215	204
South Korea							
(‘000 MT)	1,935	2,072	893	1,062	1,054	1,056	656
(US$/MT)	305	276	246	296	256	245	216
Malaysia							
(‘000 MT)	952	934	721	1,051	891	873	693
(US$/MT)	330	298	322	291	245	213	208
Japan							
(‘000 MT)	1,263	1,369	951	933	882	839	636
(US$/MT)	379	295	367	308	271	252	239
Philippines							
(‘000 MT)	1,281	1,675	355	550	673	1,026	1,941
(US$/MT)	259	267	330	286	254	214	191
India							
(‘000 MT)	1	4	13	22	438	919	1,798
(US$/MT)	..	..	..	..	242	220	206
Other	6,798	7,792	8,406	7,161	5,241	4,167	
World							
(‘000 MT)	19,733	23,576	18,037	18,276	17,073	16,137	22,005
(US$/MT)	320	288	331	294	259	224	211

Note: Calendar years.
Source: Global Trade Atlas

Table 4: Production, Supply and Demand Estimates: Wheat ('000 HA and '000 MT)

Wheat	2016/2017		2017/2018		2018/2019	
Market Begin Year	October 2016		October 2017		October 2018	
Australia	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested	11,720	11,720	12,250	0	0	12,200
Beginning Stocks	3,854	3,854	4,367	4,367	0	2,717
Production	30,363	30,363	21,500	21,500	0	24,000
MY Imports	144	144	150	150	0	150
TY Imports	154	154	150	150	0	150
Total Supply	34,361	34,361	26,017	26,017	0	26,867
MY Exports	22,644	22,644	16,000	16,000	0	17,000
TY Exports	22,061	22,061	17,000	17,000	0	17,000
Feed and Residual	3,900	3,900	3,400	3,900	0	3,900
FSI Consumption	3,450	3,450	3,400	3,400	0	3,400
Total Consumption	7,350	7,350	6,800	7,300	0	7,300
Ending Stocks	4,367	4,367	3,217	2,717	0	2,567
Total Distribution	34,361	34,361	26,017	26,017	0	26,867
Yield	2.59	2.59	1.76	1.76	0	1.97
(1000 HA), (1000 MT), (MT/HA)						

Note: 'New Post' data reflects FAS/Canberra's assessment and is not official data.

BARLEY

Production

Barley production in 2018/19 is forecast at 9.5 MMT, due to an expanded harvest area. The relatively high barley prices and stronger Chinese demand are expected to encourage increased plantings and production. Post has revised its 2017/18 production to 9 MMT, above the official estimate of 8 MMT due to more recent receivals and survey results. Higher than expected production in 2017/18 was attributed to timely and sufficient rainfall in the main barley cropping areas of southeastern and Western Australia in late 2017. However, low rainfall and dry conditions in NSW affected the overall quality and quantity of the barley crop.

In 2017/18, barley production across Australia fell to 9 MMT, down 30 percent from the 2016/17 harvest of 12.9 MMT, due to less favorable seasonal conditions. In NSW, barley production fell by more than 50 percent and average yields were around 1.5 MT/ha due to a lack of timely rainfall. In Western Australia, barley production fell only 12 percent because of good rainfall during the latter part of the season, especially in southern regions such as Esperance. In Victoria, barley production in 2017/18 declined by more than 30 percent as a result of hot and drier conditions, especially in the western parts of the state, such as Malley and Wimmera. In South Australia, the barley harvest in 2017/18 fell by 40 percent due to insufficient rainfall, strong winds, and hail damage.

Barley is usually sown in May and harvested during November. The crop grows through Australia's winter months, typically in rotation with wheat, canola, oats, and pulses. Western Australia is the major barley producing state with over one third of the harvested area and output. NSW, South Australia, and Victoria each account for around one fifth of barley production. One third of barley is generally used in Australia for food and beer production, animal feed, and seed cultivation. The remainder is exported with around 50 percent used as feed barley, one third as malting barley, and the rest for the manufacture of beer or spirits.

Consumption

Post forecasts domestic barley consumption at 2.8 MMT in 2017/18, the same as the official estimate. Barley in Australia is used to produce distilled spirits and traditional and craft beer. Barley is also used as a feed grain for domestic and overseas livestock industries. Demand for malt barley is increasing and is used primarily to produce alcohol (beer and distilled spirits such as Shochu, a Japanese distilled spirit) and food including confectionary, snack foods, breakfast cereals, miso, and tea.

Generally, Australia produces more than 2 MMT of malting barley. Around 0.9 MMT of malt can be produced from 1 MMT of barley. Annual malt exports total around 700,000 MT, mainly to Asia. Malt consumption by Australia's domestic brewing industry is around 170,000 MT. Craft beer brewers consume an estimated 5 percent of the country's malting barley.

Trade

Barley exports are forecast at 7 MMT in 2018/19, slightly above official estimates, due to higher than expected production and yields. Post revised exports for 2017/18 above the official estimate of 0.58 MMT due to higher than expected production. China is the top destination for Australian barley exports, followed by Saudi Arabia and Japan. Japanese demand for feed and quality grade barley declined significantly in 2017 while orders from Saudi Arabia rose. Australia's position in the Middle East feed barley market depends on relative prices compared to exporters from the Black Sea region.

Australia normally accounts for one fifth of the global feed barley trade and around one third of the world's specialist malting barley trade. The Australian barley industry has sought to strengthen links with buyers in Asia through investment in malting plants in a number of countries, including Vietnam. In 2018, Australian barley exports appear to have started strongly with higher shipments to China, East Asia, Southeast Asia, and the Middle East. Australian barley exports from 2011 to 2017 are shown in Table 5.

Table 5: Australian exports of barley, 2011-2017 by country, volume and value ('000 MT)

Country	2011	2012	2013	2014	2015	2016	2017
China	1,268	2,102	1,766	4,377	3,586	3,516	4,630
(US$/MT)	301	273	297	259	255	193	178
Saudi Arabia	1,667	1,153	1,702	471	525	304	739
(US$/MT)	272	259	275	253	182	181	161
Japan	962	769	967	605	217	1,058	567
(US$/MT)	292	265	293	262	273	194	180
UAE	160	350	130	164	118	367	242
(US$/MT)	287	259	292	251	247	180	173
Kuwait	336	185	175	111	44	393	233
(US$/MT)	272	265	279	244	186	176	164
Other	665	552	381	395	252	219	2,448 (a)
World	5,058	5,111	5,121	6,123	5,188	5,857	8,859
	282	267	289	259	255	193	182

Note: Calendar years. Note: (a) Includes unidentified country with imports of 2.1 million MT.
Source: Global Trade Atlas

Australia reportedly has a natural advantage in malting barley production due to the hot and dry conditions during harvest, which produces a higher ratio of malt to feed and makes storage and transportation easier. The Australia-China free trade agreement (ChAFTA) removed all tariffs on imported barley exports, thereby increasing opportunities for Australian exporters. Post notes that some shipments of barley from Australia to the Japanese market were halted in April 2018 because a container of barley was found to have high levels of chemical residues. However, the incident is being viewed as an isolated case. Guidelines on residues in grains are monitored by Grain Australia and the National Residue Survey in Australia.

Table 6: Production, Supply and Demand Estimates: Barley ('000 HA and '000 MT)

Barley	2016/2017		2017/2018		2018/2019	
Market Begin Year	November 2016		November 2017		November 2018	
Australia	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested	4,624	4,624	3,900	3,900	0	4,000
Beginning Stocks	1,069	1,069	1,298	1,298	0	498
Production	12,921	12,921	8,000	9,000	0	9,500
MY Imports	0	0	0	0	0	0
TY Imports	0	0	0	0	0	0
Total Supply	13,990	13,990	9,298	10,298	0	9,998
MY Exports	9,192	9,192	5,800	7,000	0	7,000
TY Exports	9,193	9,193	5,800	7,000	0	7,000
Feed and Residual	2,200	2,200	1,500	1,500	0	1,500
FSI Consumption	1,300	1,300	1,300	1,300	0	1,300
Total Consumption	3,500	3,500	2,800	2,800	0	2,800
Ending Stocks	1,298	1,298	698	498	0	198
Total Distribution	13,990	13,990	9,298	10,298	0	9,998
Yield	2.79	2.79	2.05	2.31	0	2.38
(1000 HA), (1000 MT), (MT/HA)						

Note: 'New Post' data reflects FAS/Canberra's assessment and is not official data.

SORGHUM

Production

Sorghum production in 2018/19 is expected to increase to 1.6 MMT, due to an expansion in the harvested area from 500,000 to 600,000 hectares. In addition, sorghum prices are relatively strong because of a tight market for feed grains in Queensland and northern NSW, where dry and hot seasonal conditions have prevailed over the past year. Post has revised production data for 2017/18 to 1.5 MMT, up from the official estimate of 1.3 MMT, due to more recent receivals data and survey results.

Planting of sorghum is primarily located across Queensland and in northern NSW, which begins in October for NSW but extends to February for central Queensland. Harvest normally occurs from February to August. Sorghum competes with a number of other summer crops, including cotton, mung beans, and maize, but it has an advantage in some regions because of its higher drought tolerance. Post expects that timely rain over this period will foster planting expansions during the extended planting window, especially in central Queensland.

Growing conditions for the 2018/2019 season appear to be more favorable with better soil moisture and moderate temperatures in southern Queensland. In addition, sorghum prices in 2018 are significantly above those in the previous year, because of lower winter crop production in 2017/18 and growing demand from feedlots and farms in Queensland and northern NSW. During the past two years, low soil moisture at planting time and competition from cotton led to below average harvested areas for sorghum.

The biofuels industry is also driving domestic demand for sorghum. The Dalby ethanol plant in Queensland is currently expanding operations to meet a new state government ethanol mandate. When the Dalby operation is running at full capacity, around 200,000 MT of sorghum is expected to be used for ethanol production annually and this amount could increase in the future. The biofuel plant also produces dried distillers' grains (DDG), which is sold mainly as a high-protein feed stock for swine, dairy cows, and grain fed beef cattle.

Australia normally produces around two to three percent of global sorghum production and accounts for five percent of global exports. Around seventy percent of the Australian crop is grown in Queensland and the remainder in northern NSW. Sorghum is relatively drought tolerant and withstands acidic soils. Planting times for sorghum extend from September to January.

Consumption

Australian domestic sorghum consumption in 2017/18 is forecast at 1 MMT, above the official estimate of 0.8 MMT due to higher production and a shortage of feed grain in feedlots and farms northern NSW and Queensland. Sorghum has traditionally been used domestically for feed grain in the beef, dairy, swine, and poultry industries. Sorghum is classified as either grain sorghum or forage sorghum according to the tannin content.

Trade

Post forecasts sorghum exports at 0.6 MMT in 2018/19, above the official forecast of 0.3 MMT because of higher expected production and expansion in area harvested. Export demand for sorghum has varied significantly in recent years, as shown in Table 7. During the past year, Australian sorghum has been less competitive in the Chinese feed market as a result of higher prices compared to U.S. exports, but demand for Australian feed grains could increase in 2018/19.

Table 7: Australian exports of sorghum by country, volume and value, 2011-2017 ('000 MT)

Country	2011	2012	2013	2014	2015	2016	2017
China	0	39	758	349	1,512	752	257
(US$/MT)	..	248	327	302	272	203	215
New Zealand	16	27	2	0	0	0	25
(US$/MT)	351	258	306	..	..	..	192
Taiwan	19	34	13	3	4	19	6
(US$/MT)	319	244	300	327	284	184	254
Other	23	41	13	4	8	23	27
World	116	205	797	356	1,524	794	293
(US$/MT)	300	257	327	303	273	203	251

Note: Calendar year.
Source: Global Trade Atlas

Chinese demand for Australian sorghum to produce bajiu spirits is also expected to be resilient at between 200,000 and 500,000 MT. The Australia-China free trade agreement (ChAFTA) removed all tariffs on sorghum exports, thus, providing new opportunities for Australian exporters. However, Australian domestic prices for sorghum are relatively high, so that Chinese prices for sorghum exports would need to exceed domestic feed grain prices to attract increased Australian exports.

Table 8: Production, Supply and Demand Estimates: Sorghum ('000 HA and '000 MT)

Sorghum	2016/2017		2017/2018		2018/2019	
Market Begin Year	March 2017		March 2018		March 2019	
Australia	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested	370	370	500	500	0	600
Beginning Stocks	234	234	259	259	0	459
Production	1,000	1,000	1,300	1,500	0	1,600
MY Imports	0	0	0	0	0	0
TY Imports	0	0	0	0	0	0
Total Supply	1,234	1,234	1,559	1,759	0	2,059
MY Exports	300	300	500	500	0	600
TY Exports	542	542	300	300	0	600
Feed and Residual	475	475	600	600	0	800
FSI Consumption	200	200	200	200	0	200
Total Consumption	675	675	800	800	0	1,000
Ending Stocks	259	259	259	459	0	459
Total Distribution	1,234	1,234	1,559	1,759	0	2,059
Yield	2.7	2.7	2.6	3.0	0	2.7
(1000 HA), (1000 MT), (MT/HA)						

Note: 'New Post' data reflects FAS/Canberra's assessment and is not official data.

RICE

Production

Australia's 2018/19 rice production is forecast at 0.8 MMT as seasonal conditions are generally favorable for crop development. The harvest area is expected to be around 80,000 hectares, similar to last year. Water entitlements for the 2017/2018 season appear to be sufficient based on available information on dam capacity, but prices for temporary water licenses are increasing compared to the previous year. The rice industry has storage capacity for more than 1 MMT of rice. Almost all rice grown in Australia is of the Japonica variety, which is suited to dry temperate climates. There are around 1,500 farm businesses growing rice in the Murrumbidgee Valley of NSW and the Murray Valley of NSW and Victoria.

In Australia, rice is grown from October until March and in rotation with other crops such as wheat, barley, and maize which utilize the existing soil moisture from the harvested rice crops. Rice growers are dependent upon an adequate water supply to be available during the planting window and below a certain price threshold. Each year the NSW state government assesses water levels in dams and determines allocations for different users. Most rice farmers receive their water as a comparatively low priority in this allocation system.

Currently, rice farmers have access to sufficient water allocations and some have access to water allowances from the previous year, although overall dam levels have fallen (Table 9). Newly developed shorter season and more drought tolerant seed varieties are being widely introduced for 2018/19. These varieties reportedly allow rice farmers to widen their planting window from the traditional start in April. Yields in 2018/19 are expected to be steady at 10 MT per hectare.

Table 9: Water levels for the Australian rice industry, 2013-2018 (gigaliters)

Dam	Region	Full Capacity	Actual Capacity (%)					
			2013	2014	2015	2016	2017	2018
Wyangala	Lachlan Valley	1,220	71	57	37	42	88	70
Burrinjuck	Murrumbidgee	1,026	67	85	32	38	73	42

Note: The assessment of water in storage does not include water in private farm storages.
Source: Murray Darling Basin Authority and Post estimates for March of each year.

In recent years, alternative summer crops such as cotton farming have expanded into NSW in competition with rice because of higher world prices and lower water requirements. However, rice production in the Riverina region of NSW is well established. Rice production also has a more flexible planting window and can be sown to the end of November, which is not possible for alternative summer crops such as cotton. In addition, some heavy clay soils in the Riverina region of NSW are better suited for growing rice.

The rice industry is mainly based in NSW, but hopes to expand into the more water abundant regions in Queensland and northern Australia. Initial rice crops in Queensland have been developed mainly as a summer crop for sugar farmers. The Australian government has supported research into the viability of

a northern Australian rice industry because of long-term problems with water availability and higher production cost in southern Australia.

Crops are grown in 5 to 25cm of water, depending on the plant's growth stage, which provides moisture for the plant and protects it from temperature fluctuations. Large grain harvesters mechanically harvest rice between March and May.

Consumption

Post forecasts 2017/2018 rice consumption to be steady at 0.4 MMT, the same as the official forecast. Overall rice demand is slowly expanding, which parallels the growth of the Australian population.

Trade

2017/2018 rice exports are forecast at 0.325 MMT; similar to official estimates. Official country data for exports is confidential. Post notes that under the Australia-Peru free trade agreement, Australian rice will have a duty-free quota of 9,000 MT, growing to 14,000 MT after five years, which could gradually lead to increased rice exports to this market.

Table 10: Production, Supply and Demand Estimates: Rice ('000 HA and '000 MT)

Rice, Milled	2016/2017		2017/2018		2018/2019	
Market Begin Year	Mar 2017		Mar 2018		Mar 2019	
Australia	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Harvested	80	80	80	80	0	80
Beginning Stocks	77	77	208	208	0	229
Milled Production	586	586	576	576	0	580
Rough Production	814	814	800	800	0	806
Milling Rate (.9999)	7,200	7,200	7,200	7,200	7,200	7,200
MY Imports	155	155	155	155	0	155
TY Imports	155	155	155	155	0	155
Total Supply	818	818	939	939	0	964
MY Exports	220	220	300	300	0	325
TY Exports	187	187	325	325	0	325
Consumption and Residual	390	390	410	410	0	400
Ending Stocks	208	208	239	229	0	239
Total Distribution	818	818	939	939	0	964
Yield (Rough)	10.2	10.2	10.0	10.0	0	10.1
(1000 HA), (1000 MT), (MT/HA)						

Note: 'New Post' data reflects FAS/Canberra's assessment and is not official data.