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Report Highlights:

Cotton production in Australia is set to climb to 3.9 million bales in marketing year (MY) 2021/22, 50 percent higher than the estimated MY 2020/21 result and 15 percent above the previous 10-year average. This is due to a combination of increased planted area and higher yields, in part driven by industry confidence in improved irrigation water availability for MY 2021/22. Expanded irrigation area will account for the bulk of the forecasted increase, although there is also expected to be a rise in dryland plantings as well. Exports are forecast to double to 3.2 million bales in MY 2021/22, yet remain some 300,000 bales (nine percent) below the previous 10-year average.

EXECUTIVE SUMMARY

Cotton production in Australia is set to climb to 3.9 million bales in marketing year (MY) 2021/22, 50 percent higher than the estimated MY 2020/21 result and 15 percent above the previous 10-year average. This is due to a combination of increased planted area and higher yields, in part driven by industry confidence in improved irrigation water availability for MY 2021/22. Expanded irrigation area will account for the bulk of the forecasted increase, although there is also expected to be a rise in dryland plantings as well.

Exports are forecast to double to 3.2 million bales in MY 2021/22, yet remain some 300,000 bales (nine percent) below the previous 10-year average. With cotton production in Australia at the tail end of the marketing year, over half of the export volume is influenced by the size of the previous MY 2020/21 crop, which was significantly smaller than average.

COTTON

Overview of Cotton Production

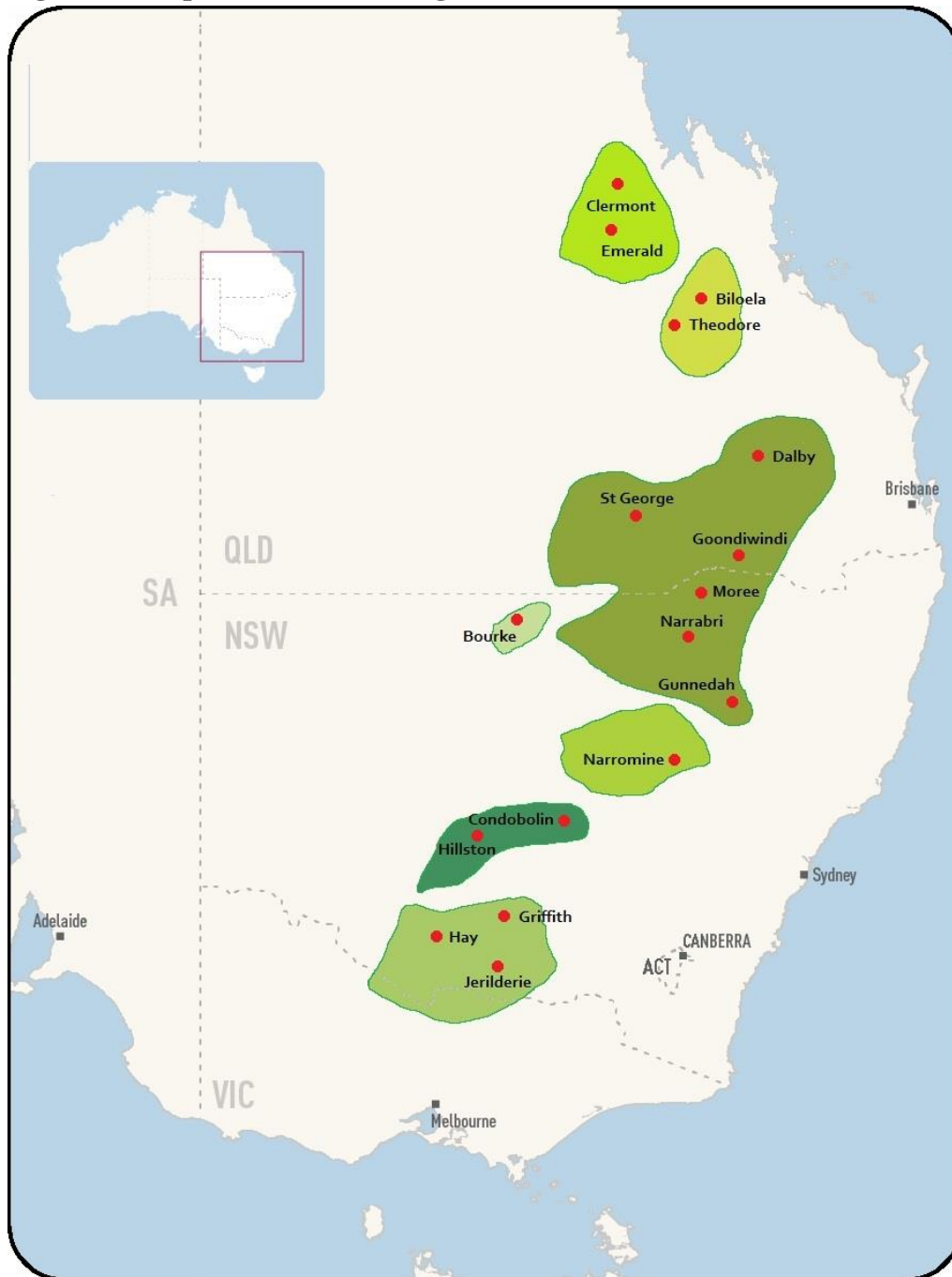
Australia is a major producer and exporter of cotton, typically representing 10 to 13 percent of world exports. There are up to 1,500 cotton farmers in Australia of which 90 percent are family farms, producing 80 percent of the total crop. Cotton in Australia is primarily grown in the states of New South Wales and Queensland. In a typical year New South Wales produces around two-thirds of national production and one-third in Queensland. The main growing areas in Queensland are in the central and southern parts of the state. Within New South Wales, the majority of the cotton is grown in north and central areas although the southern areas are increasing in importance. The map in Figure 1 below shows the cotton growing areas in Australia.

With improvements in cotton varieties suitable for differing growing conditions there has been some expansion of cotton areas in southern New South Wales and northern Victoria. Cotton growing trials are also in place in far north Queensland, Northern Territory, and also in Western Australia in the Ord River Irrigation Scheme. These areas offer substantial scope for expansion if they are determined to be suitable for growing cotton. An existing grower-owned ginning organization has announced that they will build a new facility in the Northern Territory near Katherine, the first in the region, and will be operational for the 2022 ginning season. This could trigger significant growth in cotton production in this region.

Cotton is a summer crop and in the major growing regions in Australia soil preparation typically occurs between July and September in readiness for planting in October/November and as late as December. Picking typically occurs from March to June. The further north the growing area (such as central Queensland), the earlier the season can start with a wider growing window due to the warmer climate. In these regions picking can be as early as January and finish as late as July.

In a typical season approximately 90 percent of cotton production is irrigated, and 10 percent is dryland. However, cotton classified as having been produced by irrigation includes crops that may have received only one irrigation for the season. Over the last two decades, the Australian cotton industry has improved water efficiency with the advancement of cotton varieties, irrigation techniques, soil moisture monitoring and whole farm irrigation planning to recycle runoff water.

Figure 1 - Map of Cotton Growing Areas in Australia.



Source: Cotton Australia / FAS/Canberra

The dependence on irrigation water decreases the further north towards central Queensland due to the northern-most areas being subject to tropical wet season rainfall primarily between January and March (typically in the mid to late growing period). These regions have a greater proportion of their water requirements met by in-crop rainfall than regions further south, particularly in New South Wales. Similarly, the trials in the Northern Territory and the adjacent Ord river region in Western Australia are grown with around 80 percent of the water requirement from in-crop rainfall, from tropical wet season rains, and 20 percent from irrigation. The major growing regions in New South Wales are highly dependent upon irrigation water availability. Irrigation water is derived from a combination of sources including:

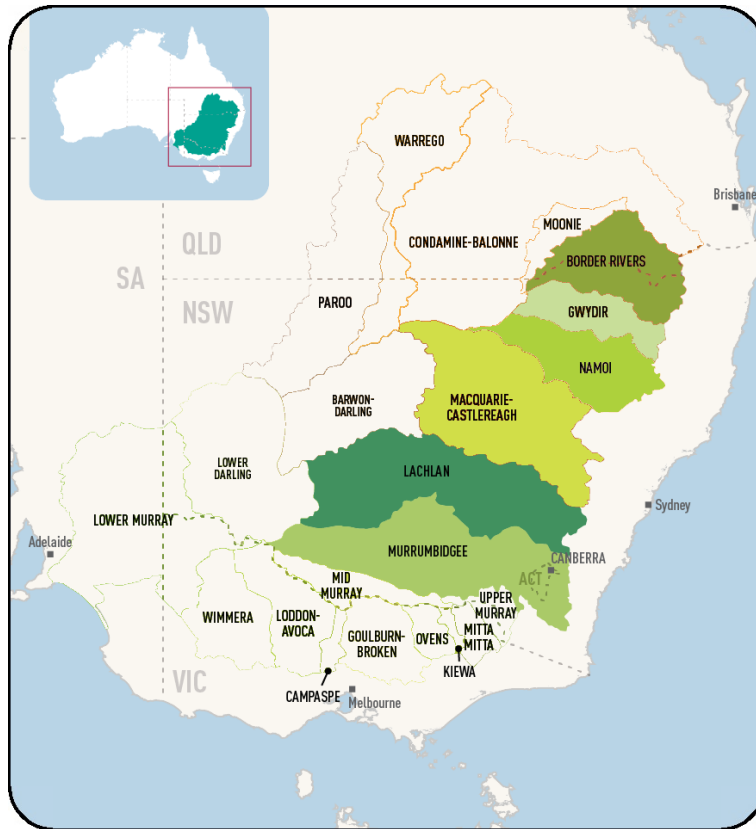
- 1) Water harvested and stored in on farm dams from overland flow. This can occur after high rainfall events typical in the more northern cotton production regions.
- 2) Water is harvested and stored from waterways during high flow periods also after high rainfall events. This is most prominent across Queensland the northern and central cotton production regions of New South Wales.
- 3) Underground water is also a source of irrigation water although relatively small compared to the combination of other sources. However, this is a reliable source and in drought years with little water from other sources can become very important.
- 4) Irrigation schemes based on large storage dams. There are multiple systems across Queensland and New South Wales cotton producing areas and in a typical year forms the largest part of a range of irrigation water sources for cotton production. The southern cotton production region is almost entirely dependent upon this source whereas the central region and most northern regions have a high dependence on this source.

The main irrigation schemes in New South Wales cotton growing regions from north to south are;

- Border Rivers
- Gwyder Valley
- Namoi Valley
- Macquarie
- Lachlan Valley
- Murrumbidgee

The locations of the irrigation schemes for cotton are shown in Figure 2 below. These irrigation schemes are part of a wider group of irrigation schemes and are overseen by the Murray Darling Basin Authority.

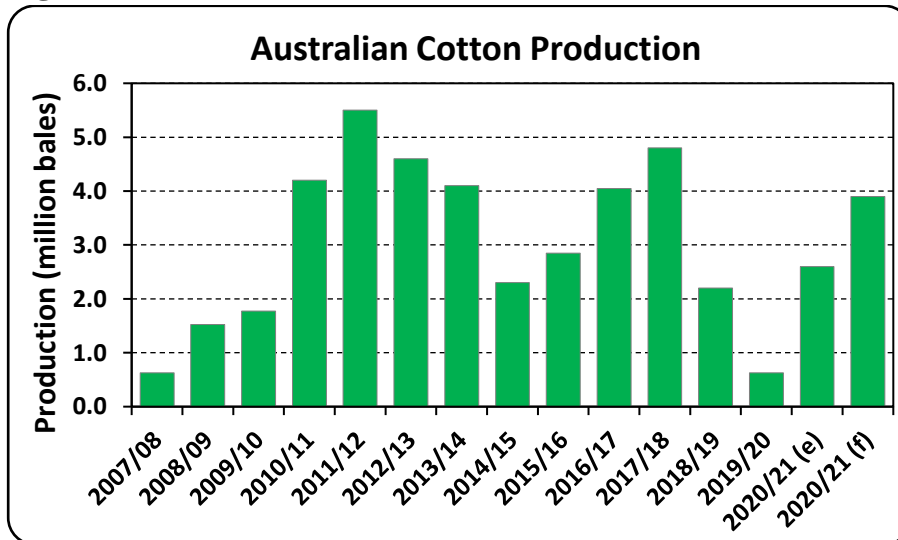
Figure 2 – Major NSW Cotton Growing Irrigation Catchment Map



Source: Murray Darling Basin Authority

Australian cotton production has extreme volatility from year to year as it is primarily driven by irrigation water availability (see figure 3 below).

Figure 3 – Australian Cotton Production



Source: Australian Bureau of Statistics

Bt cotton was introduced into Australia in 1996 and it is estimated that now 99 percent of cotton grown has some form of genetic modification trait. Bolgard 3 and Roundup Ready varieties are now grown in Australia, and combined with integrated pest management techniques, there have been major reductions in pesticide use, estimated by industry to be down as much as 95 percent since 1993.

Production

FAS/Canberra forecasts a further recovery in cotton production in marketing year (MY) 2021/22 to 3.9 million bales, from an estimate of 2.6 million bales in MY 2020/21. The crop estimate for the MY 2020/21 is also a major increase over the drought impacted MY 2019/20 production of merely 625,000 bales. The forecasted MY 2021/22 crop (to be harvested in April to May 2022), if realized, would be around 15 percent above the average production over the past 10 years. The 50-percent increase in production over the MY 2020/21 estimate is primarily due to an anticipated expansion in crop harvested area, forecast to 415,000 hectares from the MY 2020/21 estimate of 300,000 hectares. This forecast increase in area is mainly a result of an improvement in irrigation water availability for producers compared to conditions experienced for the MY 2020/21 crop, as well as an increase in dryland cotton production area. Yields are also expected to improve in MY 2021/22 assuming average minimum and maximum temperatures are achieved during the growing season, after estimated MY 2020/21 yields were impacted by below-average temperatures.

Improved Irrigation Water Availability

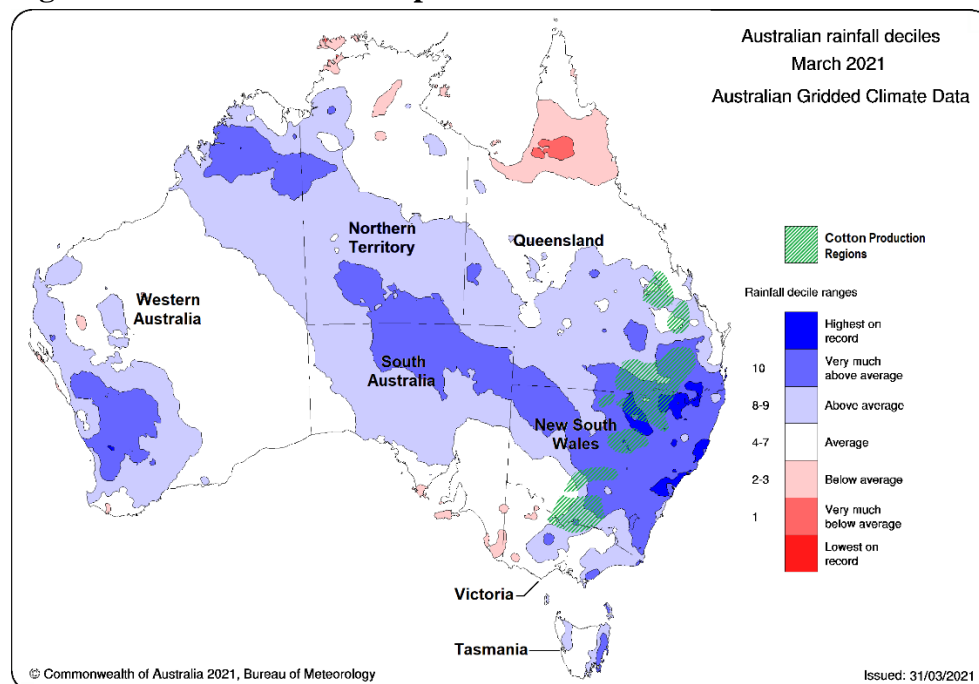
After receiving very high rains in parts of northern New South Wales in March 2021 (see figure 4), many growers in the central and north of the state are reported to have taken advantage of the overland and high waterway flows and have filled their on-farm storage dams in readiness for the MY 2021/22 season. These rains have also resulted in significant inflows into the major irrigation systems which are beyond normal expectations for this time of the year and are expected to help boost irrigated cotton area.

Although all irrigation water sources are important, the strongest influence is from water allocations provided from the major irrigation schemes. The southern cotton production region is almost entirely dependent upon this source whereas the central region and most northern regions have a high dependence on this source.

After drought years in 2018 and 2019 with low inflows into the major irrigation storage dams, their water levels declined as did the licensed allocations provided to irrigators. In all of the systems, other than the southern-most Murrumbidgee system, water allocations at the start of planting in October 2019 were at zero (see table 1). Although the drought began to break around February 2020 across the eastern states, which significantly improved storage levels, most of these systems were only able to partially recover in 2020. Accordingly, irrigation water allocations around the start of cotton planting in October 2020, for the MY 2020/21 crop, remained well below the two-year pre-drought average across most of

the irrigation schemes influential to cotton production in New South Wales (see Table 1). These irrigation water allocations limited the irrigated cotton area planted in MY 2020/21.

Figure 4 – Rainfall Decile Map – March 2021



Source: Australian Bureau of Meteorology / FAS/Canberra

Table 1 – Irrigation Water Allocations in Cotton Production Regions

Irrigation Catchment	Capacity (GL)	Water Allocation as at October		
		Pre-drought Av. (2016/17-2017/18)	Drought 2019/20	Transition from drought 2020/21
Border Rivers	635	87%	0%	23%
Gwyder Valley	1,364	37%	0%	5%
Namoi	823	54%	0%	6%
Macquarie	2,046	19%	0%	18%
Lachlan Valley	1,253	63%	0%	32%
Murrumbidgee	2,659	52%	6%	54%

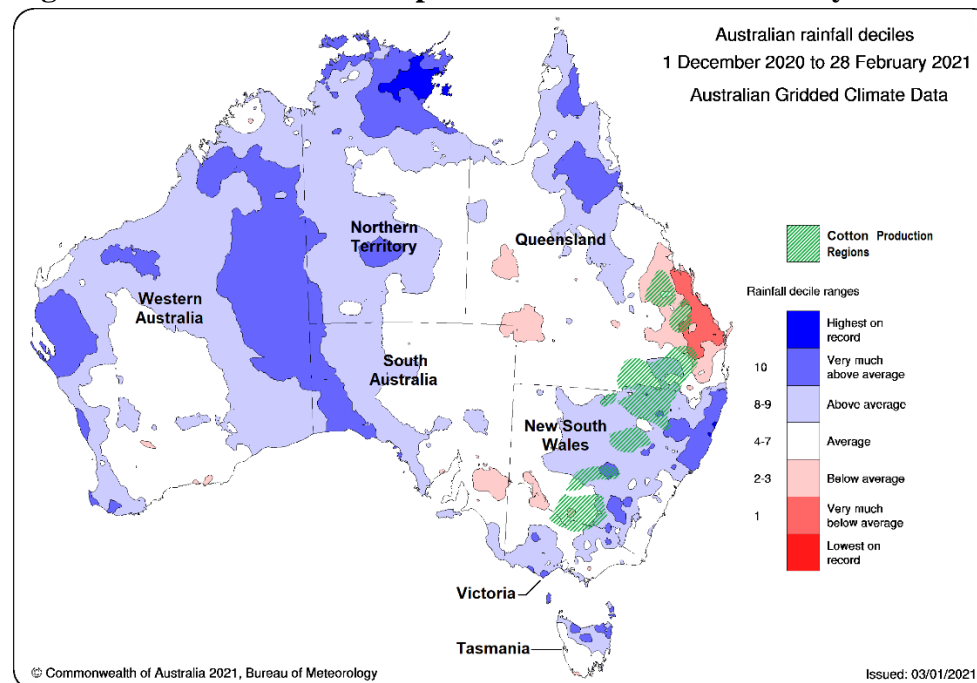
Source: Murray Darling Basin Authority

Notes: GL = Giga Liters (1.0 GL = 1.0 billion liters)

Water Allocation = percent of irrigators licensed water holdings

A significant improvement in water allocations is anticipated in the lead up to the planting of the forecast crop (to be planted October 2021) after above-average rainfall over the summer reduced irrigation water requirements for the MY 2020/21 crop (see figure 5), allowing this water to instead replenish water storages. In combination with well-above-average rains in most of New South Wales in March, irrigation system water reserves have been bolstered above expectations. This will enable cotton growers particularly in New South Wales to plan for a much bigger cotton planting area. In Queensland, drought recovery was further delayed with dry conditions prevailing in 2020. Despite improved rainfall in 2021 their irrigation schemes will take further time to recover.

Figure 5 – Rainfall Decile Map – December 2020 to February 2021



Source: Australian Bureau of Meteorology / FAS/Canberra

Increased Farmer Confidence to Plant More Cotton

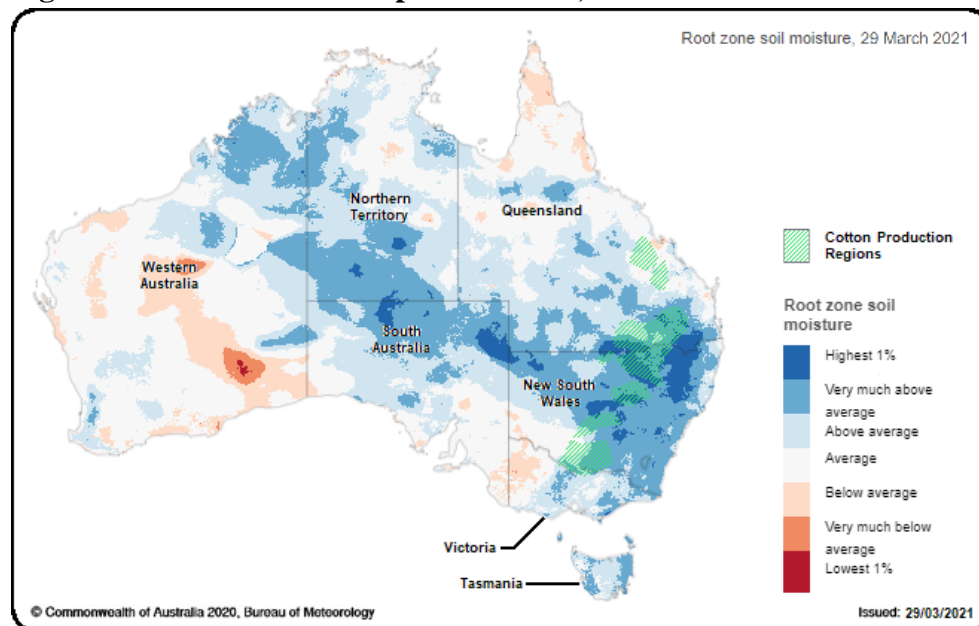
The anticipated improvement of water availability for the MY 2021/22 crop is an important contributor to influencing the size of the crop, but the financial capacity of growers to step back into a full cotton cropping program is also significant.

Most cotton growers are mixed farmers, many of which also produce winter crops including wheat, barley, canola, legumes and some in the more northern areas also produce sorghum and corn in the summer. In almost all cases cotton producers do not plant cotton immediately after a winter crop (i.e. double cropping). The winter crop harvest period and additional preparation time pushes cotton out to a late planting and far from optimal.

Cotton growers endured a heavy financial burden during the drought across 2018 and 2019 in the eastern states of Australia. For many there will be a multi-year recovery period and for the MY 2021/22 crop this will be the second season post-drought with growers continuing to weigh up the crop mix balance to manage risks and continue their financial recovery. Producing a cotton crop is broadly considered to require a higher level of input costs, requiring a high degree of management skill, and involves higher production risks. However, it also generates larger financial rewards than winter crops or other summer crops. Due to these characteristics, growers require a higher level of cash reserves to manage cash flow demands for cotton production. After depleting cash reserves due to the drought in 2018 and 2019 many growers favored lower input cost and lower risk winter crops, but will step towards a full cotton crop program as their financial positions improve.

Continued wet weather has also provided growers with further confidence for the MY 2021/22 season. Soil moisture reserves have a large bearing on cotton crop irrigation requirements. A full soil moisture profile reduces irrigation requirement by around 15-percent compared to low soil moisture reserves at planting. This saving in water requirement provides growers with the capacity to further expand their cotton area plantings. As that the end of March 2021, soil moisture profiles are already very high (see figure 6).

Figure 6 – Soil Moisture Map – March 29, 2021



Source: Australian Bureau of Meteorology / FAS/Canberra

Increased Crop Yield

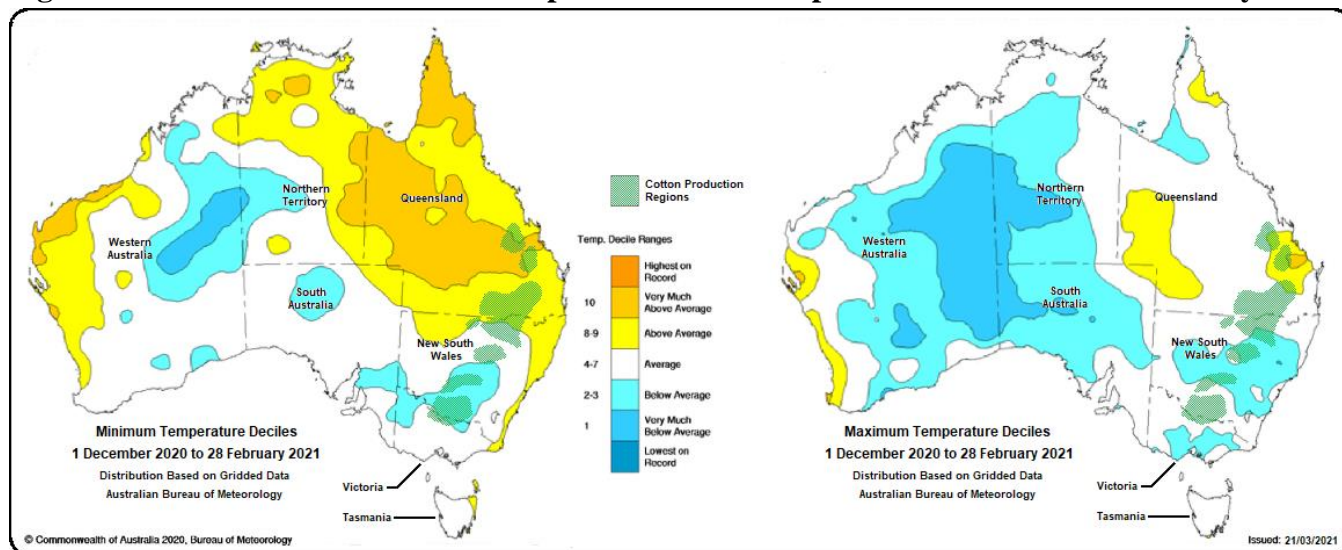
FAS/Canberra forecasts cotton crop yields to increase by eight percent to an average of 9.4 bales per hectare in MY 2021/22, from an estimated 8.7 bales per hectare in MY 2020/21. The forecast yield

improvement is due in part to an anticipated greater rise in irrigated cotton planted compared to the increase in lower yielding dryland cotton area.

In addition to the larger irrigated area, the forecast increase in yields is also based on an assumption that average minimum and maximum temperatures will return during the MY 2021/22 growing season. New South Wales, where typically two-thirds of the national crop is produced, experienced a mild summer (Dec 2020 to Feb 2021) across the major cotton producing areas with below average minimum and maximum temperatures (see figure 7). Further to this, the conditions during March 2021 continued in a similar and perhaps more pronounced manner. Industry sources estimate that the MY 2020/21 crop yield potential has declined 10 percent from where it was estimated previously because of these cooler conditions late in the growing season. A return to average temperatures for the MY 2020/21 crop will naturally contribute to a rise in yields.

FAS/Canberra's estimate for MY 2020/21 production is unchanged from the official USDA estimate of 2.6 million bales. Although yield prospects have worsened, cotton area is estimated to be larger than previously though due to late plantings.

Figure 7 – Minimum & Maximum Temperature Decile Maps – December 2020 to February 2021



Source: Australian Bureau of Meteorology / FAS/Canberra

Consumption

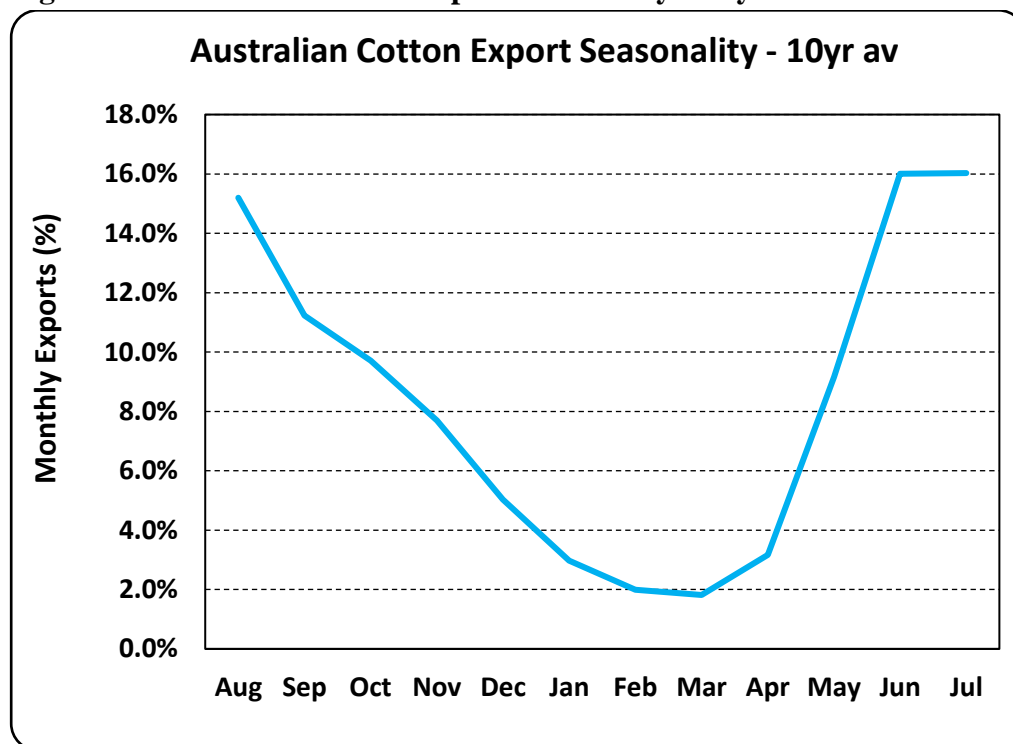
Manufacturing in Australia is uncompetitive due to the high cost of labor relative to the major cotton processing countries such as China, Vietnam, Indonesia, Bangladesh and India. There is no anticipated change to this situation and domestic consumption is forecast to remain at very low levels.

Trade

Because of the larger crop, FAS/Canberra forecasts cotton exports to more than double to 3.2 million bales in MY 2021/22 from an estimated 1.5 million bales in MY 2020/21.

Despite higher expected production in MY 2021/22, that crop will typically only impact exports for the last three months of the August to July marketing year (see figure 8). Exports for the August to April period of MY 2021/22 are from the preceding MY 2020/21 crop which is much smaller and therefore carry in stocks are estimated to be low, limiting an even greater increase in export volume for MY 2021/22.

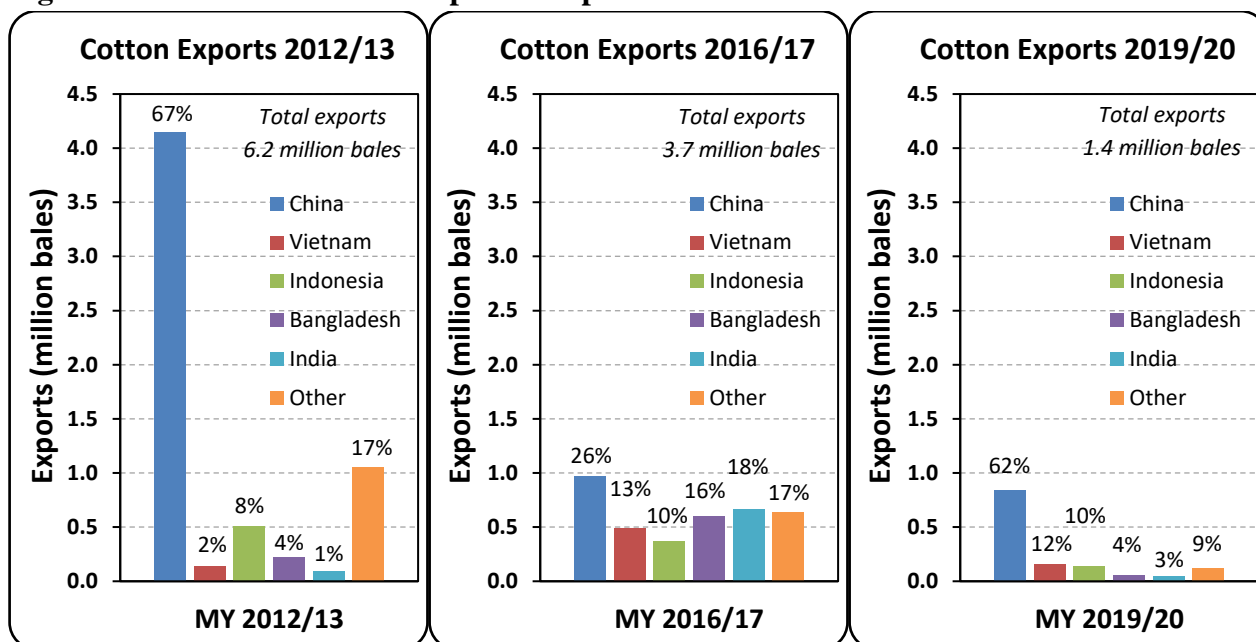
Figure 8 – Australian Cotton Export Seasonality – 10yr av



Source: Australian Bureau of Statistics

Australia exports practically all of its cotton production, primarily to China, Vietnam, Indonesia, Bangladesh and India. China is typically the main export market but over the last 10 years has varied from a quarter to 70 percent of overall Australian exports (see figure 9). The current trade tensions between China and Australia are a cause for some concern among traders.

Figure 9 – Australian Cotton Export Comparisons



Source: Australian Bureau of Statistics

Note: Percentages are percent of Australia's total exports for that year

Australia in typical years is the third or fourth largest exporter of cotton at around 10 to 13 percent of overall world exports, behind the United States, Brazil, and India. Australian cotton exports fell to four percent in MY 2019/20 due to low production caused by drought. However, exports are estimated to improve modestly in MY 2020/21 before more than doubling in MY 2021/22, bringing Australia back towards its more typical world trade contribution.

The MY 2020/21 cotton export estimate has been revised upwards by FAS/Canberra to 1.5 million bales from the official USDA estimate of 1.4 million bales. The revised position is based on stronger than expected export results for the August 2020 to January 2021 period for the old crop. For the new crop, although picking is commencing around three weeks later than usual, due to the still relatively small crop size, ginning is expected to finish around the usual time. As a result the start of the export season is not expected to be significantly delayed.

Stocks

With the forecast improvement in cotton production and accounting for trade seasonality, FAS/Canberra forecast ending stocks to increase by 36 percent in MY 2021/22 to 2.532 million bales from a revised estimate of 1.867 million bales in MY 2020/21.

The large rise in ending stocks is caused by increasing cotton production in Australia and the picking season (April to May) being at the tail end of the marketing year (August to July). As a result,

approximately 55 percent of production each year is typically carried forward into the subsequent marketing year in the form of stocks.

FAS/Canberra has downward revised the MY 2020/21 cotton ending stock by 100,000 from the official USDA estimate of 1.967 million bales. This revision is due to the FAS/Canberra export estimate being 100,000 bales higher than the official USDA estimate.

Cotton Market Year Begins Australia	2019/2020		2020/2021		2021/2022	
	Aug 2019		Aug 2020		Aug 2021	
	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
Area Planted (1000 HA)	0	0	0	305	0	425
Area Harvested (1000 HA)	60	60	275	300	0	415
Beginning Stocks 1000 480 lb. Bales	1572	1572	802	802	0	1867
Production 1000 480 lb. Bales	625	625	2600	2600	0	3900
Imports 1000 480 lb. Bales	0	0	0	0	0	0
MY Imports from U.S. 1000 480 lb. Bales	0	0	0	0	0	0
Total Supply 1000 480 lb. Bales	2197	2197	3402	3402	0	5767
Exports 1000 480 lb. Bales	1360	1360	1400	1500	0	3200
Use 1000 480 lb. Bales	35	35	35	35	0	35
Loss 1000 480 lb. Bales	0	0	0	0	0	0
Total Dom. Cons. 1000 480 lb. Bales	35	35	35	35	0	35
Ending Stocks 1000 480 lb. Bales	802	802	1967	1867	0	2532
Total Distribution 1000 480 lb. Bales	2197	2197	3402	3402	0	5767
Stock to Use % (PERCENT)	57.49	57.49	137.07	121.63	0	78.27
Yield (KG/HA)	2268	2268	2059	1887	0	2046
(1000 HA) ,1000 480 lb. Bales ,(PERCENT) ,(KG/HA)						

Attachments:

No Attachments