Food and Agriculture Organization of the United Nations

Recent trends and prospects in the world cotton market and policy developments

Recent trends and prospects in the world cotton market and policy developments

Food and Agriculture Organization of the United Nations
Rome, 2021

Required citation:

FAO. 2021. *Recent trends and prospects in the world cotton market and policy developments.* Rome.
https://doi.org/10.4060/cb3269en

ISBN 978-92-5-133951-0

Contents.

Foreword vii

Acknowledgements ix

Acronyms and abbreviations x

Chapter 1. The world fibre and cotton market. 1

1. The world fibre and cotton market 3

1.1 The world fibre market 3
1.2 The role of technology 10
1.3 Identity cottons 11
1.4 Future trends in the global cotton market 14

Chapter 2. Developments in major cotton producing and consuming countries 15

2.1 China production rises as state reserve falls and mill use shifts to the west 17
2.2 Indian farmers respond to higher support prices 18
2.3 Pakistan cotton production harmed by disease and insects 19
2.4 Central Asian land shifting to food production 20
2.5 Turkish cotton production shifting to the GAP region 22
2.6 Bangladesh: Fully integrated from spinning to apparel assembly 23
2.7 Viet Nam: Exponential consumption growth 24
2.8 Rest of Asia: Mixed mill use trends 24
2.9 United States cotton area expanding 25
2.10 Mexico: Benefitting from diversification of supply chains 25
2.11 Brazilian maize production falls, resulting in more area devoted to cotton 26
2.12 Argentine yields rising 27
2.13 Francophone Africa cotton production reaches record high 28
2.14 Low yields across sub-Saharan Africa outside the Francophone zone 29
2.15 Egyptian and Sudanese cotton production recovering 29
2.16 Australia dependent on water 30
2.17 Yields trending sideways in the European Union 31

Chapter 3. Policy instruments in major cotton producing countries 35

3.1 Global support provided to cotton 37
3.2 China 38
3.3 European Union 40
3.4 India 40
3.5 Turkey 41
3.6 United States of America 41
3.7 Uzbekistan 44
3.8 Other countries 44

Chapter 4. Changes in demand for textile products and their impacts on cotton end-use 46

4.1 Cotton prices and relative cotton polyester prices 49
4.2 Textile and apparel manufacturing: High volumes/small margins/ financial stress 51
4.3 Sustainability 53
4.4 Consolidation 53
4.5 Policy coherence/industry coordination 54
4.6 Conclusion 55

Glossary 56

References 58

Figures

Figure 1. World natural fibre production (32 million tonnes in 2018) **3**
Figure 2. World fibres production (110 million tonnes in 2018) **3**
Figure 3. World fibres' use **5**
Figure 4. Cotton's share of world fibre use **5**
Figure 5. World cotton production **5**
Figure 6. World cotton area **6**
Figure 7. World cotton yield **6**
Figure 8. World cotton production (2018/19) **7**
Figure 9. World cotton mill use **8**
Figure 10. Cotlook A Index **8**
Figure 11. Changes in cotton mill use 2011/12 to 2018/19 **8**
Figure 12. United States textile and apparel imports **9**
Figure 13. Cotlook A Index, nominal and real price **9**
Figure 14. Cotlook A Index: within season spreads **10**
Figure 15. USA cotton yields **11**
Figure 16. Identity cotton production **12**
Figure 17. World certified organic cotton production **12**
Figure 18. BCI as a share of national production in 2017/18 **13**
Figure 19. World cotton production **14**
Figure 20. World cotton mill use **14**
Figure 21. Cotton yield (average 2016/17-2018/19) **17**
Figure 22. China cotton mill use **18**
Figure 23. Year-on-year change H-4 MSP **18**
Figure 24. India cotton mill use **19**
Figure 25. Share of cotton mill use (2018/19) **19**
Figure 26. Pakistan production **19**
Figure 27. Pakistan crop revenue (2011-12 = 100) **20**
Figure 28. Uzbekistan cotton **20**
Figure 29. Average central Asia cotton production (2016/17-18/19) **21**
Figure 30. Uzbekistan cotton **22**
Figure 31. Turkey cotton yield **22**
Figure 32. World cotton import shares (2018/19) **23**
Figure 33. Bangladesh cotton mill use **23**
Figure 34. Viet Nam cotton mill use **24**
Figure 35. Cotton export **25**
Figure 36. Brazil harvest area **26**
Figure 37. Brazil cotton yield **26**
Figure 38. Brazil cotton **27**
Figure 39. World cotton export shares (2018/19) **27**
Figure 40. Production, area and yield Argentina **27**
Figure 41. Francophone Africa cotton **28**
Figure 42. Burkina Faso cotton **28**
Figure 43. Non-franc zone sub-saharan Africa **29**
Figure 44. North Africa cotton **30**
Figure 45. Cotton area in Australia **31**

Figure 46. EU cotton **31**
Figure 47. Cotton yields **32**
Figure 48. EU cotton imports by origin (2017/18) **32**
Figure 49. Support to cotton as a percentage of the value of world cotton production **37**
Figure 50. China cotton trade **38**
Figure 51. China cotton ending stocks **39**
Figure 52. United States expenditures on upland cotton **42**
Figure 53. Average fibre prices **50**
Figure 54. Average difference polyester - cotton **50**
Figure 55. United States consumer price indexes (1983=100) **53**

Tables

Table 1. World fibre production **4**
Table 2. Estimates of support to cotton worldwide and total agriculture in OECD countries **37**
Table 3. Margins in the United States apparel value chain **52**

Foreword

The cotton sector contributes significantly to the economies of many developing countries, notably the least-developed countries. It is a major source of livelihood and income for millions of rural smallholders worldwide. In 2019, world production of cotton was valued at about USD 46 billion, while global trade stood at USD 15 billion. Moreover, the cotton industry employs an estimated 150 million people across 75 countries, making the cotton sector a key contributor to the achievements of the 2030 Agenda for Sustainable Development. This socio-economic importance of the cotton sector stresses the necessity to understand the drivers of the market as well as identify the challenges and opportunities that lie ahead.

Demand for cotton depends on the demand for textiles. Over the last decade, textiles utilisation has been risen steadily mainly driven by population and income growth mostly in developing countries, particularly in Asia. Moreover, demand for natural fibres has expanded quite markedly in recent years, sustained by a growing trend for sustainability, providing further market opportunities for cotton. It is estimated that 15 percent of world cotton is produced under some sustainability standards. Despite these positive prospects and opportunities, the cotton share in global textile fibre consumption continues to hover around 27 percent, after accounting for close to 60 percent between 1960s and 1970s. Robust demand for man-made fibres, most notably polyester fibres, helped by technological improvements, explains the loss in market share for cotton.

Cotton is an important sector for FAO for a number of reasons. It is a major engine for value creation and a driver of economic growth in many countries. Cotton is an important means of livelihood for millions of smallholders, workers and their families, providing employment and income, and attracting export revenues to some of the poorest countries in the world, helping to pay for their food import bills. It is well established that production of food increases in areas where cotton is grown. This is due to the fact that income generated by cotton empowers individuals and communities to meet their food security and improve their nutritional status. Consequently, cotton makes a significant contribution to the achievement of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs). The production and trade of cotton contribute to reducing extreme poverty (SDG 1) and achieving the Zero Hunger Goal (SDG 2). Also, the sector contributes to SDG 5, by empowering women who are largely involved in the picking and processing of cotton and the marketing of its products, and to SDG 8, through the promotion of inclusive and sustainable economic growth and employment and decent work.

Cotton faces a number of uncertainties on both the production and demand sides that need to be properly addressed if the sector is to realize its full potential in supporting economic growth and sustainable development. There is mounting evidence on the impact of cotton production on the sustainable use of land, water and the ecosystems. Strategies to address these negative externalities will have to take place in the face of declining land and water resources in many parts of the world. While it is clear that the expansion in cotton supply will have to come from productivity gains at the farm level, it is equally important that gains must be realized along the various stages of the value chain. Clearly, low farm productivity, particularly in the cotton producing countries in West Africa, the so-known Cotton-4 (or C-4) countries (Benin, Burkina Faso, Chad and Mali), constitutes another major challenge that requires particular attention. In addition, recurrent changes in public policies do not create a conducive economic environment for boosting investment in the sector. This is notably the case in some key producing countries, with, for instance, frequent changes in stockholding policies, border measures, input subsidies and support to the domestic textile industry. Another challenge is the price-cost squeeze that the textiles and manufacturers face because of stagnant retail prices and rising production costs. The result of that, is a race to build economies of scale through consolidation. Cotton farmers have limited alternatives but to adapt to this economic context, characterized by recurrent periods of declining cotton prices and high market volatility.

Innovative technologies and resources need to be mobilised to ensure that the sector remains viable and continues to be a good source of income and overall economic development for the region. As FAO Director-General QU Dongyu highlighted during the World Cotton Day event held in WTO headquarters in October 2019, it is critical that the sector meets the highest standards of sustainability at all stages of the value chain. We need to do things differently, explore innovative approaches and new ideas and aim at pro-poor outcomes.

The present report examines key market, trade and policy drivers shaping the international cotton market. The analysis serves to inform policy makers, national planning agencies, regional and international organizations and other stakeholders about the policies, strategies and investment needs for the cotton sector. In addition, the report analyses the underlying economic and structural factors that are likely to shape development prospects for the cotton market, with a particular focus on the major international and regional producers. The report discusses the key trends that affect the market, including the relationship between man-made and cotton fibres as well as the extent to which technology can alter that relationship. This serves to inform and support policy-making processes at various levels in the formulation and execution of policies and investment strategies to ensure a more efficient, inclusive, resilient and sustainable cotton sector.

Boubaker Ben-Belhassen, Director
Markets and Trade Division — FAO

Acknowledgements

This report was prepared by the Markets and Trade Division (EST) of FAO.

The analysis and write-up were carried out by El Mamoun Amrouk, Senior Economist (EST), Georgios Mermigkas, Economist (EST) and Terry Townsend, Former Executive Director of the International Cotton Advisory Committee (ICAC). Alice Fortuna, Consultant (EST), provided statistical support.

The authors are grateful to Boubaker Ben-Belhassen, Director of the Markets and Trade Division, FAO, for his overall guidance and support.

The authors are also grateful to Ettore Vecchione and Jonathan Hallo for the report design, and to Araceli Cardenas for production support. Thanks are also extended to Laura Utsey for copy-editing the report.

The analysis contained in this report benefited from discussions during a side-event organized by FAO in conjunction with the celebration of the World Cotton Day in October 2019 at the World Trade Organization (WTO) headquarters in Geneva. The event was attended by the FAO Director-General, Dr QU Dongyu.

Acronyms and abbreviations

BCI	Better Cotton Initiative
CAFTA	Central American Free Trade Agreement
CCI	Cotton Corporation of India
CmiA	Cotton made in Africa
CPI	Consumer price index
DNFI	Discover Natural Fibres Initiative
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross domestic product
GM	Genetically modified
GSM-102	Short-Term Export Credit Guarantee Program
HT	Herbicide tolerant
ICAC	International Cotton Advisory Committee
IR	Insect resistant
MSP	Minimum Support Price
OECD	Organisation for Economic Co-operation and Development
TRQ	Tariff-rate-quota
USDA	United States Department of Agriculture
WTO	World Trade Organization

Chapter

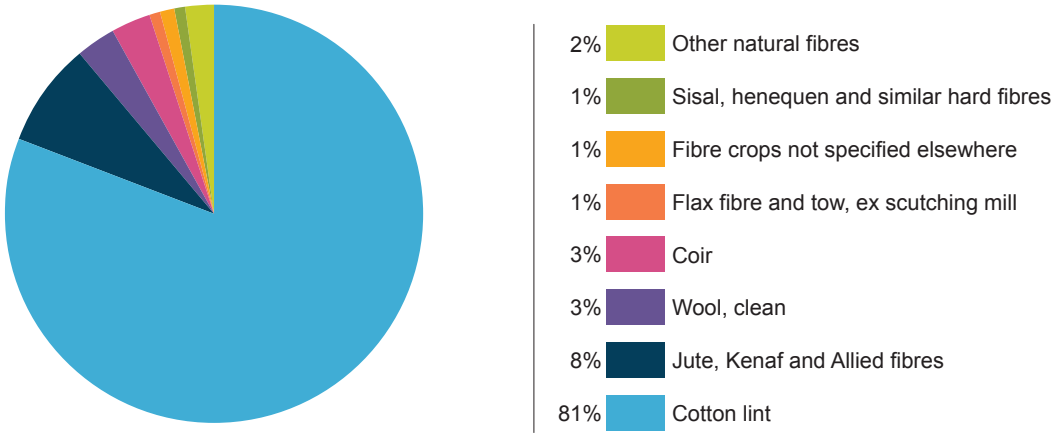
1

1. The world fibre and cotton market

1.1 The world fibre market

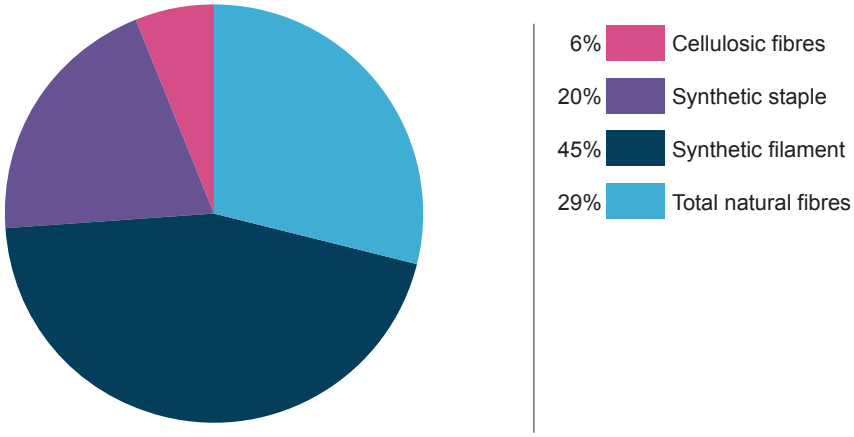
World production of all fibres equalled about 110 million tonnes in 2018 (Figure 2), including 32 million tonnes of natural fibres (Figure 1) and 79 million tonnes of chemical fibres, both cellulosic (fibres made from the cellulose contained in the pulp of wood, bamboo and other sources) and non-cellulosic (fibres made from petroleum molecules). The man-made fibre complex accounted for 70 percent of total fibre production in 2018.

Figure 1. World natural fibre production (32 million tonnes in 2018)



Source: OECD/FAO, 2020.

Figure 2. World fibres production (110 million tonnes in 2018)



Source: OECD/FAO, 2020.

Cotton accounted for 26 million tonnes of fibre production in 2018/19 (1 August 2018 to 31 July 2019), in other words, 81 percent of the natural fibre production by weight and 24 percent of the total fibre production. Polyester, particularly polyester filament, dominated the chemical fibre universe, while synthetic filament alone, most of which is polyester, accounted for nearly half of all fibre production in 2018.

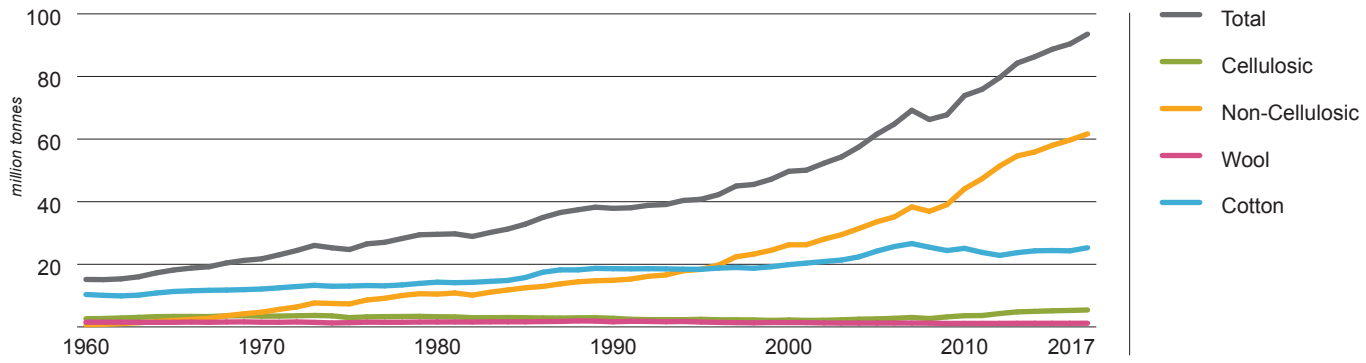
Prior to the 1900s all fibres were natural, and in the 1960s natural fibres still represented 80 percent of world fibre use. Since the 1960s, when world fibre use was approximately one-eighth of the current level, almost all of the growth in consumption has occurred in polyester and cotton, especially polyester (Figure 3). By the 1980s, natural fibre shares had fallen to about half, while the downward trend abated during the 1980s due to below-average prices for cotton. The downward trend in market shares of other natural fibres continued in the 1990s and 2000s (Figure 4). Over the past two decades there has been rapid growth in cellulosic fibres (called rayon or viscose), from 2 million tonnes in the early 2000s to 7 million tonnes in 2018. Some of the growth in cellulosic staple fibre production has been offset by a decline in cellulosic filament production (Table 1).

Table 1. World fibre production

Type	Origin	Name	Growth rate 2012–2014	2015	2016	2017 *preliminary*	2018 *estimated*
			%				000 tonnes
Natural Fibers							
	Vegetable Origin						
		Abaca	-2%	78.2	86.9	84.2	83.0
		Bastfibres. other	-8%	234.4	222.0	205.7	190.0
		Coir	5%	1 021.6	986.9	975.4	970.0
		Cotton Lint	-3%	21 476.0	23 075.0	26 664.0	26 052.0
		Fibre crops not specified elsewhere	1%	281.5	279.6	278.9	280.0
		Flax fibre and tow. ex scutching mill	-3%	313.0	317.0	300.0	310.0
		Hemp fibre and tow	39%	79.5	71.1	59.8	70.0
		Jute. Kenaf & Allied Fibres	-13%	2 828.2	3 382.0	3 312.2	2 500.0
		Kapok fibre	-7%	93.6	97.0	96.0	96.0
		Ramie	-11%	111.2	100.8	102.7	100.0
		Sisal. Henequen and similar hard fibers	5%	248.9	229.6	209.1	210.0
	Animal Origin						
		Silk. raw	0%	169.0	169.0	165.0	164.0
		Wool. clean	2%	1 156.4	1 140.5	1 120.0	1 080.0
		Other animal fibres*	8%	31.4	30.0	31.0	31.0
		Total Natural Fibers	-3%	28 122.8	30 187.5	33 600.0	32 100.0
Manmade Fibres							
		Cellulosic Fibers	14%	6 070.0	6 141.0	6 400.0	6 900.0
		Synthetic Filament	12%	42 251.0	43 613.0	46 100.0	49 800.0
		Synthetic Staple	2%	19 214.0	19 623.0	20 700.0	22 400.0
				0.0	0.0	0.0	0.0
		Total Manmade Fibers	9%	67 535.0	69 377.0	73 200.0	79 100.0
				0.0	0.0	0.0	0.0
Total Fibre	**Production**		**5%**	**95 657.8**	**99 564.5**	**106 800.0**	**111 200.0**

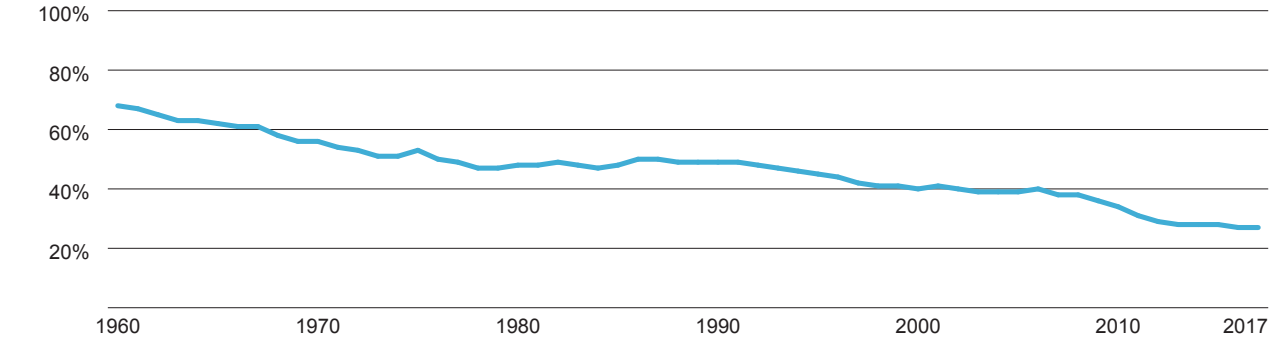
Source: ICAC, International wool textile organization (IWTO) and FAO, 2019.

Figure 3. World fibres' use



Source: ICAC, 2018c.

Figure 4. Cotton's share of world fibre use

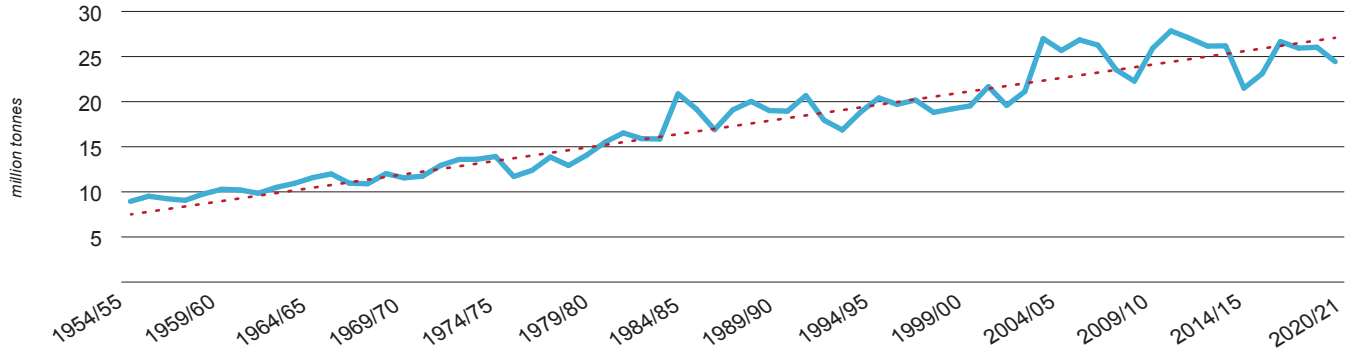


Source: ICAC, 2018c.

1.1.1 Production, area and yield

The average annual rate of growth in world production over the past seven decades was 2.5 percent, or about 290 000 tonnes. Cotton is the most important of the natural fibres due to its rapid growth rate and wide range of applications in apparel and home furnishings. About 80 percent of cotton is used in apparel, with denim being the single largest end-use category, accounting for nearly one-fifth of all cotton use. About 15 percent of world cotton use is in home furnishings, especially sheets and towels, and the remaining 5 percent accounts for a variety of mostly non-woven applications, such as filters and padding.

Figure 5. World cotton production

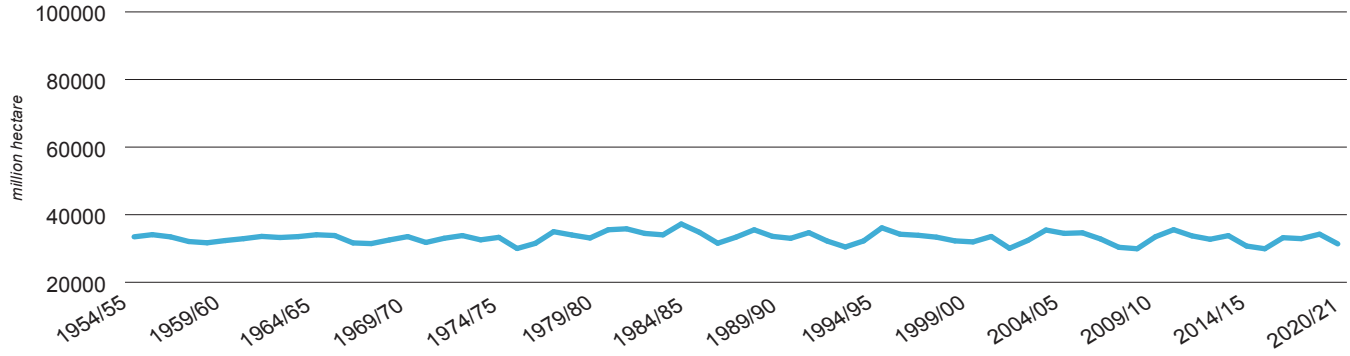


Source: OECD/FAO, 2020.

As shown in Figure 5, growth in cotton production was steady during the 1950s and 1960s, but declined during the 1970s as a result of slower world economic growth and limited gains in cotton yields. World cotton production surged from 14 million tonnes in the early 1980s to 19 million tonnes in 1984/85, as higher cotton prices and a widespread use of better seed varieties as well as better methods of plant protection against pests led to increased yields. World production climbed to a record of nearly 21 million tonnes in 1991/92 but levelled off during the 1990s. With the commercial use of biotech cotton varieties beginning in 1996 and the expansion of cotton areas in West Africa, Australia, Brazil, China and Turkey, world production reached 27 million tonnes in 2004/05. However, production declined from 2008 to 2009, due to the world recession, to 22 million tonnes in 2009/10, still well above the pre-2004/05 level.

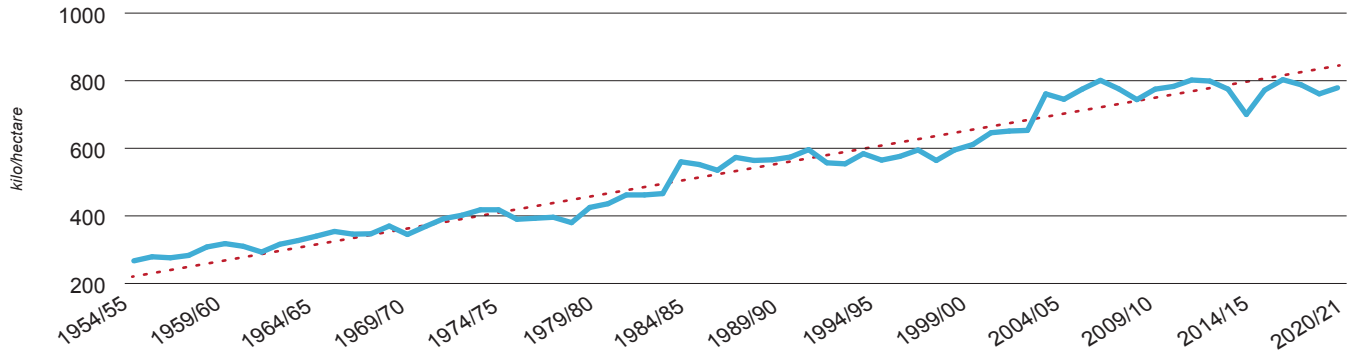
Areas in the world where cotton is produced have fluctuated since the 1950s from between 28 million hectares (ha) and 36 million ha, averaging about 33 million ha (Figure 6). While there has been a significant reduction in cotton areas in some regions since the 1950s, particularly in the United States of America and Central Asia and North Africa, an increase has been seen in West Africa, China, India and Pakistan, which have offset this decline. Although the total area shows no signs of increase, the growth in world cotton production since the 1950s has been the result of higher yields linked to improved technologies.

Figure 6. World cotton area



Source: OECD/FAO, 2020.

Figure 7. World cotton yield



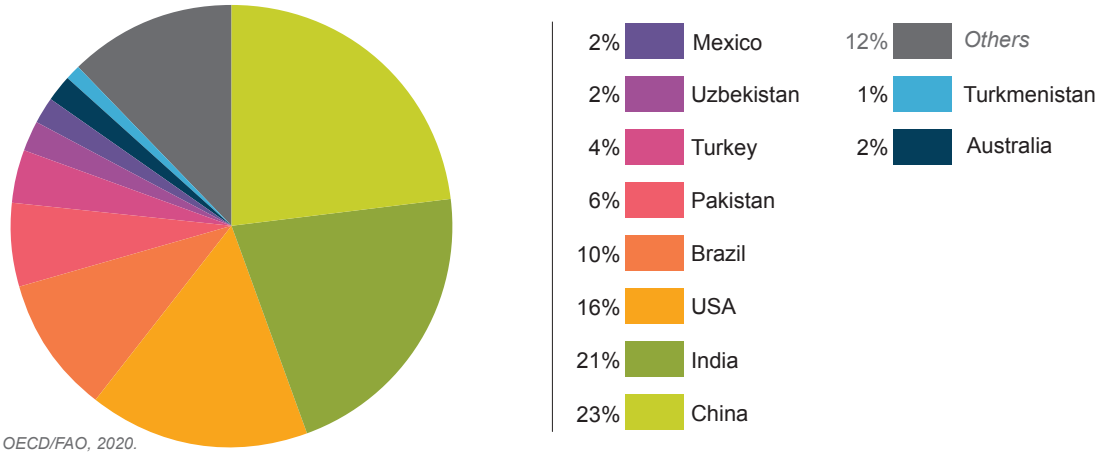
Source: OECD/FAO, 2020.

The world cotton yield has displayed an upward trend since the 1950s (Figure 7). The world average yield in the early 1960s was 230 kilogrammes (kg) of lint per hectare. Yields rose steadily at an average rate of more than 2 percent per year during the 1950s and 1960s, and subsequently more slowly from the mid-1970s until the mid-1980s. During the 1980s the world cotton yield surged, reaching a record of nearly 600 kg/ha in 1991/92. However, yields stagnated during the 1990s due to problems associated with diseases and resistance to insecticides. Yields began rising again in the late 1990s due to improvements in seed varieties

and the use of biotech traits, bringing the world yield in 2007/08 up to a record 793 kg/ha. However, the pace of technology development and adoption slowed down after 2007/08, and the world yield in 2018/19 was still nearly 800 kg ha. In sum, the average annual rate of increase between 1950/51 and 2018/19 was 9 kg/ha.

The largest cotton producing countries in 2018/19 were China and India, accounting, respectively, for about one-quarter and one-fifth of the world total, respectively. Together, Brazil and the United States of America accounted for about one- quarter of production, while Pakistan and Turkey as a whole represented about one-tenth of the total. The remaining 60 countries all together produced about one-fifth of the world total (Figure 8).

Figure 8. World cotton production (2018/19)



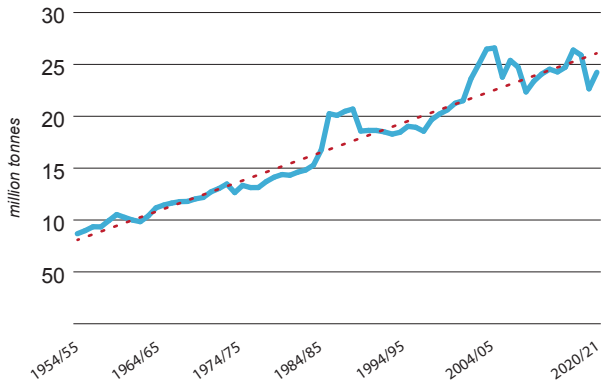
Source: OECD/FAO, 2020.

1.1.2 Consumption/mill use

World cotton mill use finally completed its recovery from the recession of 2008–2009 during 2017/18 and 2018/19. Mill use returned to 26.7 million tonnes in 2018/19, equal to the level achieved in 2007/08. The weakening of retail sales during the recession, followed by the spike in cotton prices during 2010/11, caused world mill use to drop to 22 million tonnes during 2011/12. In response to the market disruptions caused by the global recession, the Government of China began stockpiling cotton in a state reserve in 2011/12. Ending stocks in China rose from 2 million tonnes in July 2011 to 14 million tonnes in July 2015. Purchases for the reserve ended in 2015, resulting in more availability of cotton for market use. Three consecutive years of growth in cotton consumption beginning in 2016/17 finally completed a recovery from the recession and its aftermath.

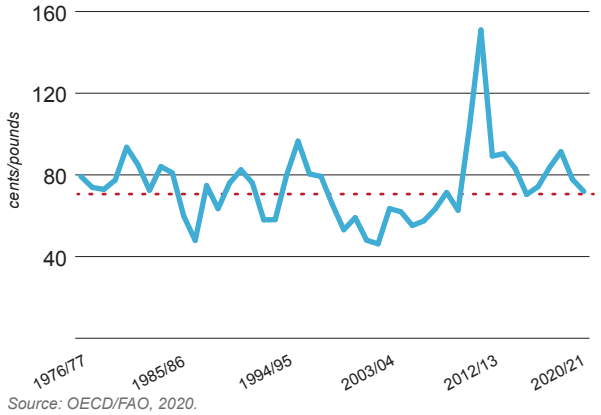
Since the 1950s, world cotton use has climbed an average of 280 000 tonnes per season, reaching a current level of 24.5 million tonnes (Figure 9). The rise in consumption during 2012/13 through 2017/18 was remarkable in that it occurred while prices remained generally above average (Figure 10).

Figure 9. World cotton mill use



Source: OECD/FAO, 2020.

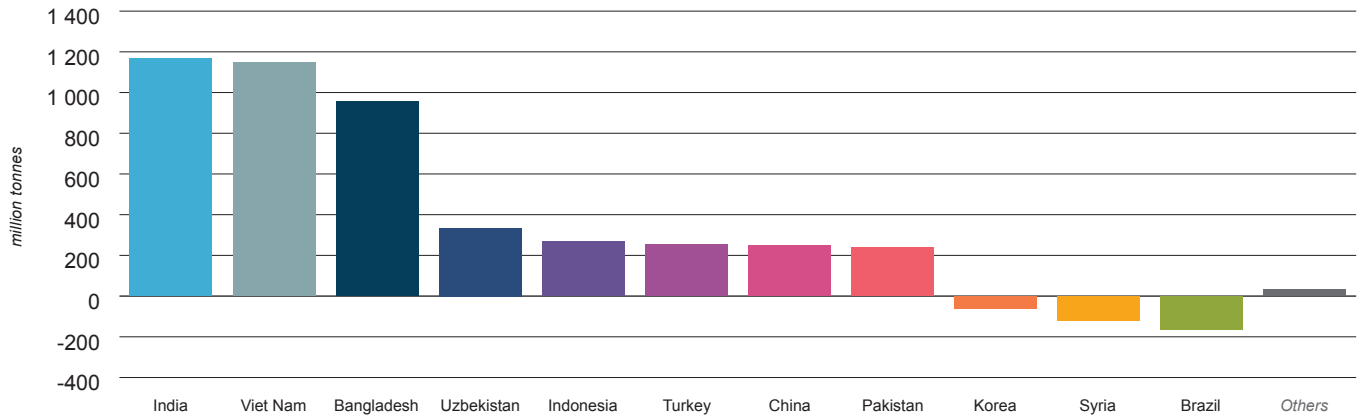
Figure 10. Cotlook A Index



Source: OECD/FAO, 2020.

Three-quarters of the increase in world mill use between the post-recession low in 2011/12 of 22.4 million tonnes and the recovery to 25.9 million tonnes in 2018/19 occurred in just three countries: India – up 1.2 million tonnes; Viet Nam – up 1.1 million tonnes; and Bangladesh – up 1 million tonnes (Figure 11). An additional five countries accounted for almost all of the remaining growth in world mill use between 2011/12 and 2018/19: China, Indonesia, Pakistan, Turkey and Uzbekistan, each amounting to between 200 000 and 300 000 tonnes. Despite the total rise globally, mill use of cotton actually declined in about 60 countries, most notably in Brazil, which was down by 170 000 tonnes, the Syrian Arab Republic, down by 120 000 tonnes, and the Republic of Korea, down by 60 000 tonnes.

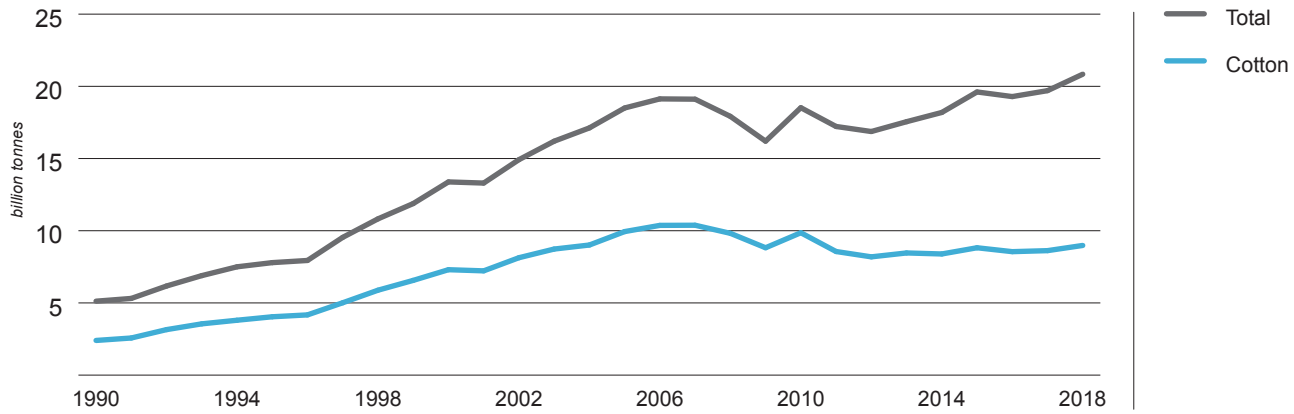
Figure 11. Changes in cotton mill use 2011/12 to 2018/19



Source: OECD/FAO, 2020.

World cotton mill use rose beginning in 2016/17 through 2017/18, in addition to increasing sales at the retail level, at least by a small amount. The United States of America remains the world's largest market for cotton at the retail level, and the country's imports of cotton apparel, floor coverings, headgear, home furnishings and yarn, thread and fabric, on a raw-fibre equivalent basis, increased from 3.9 million tonnes in 2016 and 2017 to 4.1 million tonnes in 2018 (Figure 12). Imports of products containing other fibres rose at a faster rate and cotton shares of fibre imports on a raw-fibre equivalent basis fell from 44.3 percent in 2016 to 43.1 percent in 2018. Nevertheless, the gain in absolute terms during 2017 and 2018 meant that cotton consumption at the retail level in the United States of America was at its highest since 2010.

Figure 12. United States textile and apparel imports



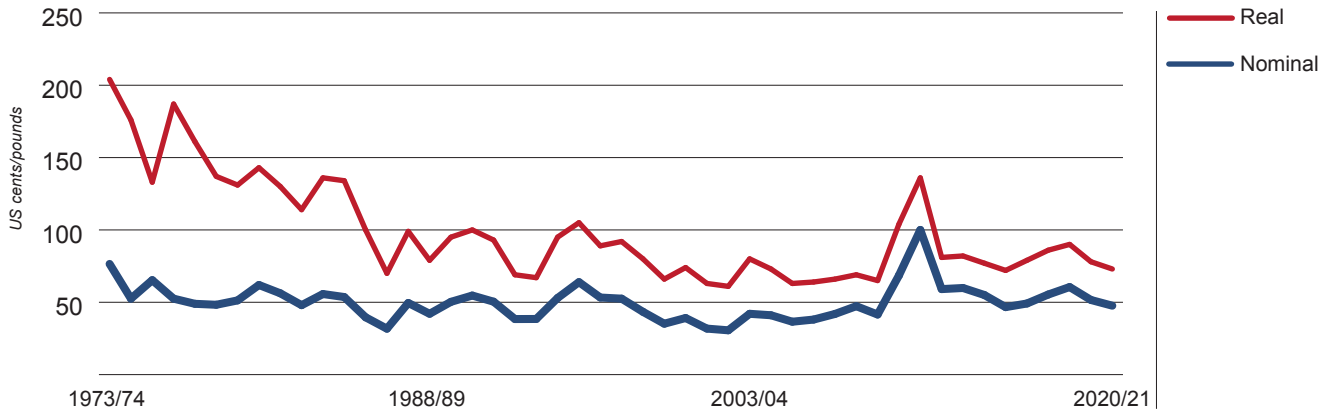
Source: ICAC 2018c.

1.1.3 Prices

In nominal terms, the Cotlook A Index, which represents an indicator of average world prices for cotton in US cents/lb delivered to East Asian ports, fluctuated between US 40 cents/lb (USD 880/tonne) and US 95 cents/lb (USD 2 090/tonne) from the early 1970s until 2018/19. However, there was an exception during 2010/11 and 2011/12, when cotton prices briefly exceeded USD 2/lb due to disruptions in the cotton-textile-apparel supply chain caused by the 2008–2009 world recession. During the recession, all actors in the supply chain reduced their inventories for fear of an even steeper and longer reduction in demand than before. When the consumer demand began to recover in early 2010, there was panic buying at all levels of the value chain as manufacturers and retailers sought frantically to rebuild stocks. The result was a short-lived but extraordinary spike in cotton prices. With the exception of 2010/11 and 2011/12, there was no statistically significant upward or downward trend in nominal cotton prices.

In contrast, deflated values of the Cotlook A Index declined sharply during the 1970s, 1980s and 1990s. The Cotlook A Index decreased from USD 2/lb (approximately USD 5 150/tonne) in the early 1970s to about US 80 cents/lb (USD 1 800/tonne) in the early 2000s. In 2010/11 and 2011/12 the cotton index reached US 104 cents/lb and US 151 cents/lb, respectively, and ranged between US 70-90 cents/lb after that.

Figure 13. Cotlook A Index, nominal and real price



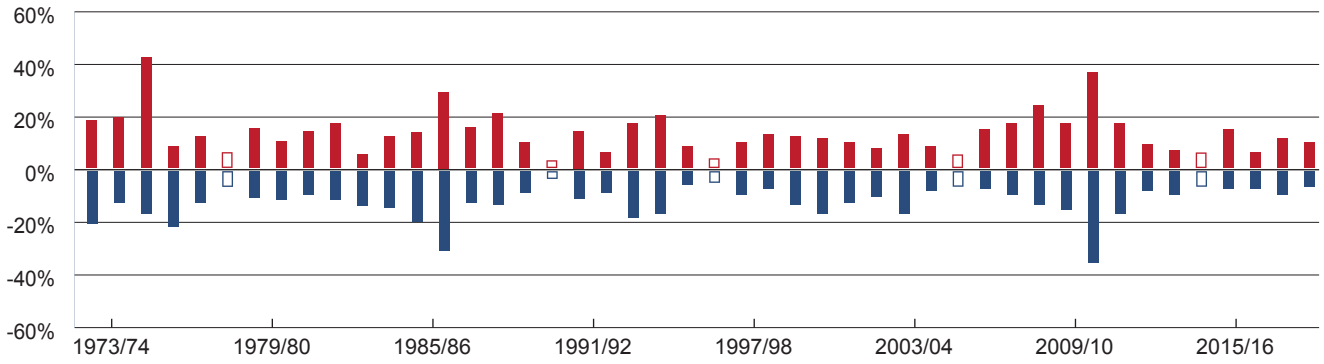
Source: OECD/FAO, 2020.

Globally, about 50 million family units are engaged directly in cotton production during some period of each season. When family labour, hired on-farm labour and workers in ancillary services such as transport, ginning, baling and storage are considered, the total involvement in the cotton production sector is estimated at between 150 million and 190 million people.

The world average gross revenue per household from cotton production is about USD 1 000 per year. However, the range of the world average gross revenue is extremely wide. For instance, smallholders in a developing country that grow cotton on half a hectare may receive about USD 400 in gross revenue. In contrast, a large mechanized operation in Australia, Brazil or the United States of America may gross more than USD 2 million, and even larger operations might gross more than USD 50 million a year.

As is true of all commodities, the prices of cotton are volatile depending on the prices of manufactured products. Between 1973/74 and 2018/19, the highest daily values of the Cotlook A Index quoted for each season averaged 17 percent above the mean value for each corresponding season, and the lowest quote averaged 15 percent below the mean value for its corresponding season (Figure 14). Accordingly, the range between the lowest and highest quote for the Cotlook A Index each season tended to be about one-third of the average price.

Figure 14. Cotlook A Index: within season spreads



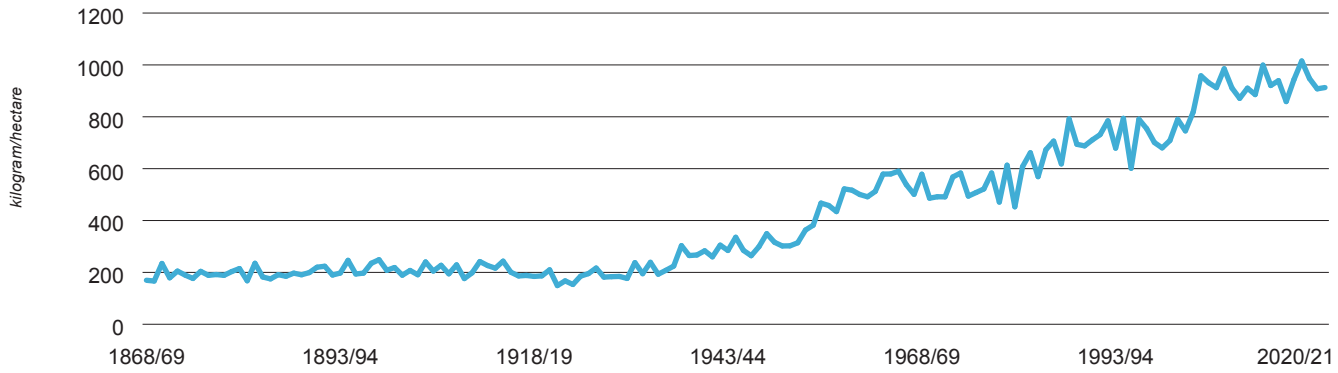
Source: ICAC, 2018c.

Moreover, the range between high and low prices each season can be much greater than one-third of the average level, as was the case during 2010/11 (a low-high range of nearly 100 percent of the mean), 1986/87 (a range of 80 percent of the mean) and 1975/76 (a range of nearly 60 percent of the season average price). There have also been seasons where there was relatively low price volatility, for example when the range between the lowest and highest prices within a season was less than 10 percent of the mean.

1.2 The role of technology

The role of agricultural science in driving increases in cotton productivity is reflected in the data on cotton yields from the United States of America. Cotton has been grown in the United States for many years, but commercial production only began in the 1790s with the invention of the cotton gin that separated lint from seeds. In fact, the United States of America has been involved in commercial cotton production longer than any other country. Yield data for this country are available as of the 1860s, when all agriculture at that time was entirely organic (Figure 15).

Figure 15. USA cotton yields



Source: OECD/FAO, 2020.

From the 1860s to the 1920s there were no gains in US cotton yields, which averaged 200 kg/ha. Small year-to-year variances occurred due to pressures from weather conditions and pests, but there were no significant structural changes in productivity.

However, since the 1920s the yield in the United States of America has risen fivefold to 1 tonne/ha, mirroring the changes in agricultural productivity of all crops. The major technologies that have led to these achievements include directed breeding, mechanization, synthetic fertilizers, plant protection chemicals, and more recently the tools of genetic engineering.

The mechanization of agriculture began with rudimentary animal-powered machines in the 1800s, but the development of modern machinery during World War II led to the widespread adoption of tractors and associated implements in the 1950s and 1960s. By the early 1970s, all cotton production in the United States of America, including harvesting, was mechanized. Mechanization not only reduces labour, but it also enhances yields by allowing for uniform plant spacing in even rows to ensure proper nutrient management. By the 1950s, the yield in the United States of America had doubled to 400 kg/ha.

In the 1960s and 1970s, scientists and engineers developed synthetic nitrogen for fertilizer and plant protection chemicals to control weeds, disease and insects, and by the 1980s cotton yields in the United States of America rose to between 600 and 800 kg/ha.

In the 1990s, input use was reduced and yields rose, as a result of the commercial release of cotton varieties containing herbicide tolerant (HT) and insect resistant (IR) traits developed by the tools of biotechnology. As of 2018, genetically modified (GM) cotton had been approved for commercial cultivation in 18 countries: Argentina, Australia, Brazil, China, Colombia, Costa Rica, Ethiopia, India, Japan, Mexico, Myanmar, Nigeria, Pakistan, Paraguay, South Africa, Sudan, Swaziland and the United States of America. Burkina Faso, which approved the use of GM cotton in 2009, discontinued the use of such varieties in 2015. In 2018, GM cotton accounted for about 80 percent of world cotton area.

1.3 Identity cottons

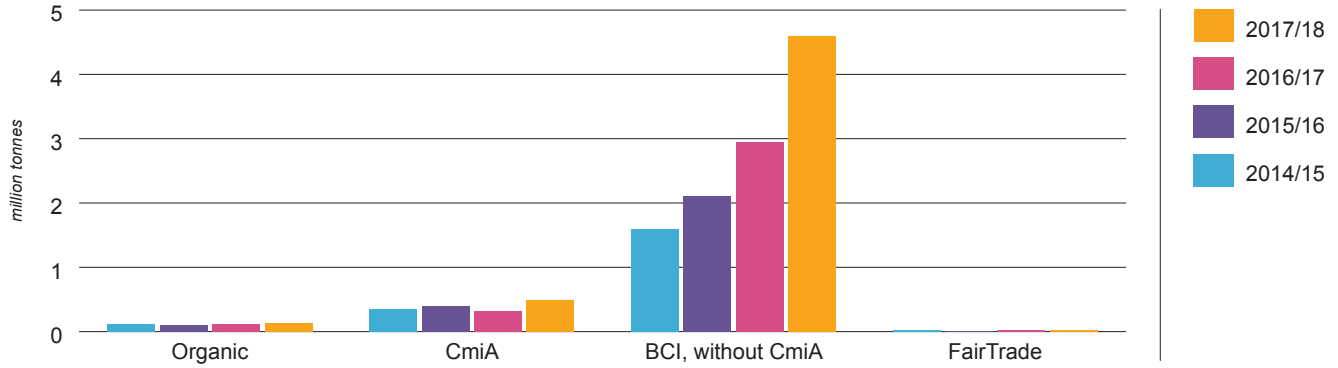
World cotton production is increasingly disaggregated due to a growing number of programmes to collect data, encourage improvements or assure consumers of responsible production practices. Some of these programmes are organized by producers in a particular country, some are sponsored by input suppliers, and some are multinational initiatives facilitated by the private sector and governments. Since cotton is increasingly identified in marketing channels by the programme under which it was produced, it goes under the name: 'identity cottons.'

There are four major identity cottons, accounting for 19 percent of world cotton production:

- Certified organic
- Fairtrade
- Cotton made in Africa (CmiA)
- Better Cotton Initiative (BCI).

As illustrated in Figure 16, BCI and CmiA together account for almost all of the global identity cotton production. A problem common to all identity cottons is that less than half are actually sold as an identity product, with consumers, retailers and brands paying various fees or price premiums. The majority of cotton produced under the four major identity programmes is sold as regular cotton under commercial terms.

Figure 16. Identity cotton production

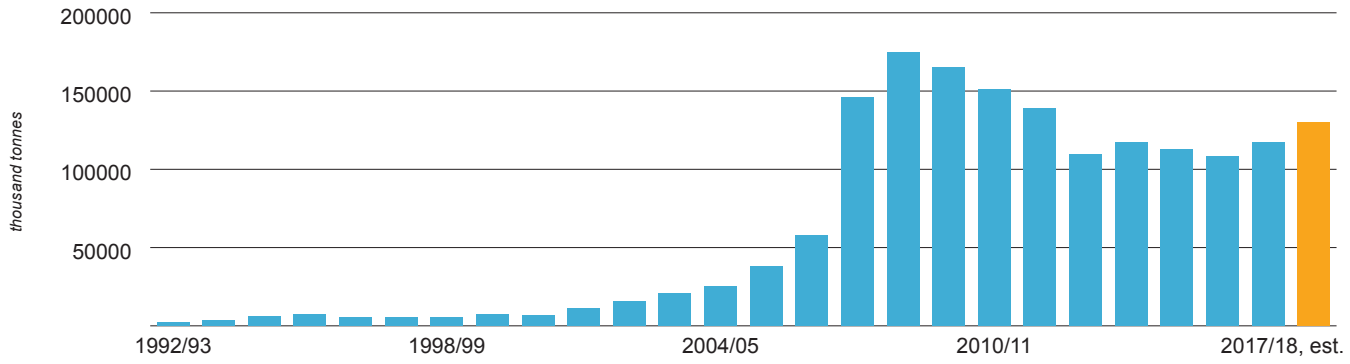


Source: ICAC, 2018a.

1.3.1 Organic cotton

The production of certified organic cotton was 117 525 tonnes for an area of 473 000 ha in 2016/17, indicating that the average organic yield was 248 kg of lint per hectare (Textile Exchange, Organic Cotton Market Report, 2018). There were 220 000 farmers involved in organic cotton production in 2016/17 and production per farmer was about 500 kg of lint on a mere 2 ha (Figure 17).

Figure 17. World certified organic cotton production



Source: Textile Exchange, 2018.

India accounted for 50 percent of world organic cotton production in 2016/17, China 22 percent and Kyrgyzstan, Tajikistan and Turkey each accounted for about 7 percent. An additional 20 countries accounted for the remaining share percent.

1.3.2 Fairtrade

Key Fairtrade products are tea, coffee, cocoa, flowers and bananas. Cotton is classified as a 'smaller, newer category.'

Production of Fairtrade cotton in 2016/2017 reached 18 000 tonnes in nine countries (Benin, Burkina Faso, Egypt, India, Kyrgyzstan, Mali, Senegal, Tajikistan and Uganda); furthermore, almost all Fairtrade cotton is organic. However, producers sold an average of slightly more than 40 percent of their production volume on Fairtrade terms – meaning that they received the Fairtrade minimum price and premium.

1.3.3 Cotton made in Africa

Cotton made in Africa is an initiative started by the Aid by Trade Foundation, which helps African smallholder cotton farmers improve their living conditions. Farmers are expected to benefit from participation in CmiA through training in improved agricultural practices, however not from price premiums. Production under CmiA reached nearly 500 000 tonnes in 2017/18 on are area of 1.6 million ha. CmiA reported that 1 million farmers participated in 2017/18, meaning that production per farmer was about 500 kg of lint with each farm household managing about 1.5 ha of cotton.

The average yield among farmers participating in CmiA was a little over 300 kg of lint/ha, compared with almost 400 kg/ha for other farmers in sub-Saharan Africa. CmiA accounted for 30 percent of all cotton grown in sub-Saharan Africa in 2017/18.

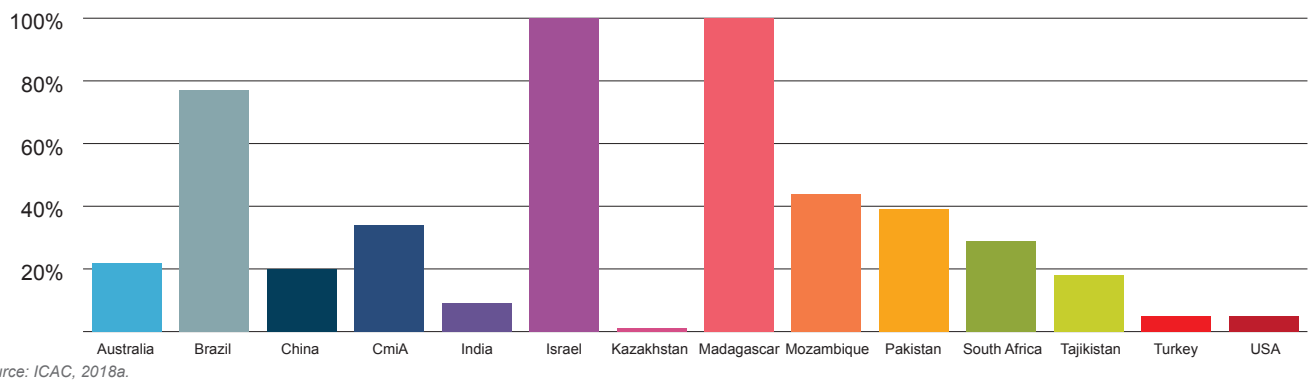
1.3.4 Better Cotton Initiative

As of 2017/18, producers participating in BCI accounted for 4.6 million tonnes of cotton from 3.3 million ha (exempting cotton counted in CmiA). The average yield among producers participating in BCI in 2017/18 was 1 380 kg of lint/ha. Two-thirds of BCI production occurred in two countries, Brazil and China, where yields are above the world average, explaining the high average yield for BCI producers overall. Across all of the countries, about 500 000 farmers were participating in BCI in 2016/17 (the most recent year available for data).

Producers who participated in BCI/CmiA accounted for two-thirds of total production in Brazil in 2016/17 and one-fifth of the production in China and sub-Saharan Africa. BCI participants also accounted for one-fifth of total production in Pakistan during 2016/17 (Figure 18).

All cotton production in Israel and Madagascar was within the BCI system while around one-third of the cotton production was in Mozambique and South Africa. Other countries with producers participating in BCI included Australia, India, Kazakhstan, Tajikistan, Turkey and the United States of America.

Figure 18. BCI as a share of national production in 2017/18



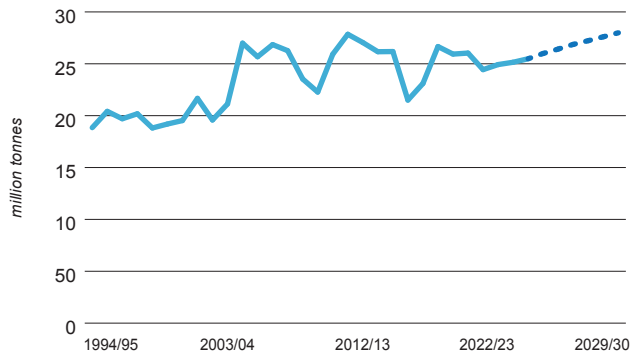
Source: ICAC, 2018a.

1.4 Future trends in the global cotton market

As mentioned earlier, almost 70 percent of the fibres produced globally are man-made fibres, and there is no sign that natural fibres will ever regain their previously dominant position. However, a major advantage held by the natural fibres over their man-made competitors concerns their biodegradability. This is particularly important given the increased awareness on the part of both consumers and regulators of the environmental impacts of non-biodegradable polymers.

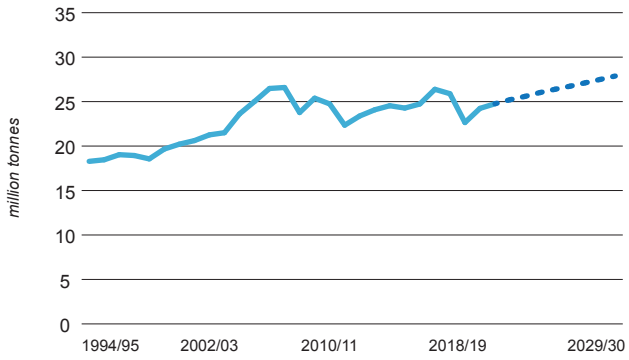
According to the OECD-FAO Agricultural Outlook 2020-2029 (Figure 19-20), world cotton production and consumption are predicted to rise to about 29 million tonnes in the next decade (summarized from OECD/FAO 2020). Concerning prices, a partial correction and alignment with their historical pattern and tendency to follow polyester prices is expected.

Figure 19. World cotton production



Source: OECD/FAO, 2020.

Figure 20. World cotton mill use



Source: OECD/FAO, 2020.

The subdued increase of world cotton production will be driven by developments in both harvested area and yields. The world cotton area ranged between 29 million and 36 million ha since the 1950s, and is expected to remain within those limits through 2029, gradually rising to the top of the range. The world yield remained unchanged around 800 kg of lint/ha since the mid-2000s, as no trend-altering technological breakthrough has been introduced for commercial application since then. That said, incremental improvements in technology and broader adoption of existing technologies may lead to a modest rise in the world yield to 850 kg of lint/ha by 2029/30, resulting in an increase in world cotton production to approximately 30 million tonnes.

After trending downwards since 2017, international cotton prices in nominal terms are foreseen to rise over the projection period, while decreasing slightly in real terms, as world cotton demand remains under pressure from synthetic fibres, notably polyester. Since the early 1970s, when polyester became price-competitive with cotton, cotton prices have tended to follow polyester prices. Since 2010, however, cotton prices have been on average almost 40 percent above the polyester price. This seems likely to be in large part due to temporary factors.

The ratio of world ending stocks to world mill use is expected to drop towards 0.5, consistent with the long-run market behaviour, from the inordinately high levels during the periods of 2011/12 and 2018/19. The main driver for this expected development is the reduction of the China State Reserve.

Chapter

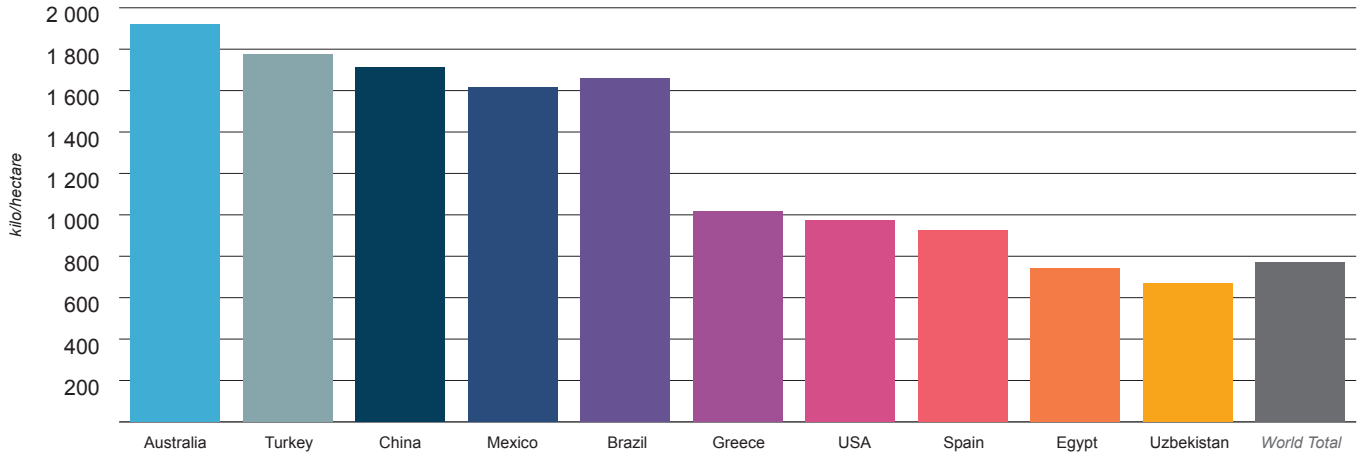
2

2. Developments in major cotton producing and consuming countries

2.1 China production rises as state reserve falls and mill use shifts to the west

The national yield in China rose an extraordinary 210 kg to 1 800 kg of lint/ha between 2016/17 and 2018/19, and yields in China were the third highest in the world during that three-year period (Figure 21). As a result, production in China rose to 6 million tonnes in 2018/19, the highest in the world.

Figure 21. Cotton yield (average 2016/17-2018/19)



Source: OECD/FAO, 2020.

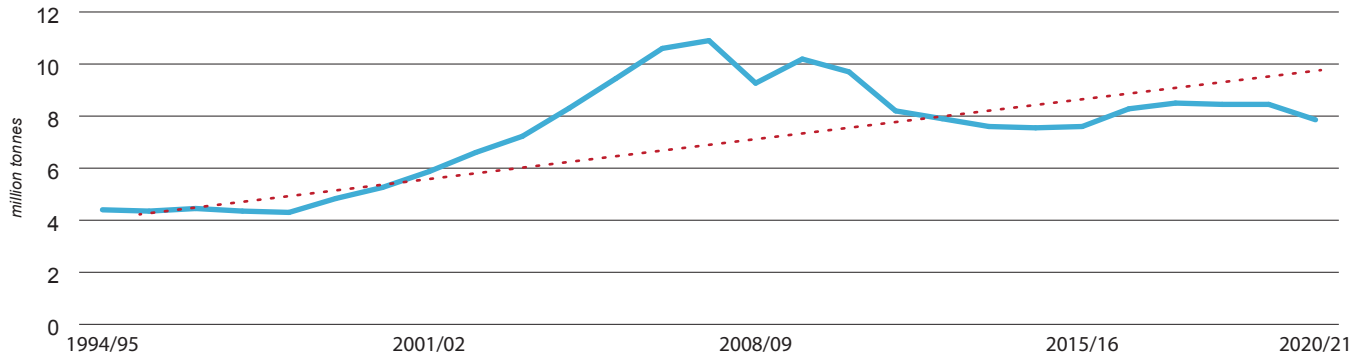
Harvested areas in China fell from 6 million ha in 2007/08 to 3 million ha in 2016/17, but modestly increased to 3.4 million ha in 2018/19. The cotton policy in China favoured a shift in the regions where cotton is produced. As such, out of the 3.4 million ha, 2.5 million ha were located in the Xinjiang Uygur Autonomous Region, which is dominated by higher-yielding capital-intensive operations, while on the other hand, Eastern China is dominated by smallholder agriculture and lower yields. This shift explains the rise in the national yield in China previously mentioned. In sum, four-fifths, or 5 million tonnes of cotton production in China, was in Xinjiang Uygur Autonomous Region in 2018/19.

With regard to stocks, it should be noted that cotton in the state reserve fell from 14 million tonnes in 2014/15 to 9 million tonnes at the end of 2017/18, following changes in the Chinese cotton policy, as will be described later. Statistics indicate that mill use of cotton rose to more than 10 million tonnes prior to the 2008–2009 recession, but then fell by about one-third in the subsequent years, as net inflows into the China State Reserve reduced the amount of cotton domestically available. When outflows from the state reserve began to exceed inflows in 2015/16, supplies available to Chinese mills increased, and mill use rose, despite a slight decline after 2018/19 (Figure 22). By a margin of 4 million tonnes, China has the largest cotton spinning industry in the world. [1]

[1] *Mill use in China is estimated obliquely from data on yarn production, estimates of the ratio of cotton in blended yarn, and by working backwards from estimates of ending stocks to infer what consumption must have been. Therefore, all estimates of mill use in China are only approximate.*

With regard to trade, China imported nearly 1.3 million tonnes of cotton during 2017/18 and exported just 25 000 tonnes. Approximately half of Chinese imports in 2017/18 came from the United States of America, one-quarter came from Australia and India combined, and one-quarter came from other countries.

Figure 22. China cotton mill use



Source: OECD/FAO, 2020.

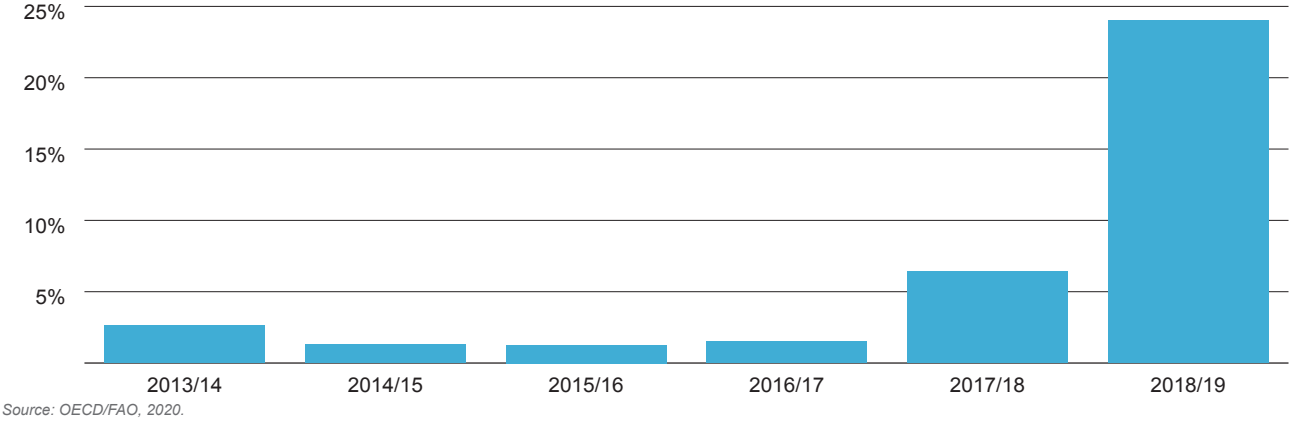
The Government of China is encouraging the development of a complete cotton-textile-apparel supply chain in the Xinjiang Uyghur Autonomous Region, which is in the far northwest of the country. This region alone had approximately 17 million spindles by the end of 2017, up from just a few million in 2010. At average running rates, the spindles accounted for more than 2 million tonnes of fibre, most of which would have been cotton. Therefore, all the growth in cotton mill use in China during 2015/16 through 2018/19 occurred in Xinjiang Uyghur Autonomous Region. Coupled with Chinese investments in transport infrastructure throughout Central Asia, part of its 'One Belt, One Road' initiative, the rise in textile production in Xinjiang Uyghur Autonomous Region heralds increased exports throughout Central Asia, Turkey and Europe over the next few years.

2.2 Indian farmers respond to higher support prices

As mentioned earlier, India and China were the largest cotton producing countries in 2018/19. More specifically, production in India was 5.8 million tonnes in 2018/19, a decline of almost 600 000 tonnes from the previous year.

As for the cotton area, year-to-year changes are heavily influenced by changes in the Minimum Support Prices (MSPs) established by the national government each year. As Figure 23 indicates, the MSPs rose significantly in 2017/18 and 2018/19, reflecting inflation in production costs and national concerns about the need to encourage increased production. As a result, cotton areas in India reached 12.2 million ha in 2018/19.

Figure 23. Year-on-year change H-4 MSP

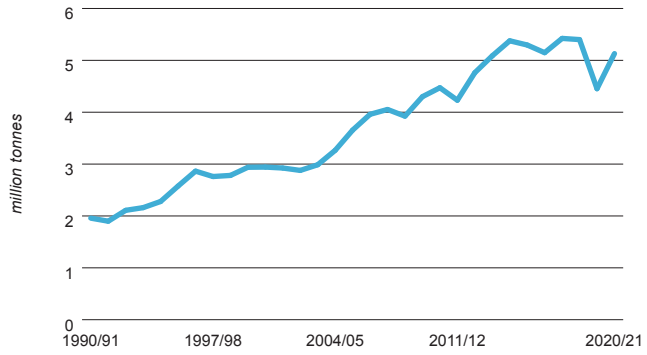


Source: OECD/FAO, 2020.

Most of the cotton produced in India is genetically modified. The national yield in India reached 570 kg of lint/ha in 2013/14, but has been lower in each of the seasons since then. Scientists report that increased pressures from pest infestations and the development of resistance of bollworms to the protein produced by Bt cotton – a genetically modified pest resistant plant cotton variety – are responsible for the reduced yields. The Indian national yield fell to 520 kg of lint/ha in 2017/18, and to 475 kg in 2018/19, the same as in 2005/06.

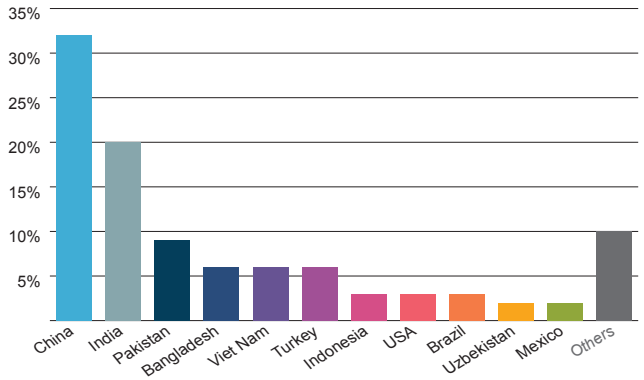
Mill use of cotton in India increased from 4.2 million tonnes to 5.1 million tonnes between 2011/12 and 2020/21 (Figure 24) and India became the second largest consumer of cotton in the world after China (Figure 25).

Figure 24. India cotton mill use



Source: OECD/FAO, 2020.

Figure 25. Share of cotton mill use (2018/19)



Source: OECD/FAO, 2020.

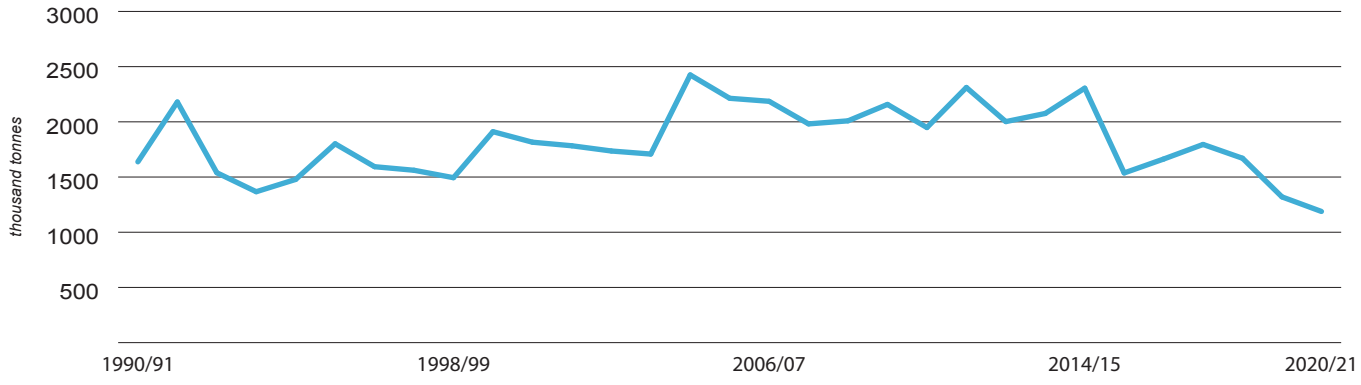
India is simultaneously an importer and exporter due to the inconsistency between qualities and locations at various times each season. The country typically imports about 400 000 tonnes and exports around 1 million tonnes.

About 60 percent of imports consist of machine-picked cotton from the United States of America, Australia, and Brazil. Over one-half of Indian exports go to Bangladesh. China, Viet Nam, Pakistan and Indonesia account for another one-third of total export shipments. The remaining one-sixth of shipments go to all other destinations.

2.3 Pakistan cotton production harmed by disease and insects

Cotton production in Pakistan plummeted by 800 000 tonnes in 2015/16 and only partially recovered rising to 1.8 million tonnes in 2017/18 and 1.7 million in 2018/19 before falling again (Figure 26). Nevertheless, Pakistan is still the world's fifth largest cotton producer.

Figure 26. Pakistan production

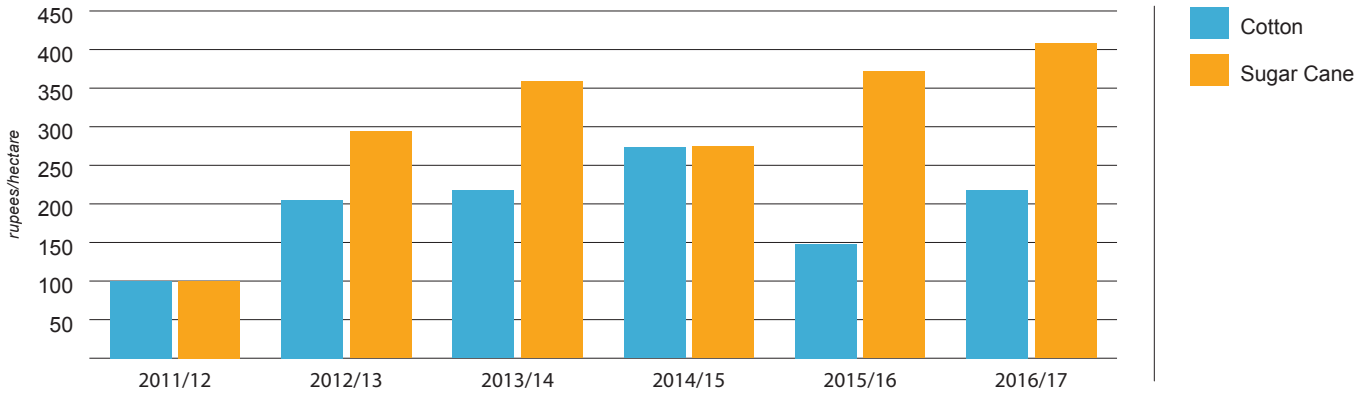


Source: OECD/FAO, 2020.

The yield in Pakistan rose to 800 kg of lint/ha in 2011/12 and remained at 780 kg in 2014/15. However, since that time there has been a decline in cotton yields, which fell to 620 kg of lint/ha in 2018/19, 20 percent lower than in 2014/15..

The yield declines in recent seasons have reduced the expected income from cotton per hectare and farmers have responded by shifting areas to other crops, for instance, sugar cane. As shown in Figure 27, rupees per hectare of gross revenue from sugar cane at average yields rose by a factor of four between 2011/12 and 2016/17, while revenue per hectare from cotton rose by only half that much. Consequently, cotton areas that exceeded 3 million ha in the mid-2000s fell to 2.7 million ha in 2018/19.

Figure 27. Pakistan crop revenue (2011-12 = 100)



Source: OECD/FAO, 2020.

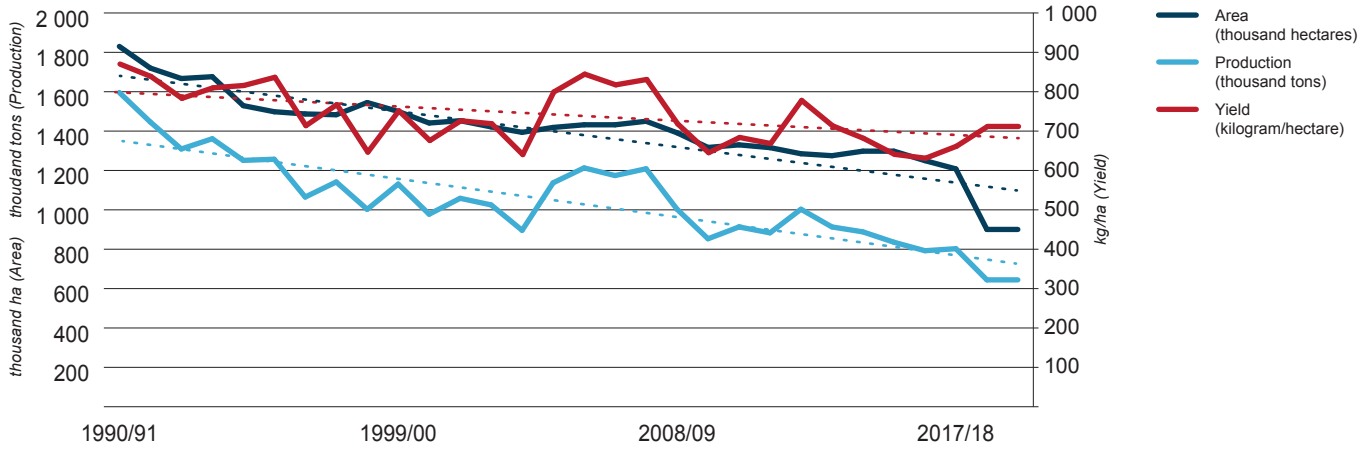
Cotton mill use in Pakistan rose to more than 2.6 million tonnes before the recession in 2007/08, and despite a surge of 200 000 tonnes in 2017/18 to 2.3 million tonnes, compared to 2.1 million tonnes in 2016/17 and 2015/16, mill use has remained below that peak level. Pakistan has the third largest cotton spinning industry in the world after China and India. Similar to Viet Nam, Pakistan benefits from substantial investments in infrastructure and textile activity from China. However, inconsistent electricity supplies hamper the expansion of the textile industry.

Although Pakistan was once a net exporter of cotton, it actually imported 600 000 tonnes in 2017/18. Central Asia as well as India normally account for about half of Pakistan's imports.

2.4 Central Asian land shifting to food production

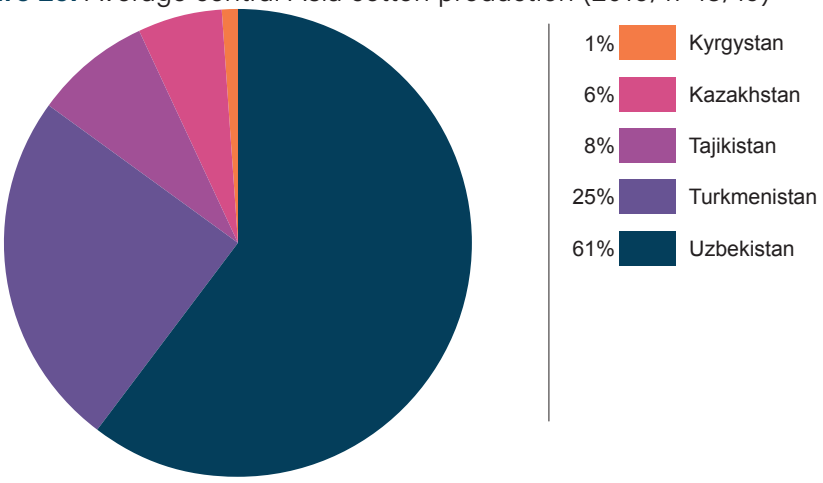
Production in Central Asia has been trending downwards since the beginning of the 1990s to 1.3 million tonnes in 2017/18 and an estimated 1.1 million tonnes in 2018/19. Production in 2018/19 fell to the lowest level for the region since the early 1950s. Uzbekistan is the main cotton producer in the region, with production that reached 640 000 tonnes in 2018/19.

Figure 28. Uzbekistan cotton



Source: OECD/FAO, 2020.

Figure 29. Average central Asia cotton production (2016/17-18/19)



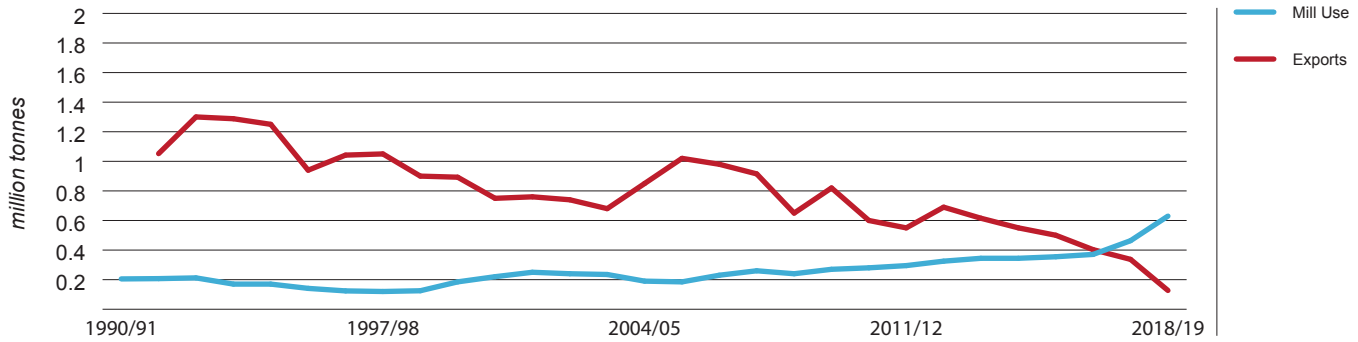
Source: OECD/FAO, 2020.

The downward trend for cotton production in Uzbekistan has been the result of declining harvested areas caused by soil salinization, an emphasis on production of higher-valued food crops and water shortages due to inefficient irrigation systems. Nevertheless, Uzbekistan was still the world's seventh largest cotton producer in 2018/19.

Mill use of cotton in Uzbekistan rose to more than 400 000 tonnes in 2017/18 and further growth was expected in 2018/19. Under the impetus of various Presidential decrees, the Uzbek textile industry has been growing since 2000 and now accounts for more than half of the domestic cotton production. Almost all yarn is exported and the country's cotton value chain is being transformed from a focus on agriculture to industry.

By contrast, exports of cotton from Uzbekistan, once more than 1 million tonnes, are trending downwards and mill use exceeded exports of cotton for the first time in the country's history in 2017/18 (**Figure 30**).

Figure 30. Uzbekistan cotton



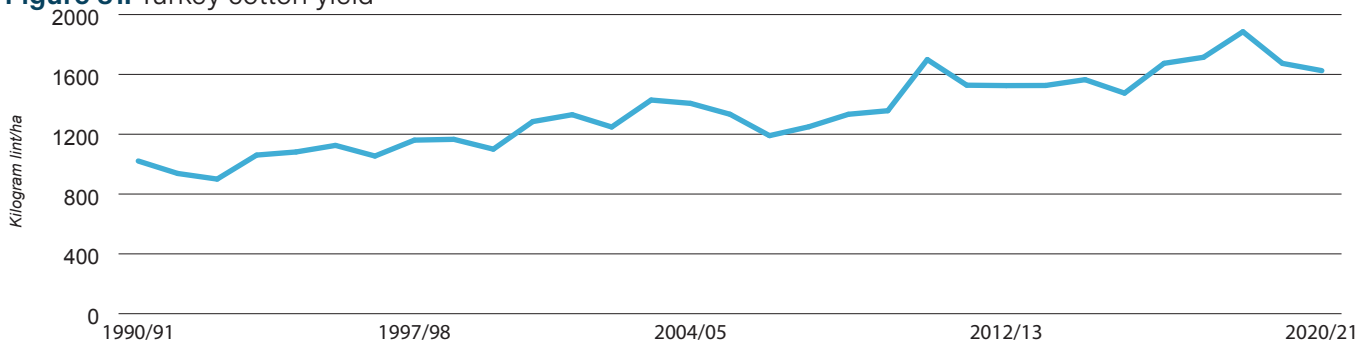
Source: OECD/FAO, 2020.

It should be noted that Azerbaijan in particular is not always taken into consideration when gathering statistics for Central Asia. However, this country stands out for having increased production to nearly 100 000 tonnes in 2018/19, from 13 000 tonnes in 2015/16, due to the importance that the Government placed on cotton production as a basis for expanded textile processing.

2.5 Turkish cotton production shifting to the GAP region[2]

Turkey has been investing in a large irrigation project since the 1980s, with the objective to achieve some 2 million ha of irrigated crop production. Since 2018/19, about two-thirds of cotton production in Turkey has been located in the region where the Southeastern Anatolia Project is being implemented. Since cotton areas in Turkey have increasingly been concentrated in this region, the national yield has been trending strongly upwards for the past 30 years, reaching 1.9 tonnes of lint/ha in 2018/19 thus enabling production to rise to an estimated 1 million tonnes. As such, Turkey is the sixth largest producer globally, and its yield in 2018/19 was the second highest in the world (**Figure 31**).

Figure 31. Turkey cotton yield



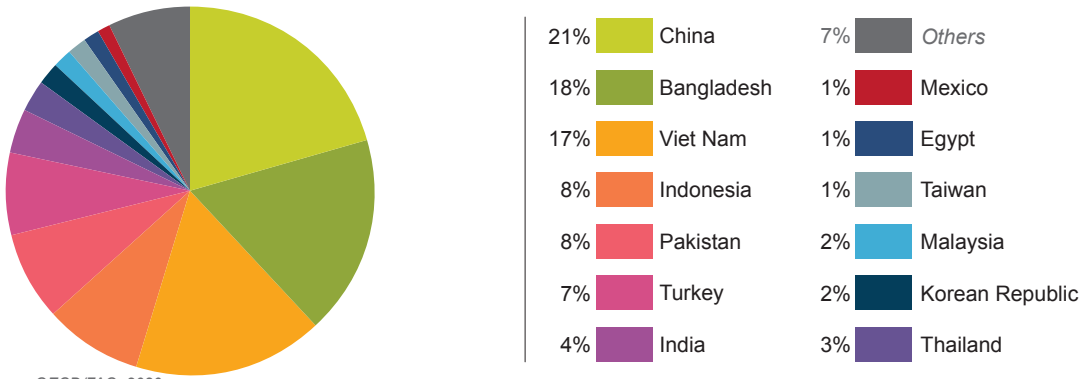
Source: OECD/FAO, 2020.

Turkey has the sixth largest cotton textile industry in the world. Cotton mill use was approximately 1.6 million tonnes in 2018/19. This was essentially the same size as the 14 previous seasons, given the fact that market opportunities in Europe – traditionally the biggest export destination of Turkey for cotton products – have not expanded.

[2] *The Southeastern Anatolia Project (Turkish: Güneydoğu Anadolu Projesi, GAP)*

Turkey was also the world's sixth largest cotton importer in 2018/19 (Figure 32), with half of the country's cotton supplies being shipped in from abroad. The United States of America is the largest source of imports for Turkey, accounting for nearly half of all cotton imports in 2017/18. Brazil and Greece each supplied about one-ninth of total imports and Central Asia supplied about one-ninth.

Figure 32. World cotton import shares (2018/19)



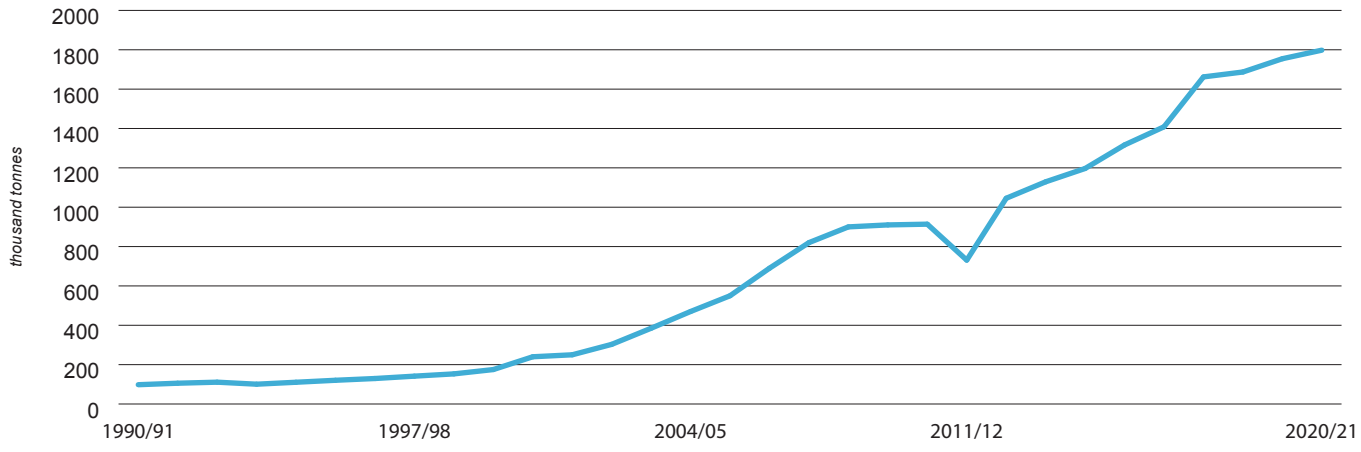
Source: OECD/FAO, 2020.

2.6 Bangladesh: Fully integrated from spinning to apparel assembly

Mill use of cotton rose by 1 067 thousand tonnes between 2011/12 and 2020/21 to reach 1.8 million tonnes, making Bangladesh the fourth largest cotton spinning country in the world (Figure 33). This is due to the fact that unlike other countries, in Bangladesh cotton continues to account for 80 percent of the total fibre use, significantly contributing to the country's robust growth in gross domestic product (GDP), which has ranged from 4 percent to 7 percent per year between 1995 and 2018.

Statistics on mill use of cotton showed a dip in 2011/12 when world cotton prices spiked, but growth resumed in 2012/13, despite the stricter scrutiny of supply chain safety standards applied following the collapse of a commercial building in Dhaka in April 2013.

Figure 33. Bangladesh cotton mill use



Source: OECD/FAO, 2020.

As in Viet Nam, mill use of cotton in Bangladesh has been grown exponentially since the early 1990s. However, Viet Nam and Bangladesh differ on one key aspect: Bangladesh has developed an integrated domestic supply chain from spinning to garment assembly, while Viet Nam is highly integrated with China.

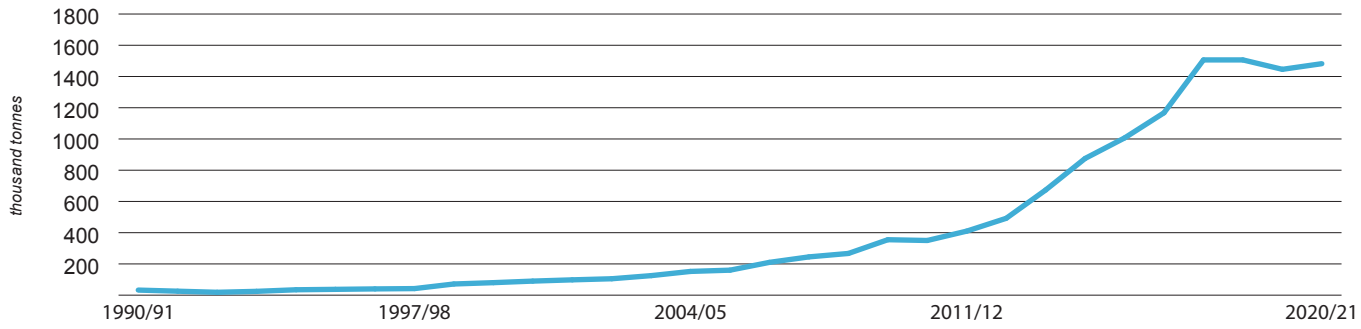
Bangladesh cotton imports reached 1.7 million tonnes in 2017/18, with India being the main supplier, accounting for one-quarter of imports. One-fifth of the imports came from Central Asia, while about one-tenth came from the CFA franc zone countries, the United States of America, Australia and Brazil and all other countries provided the remaining 25 percent.

2.7 Viet Nam: Exponential consumption growth

Cotton planted areas and production in Viet Nam are relatively limited. However, mill use rose by 1.1 million tonnes to 1.6 million between 2011/12 and 2018/19, and Viet Nam became the fifth largest consumer of cotton in the world, behind China, India, Pakistan and Bangladesh (Figure 34).

As illustrated in Figure 34, Viet Nam's use of cotton grew significantly in the late 1990s to its current level, describing an almost perfect exponential rate of growth.

Figure 34. Viet Nam cotton mill use



Source: OECD/FAO, 2020.

One of the main reasons for this development is the fact that Viet Nam has free trade agreements with China and the Republic of Korea, and investments from both countries are increasing. Viet Nam, together with investments from Japan, Taiwan and other countries, total growth in spinning capacity in Viet Nam is expanding significantly and has become a major yarn exporter to China. Viet Nam spins cotton into yarn, exports the yarn to China for weaving/knitting, dyeing and finishing and then reimports the finished fabric for apparel assembly.

Due to very low domestic production, all mill use in Viet Nam is supplied by imports. In 2017/18, 50 percent of these imports came from the United States of America, while about one-third came from Australia, Brazil and India, and the rest from other sources.

2.8 Rest of Asia: Mixed mill use trends

Mill use in Indonesia reached 800 000 tonnes during 2017/18 and 2018/19, a record high; it has the seventh largest cotton spinning industry in the world. At the same time, the use of cotton mill in Malaysia climbed from 55 000 tonnes to 120 000 tonnes between 2016/17 and 2018/19. Mill use in 2012/13 was a mere 13 000 tonnes.

On the other hand, mill use of cotton has been declining for decades in Japan, the Republic of Korea, Taiwan and Thailand, falling to a total of 640 000 tonnes in 2018/19, with a decline of 130 000 tonnes since 2011/12. This is due to the fact that rising labour, real estate and power costs are shifting investments to China, Viet Nam and other locations.

2.9 United States cotton area expanding

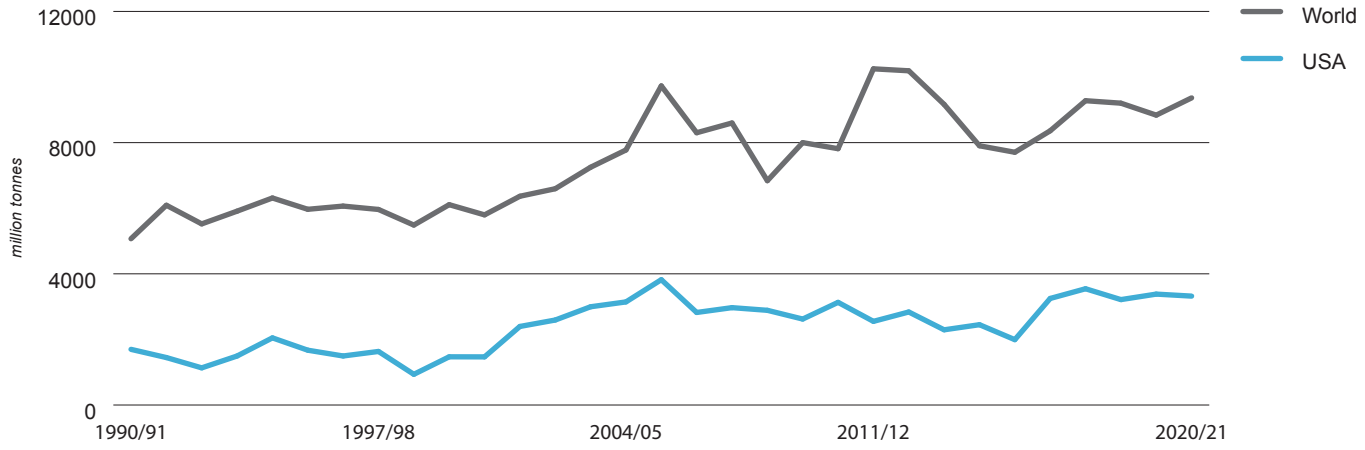
Cotton production in the United States of America reached an all-time high of 4.6 million tonnes in 2017/18 but subsequently experienced a decrease of 12 percent, that is, 4 million tonnes in 2018/19, due to both reduced areas and lower yields. Regarding cotton yields, the three-year average of 975 kg of lint/ha from 2016/17 through 2018/19 is the seventh highest in the world among the major producers.

Cotton mill use in the United States of America has been stable, averaging 700 000 and 800 000 tonnes since 2008/09 and represents the eighth largest cotton spinning industry in the world. It should be noted that approximately 90 percent of this quantity spun in the United States of America is exported to countries in Central America and the Caribbean for weaving, knitting, finishing and apparel assembly. Finished products are then imported into the United States of America at preferential duty rates under the Central American Free Trade Agreement.

With regard to trade, the United States of America has remained the largest cotton exporter by a wide margin, with exports of 3.5 million tonnes during 2017/18, representing an increase of 200 000 tonnes over the previous season and the highest since 2005/06. US cotton exports accounted for 38 percent of world cotton trade during 2017/18 (Figure 35).

Viet Nam is the main export destination, with a share of almost 20 percent in 2017/18, while China accounts for almost one-sixth of US cotton exports. Other important destinations are: Bangladesh, India, Indonesia, Republic of Korea, Mexico, Thailand and Turkey.

Figure 35. Cotton export



Source: OECD/FAO, 2020.

2.10 Mexico: Benefitting from diversification of supply chains

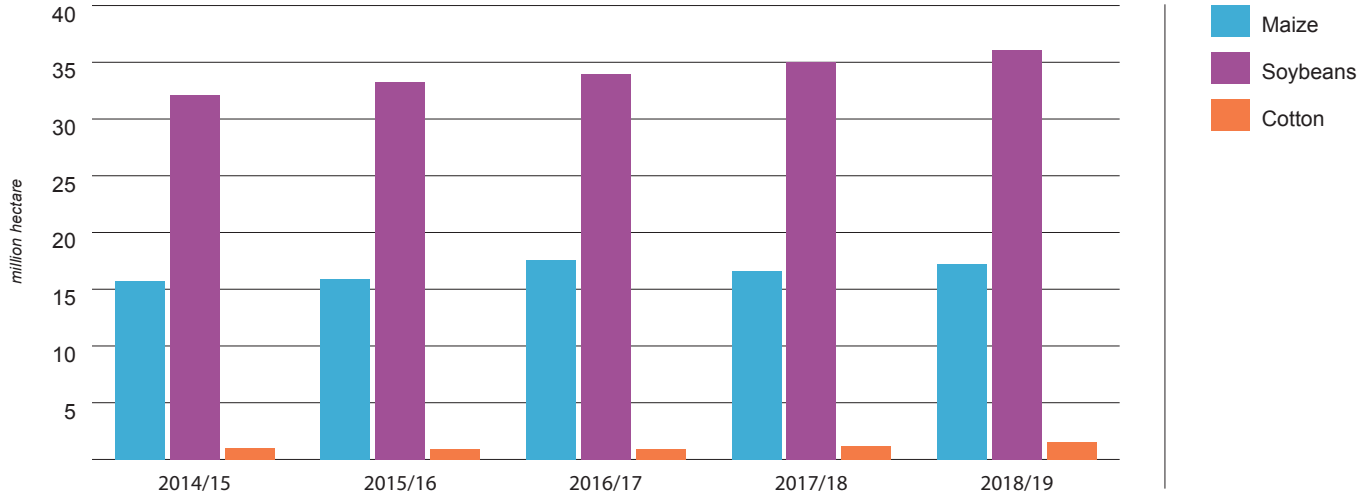
In Mexico, falling prices for maize have resulted in greater areas devoted to cotton. The area rose from 100 000 ha in 2016/17 and subsequently to more than 200 000 ha in 2017/18, further increasing to 245 000 ha in 2018/19. The expansion of these areas was the main contributing factor to the sharp increase in production of 414 000 tonnes in the same year, the highest since 1974/75. Moreover, a record yield of nearly 1 700 kg, the fourth highest in the world among major producers, was achieved in 2018/19 due to the fact that the cotton areas in Mexico are irrigated, thus enabling high yields.

Mill use in Mexico rose by 70 000 tonnes between 2016 and 2017 and in 2018/19 reached 460 000 tonnes. Mexico benefitted largely from strong investments made in textiles and apparel, in addition to a greater demand from retailers.

2.11 Brazilian maize production falls, resulting in more area devoted to cotton

Cotton production in Brazil is a by-product of soybean production. Cotton and maize are used as rotation crops with soybeans, and due to the decline in maize prices in recent years cotton has been more sought after. For this reason, cotton areas in Brazil rose to 1.2 million ha in 2017/18 and 1.6 million ha in 2018/19 (Figure 36).

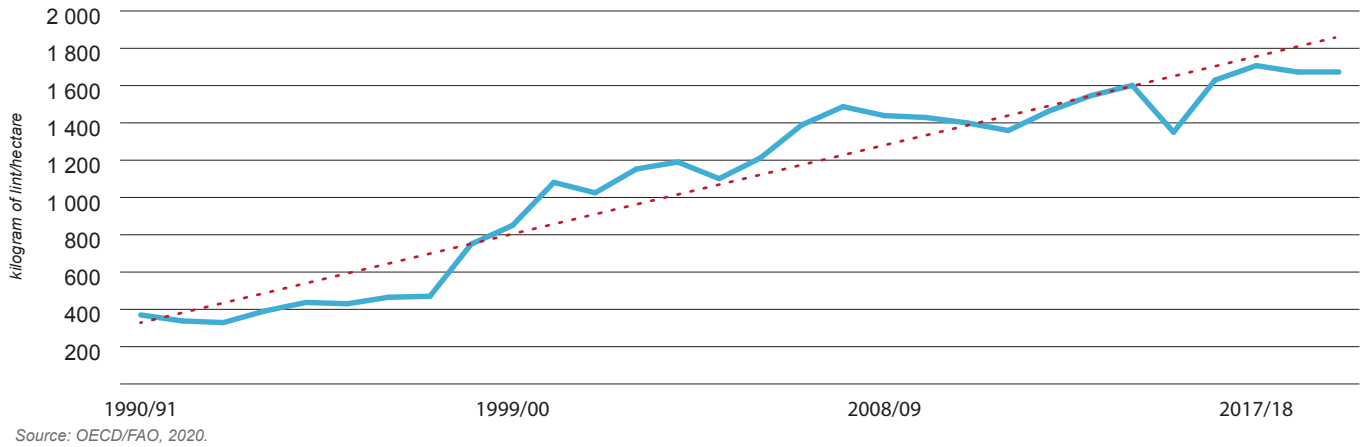
Figure 36. Brazil harvest area



Source: OECD/FAO, 2020.

At the same time, yields have trended upwards in Brazil, reaching 1 700 kg of lint/ha in 2017/18 (Figure 37).

Figure 37. Brazil cotton yield

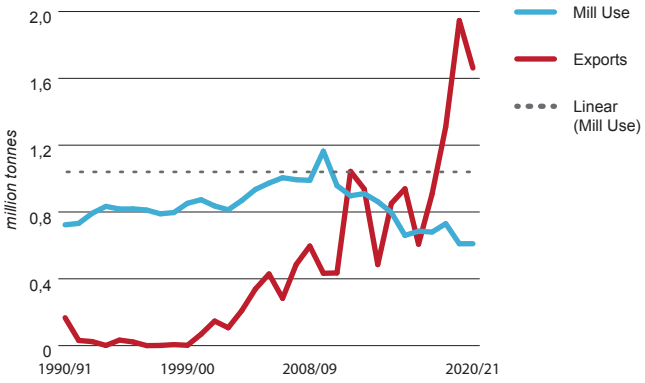


Source: OECD/FAO, 2020.

Brazil is currently the world's fourth largest cotton producer, with production reaching 2.6 million tonnes in 2018/19. Cotton production has been further enhanced by the development of a farming system in which this crop is planted twice each year. This system is highly feasible in Central Brazil where the growing season extends year-round.

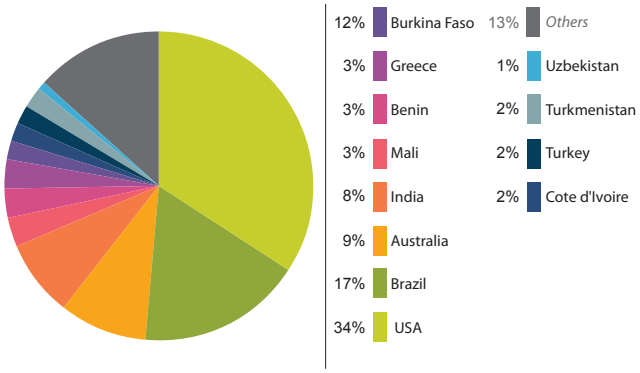
Cotton mill use in Brazil is estimated at 730 000 tonnes in 2018/19, making Brazil the ninth largest cotton spinning industry in the world (Figure 38). Mill use in 2018/19 was still 300 000 tonnes below the peak reached in 2009/10, reflecting losses of market shares to polyester and the difficult economic conditions caused by high interest rates. Cotton exports from Brazil reached 900 000 tonnes in 2017/18 and are expected to rise again in 2018/19 to exceed 1.4 million tonnes (Figure 38). Consequently, Brazil has become the second biggest exporter in the world as shown in Figure 39, the main export destinations being Viet Nam and Indonesia, followed by Turkey, Bangladesh and China.

Figure 38. Brazil cotton



Source: OECD/FAO, 2020.

Figure 39. World cotton export shares (2018/19)



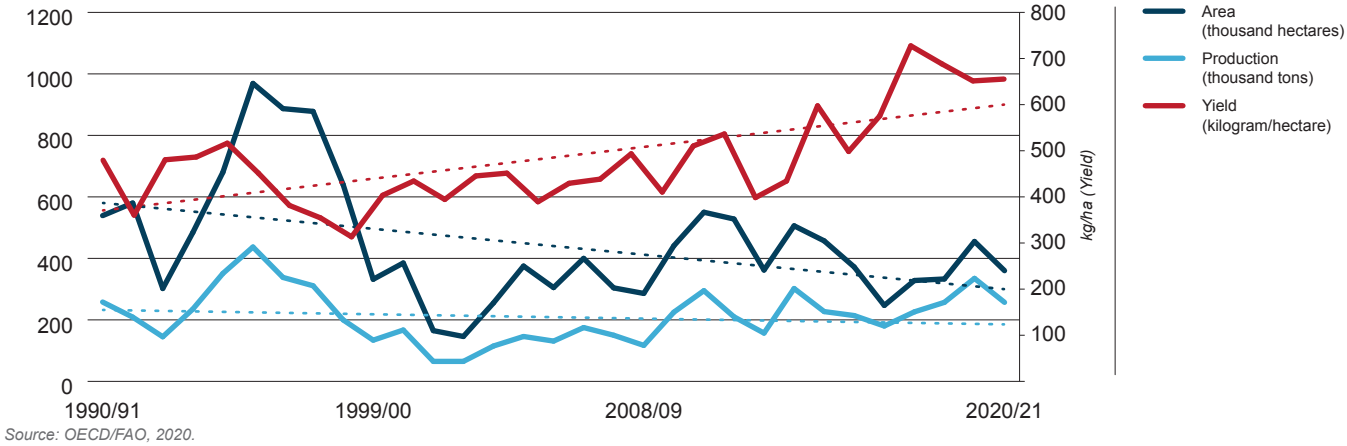
Source: OECD/FAO, 2020.

2.12 Argentine yields rising

Production in Argentina rose from 180 000 tonnes to 335 000 tonnes between 2016/17 and 2019/20. All of the earnings from production during the two seasons were linked to increases in the harvested area from 25 000 ha to 370 000 ha.

Despite the results during recent years, in the longer term, areas in Argentina are trending downwards while yields are trending upwards, resulting in a relatively stagnate production of about 200 000 tonnes of lint (Figure 40).

Figure 40. Production, area and yield Argentina



Source: OECD/FAO, 2020.

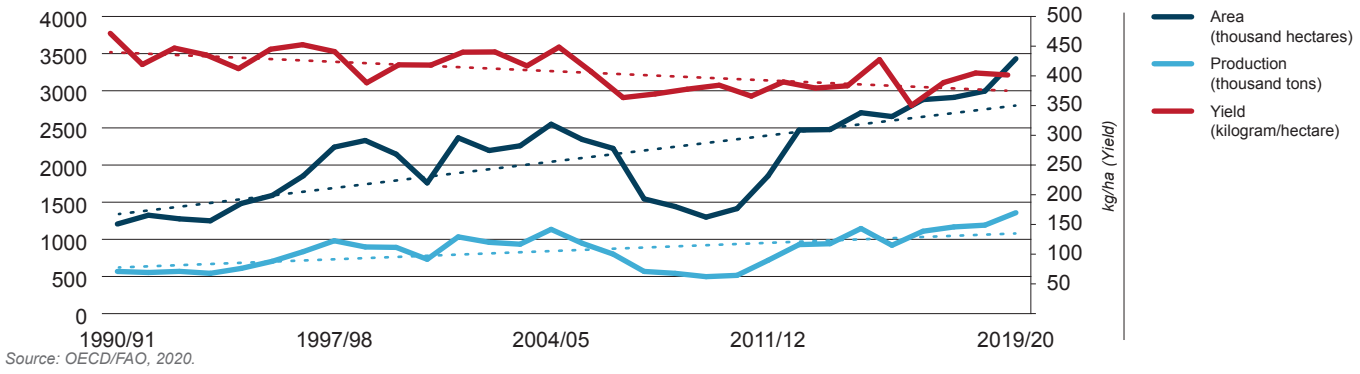
Across South America, mill use totalled nearly 1 million tonnes in 2017/18, with mill use in Peru at 6 000 tonnes while in Colombia 3 000 tonnes.

2.13 Francophone Africa cotton production reaches record high

Cotton production in Francophone Africa (Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Côte d'Ivoire, Guinea, Madagascar, Mali, Niger, Senegal and Togo) rose to a record high of 1.2 million tonnes during 2017/18 and remained at that high level in 2018/19 (**Figure 41**). Exports from Francophone Africa rose to 1.1 million tonnes in 2017/18, and are estimated at 1.2 million in 2018/19. However, mill use accounted for only 2 percent of production.

Across the region the rise in production has been underpinned by an expansion in area, but less so by gains in yields. Nevertheless, the 2017/18 and 2018/19 yields across the region of about 400 kg of lint/ha were the highest since more than a decade and represented a significant achievement. Yields were higher in the early 1990s, but the harvested area at that time was less than half of the area that had been harvested in 2017/18 and 2018/19. As an area increases and includes less productive zones, yields tend to decline.

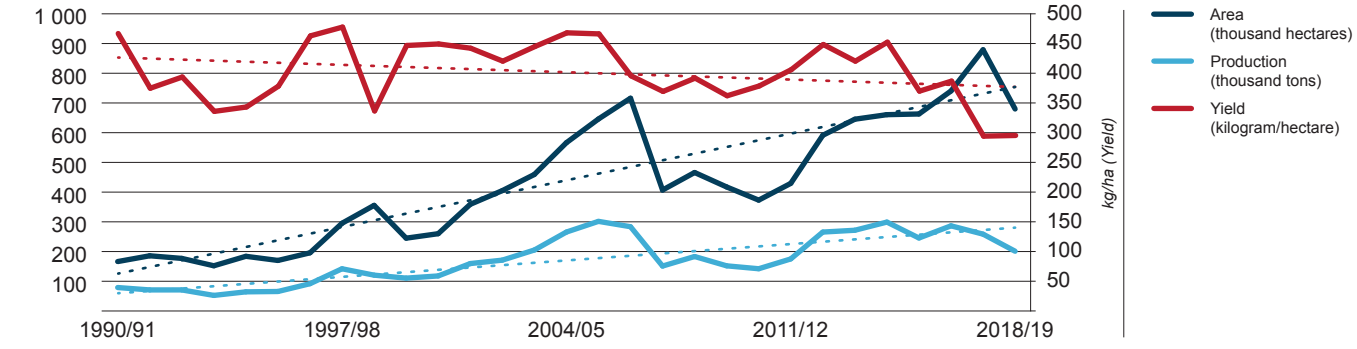
Figure 41. Francophone Africa cotton



Source: OECD/FAO, 2020.

The yield decline in Burkina Faso was a consequence of the pressures of heavy pest infestation, as opposed to poor weather. The country discontinued the use of genetically modified cotton in 2016/17 after seven seasons. For this reason, farmers and the ginning companies that supply insecticides and spraying equipment may not have been prepared to deal with a pest infestation, after years of reliance on biotechnology.

Figure 42. Burkina Faso cotton

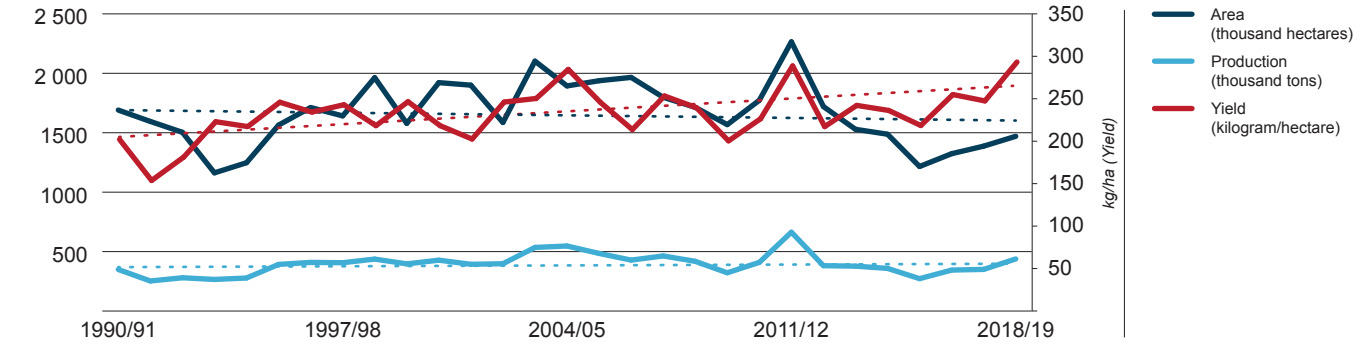


Source: OECD/FAO, 2020.

2.14 Low yields across sub-Saharan Africa outside the Francophone zone

Cotton production in sub-Saharan Africa outside the Francophone Zone (Angola, Burundi, the Democratic Republic of the Congo, Ethiopia, Gambia, Ghana, Guinea-Bissau, Kenya, Malawi, Mauritius, Mozambique, Nigeria, Somalia, South Africa, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe) reached more than 400 000 tonnes in 2018/19, a similar amount to the average level of the previous two decades.

Figure 43. Non-franc zone sub-saharan Africa



Source: OECD/FAO, 2020.

In contrast to the Francophone Zone, where mill use was less than 2 percent of production, mill use of cotton in the non-Francophone countries was 230 000 tonnes, that is, 60 percent of production in 2017/18, and exports amounted to 180 000 tonnes, or two-thirds of production, while imports totalled 50 000 tonnes.

The highest yields in Africa by far have been achieved in South Africa where production reached 45 000 tonnes on 42 000 ha and the yield was more than 1 tonne of lint/ha. Much of South Africa's cotton production is irrigated and biotechnology is also used. The South African cotton industry has rallied around the creation of a 'Sustainable Cotton Cluster', which features an integrated domestic supply chain from farmers to retailers, providing traceability, assuring consumers of sustainability, and emphasizing country-of-origin labelling. This initiative has motivated farmers to engage in cotton production. Production in South Africa was just 5 000 tonnes in 2012/13.

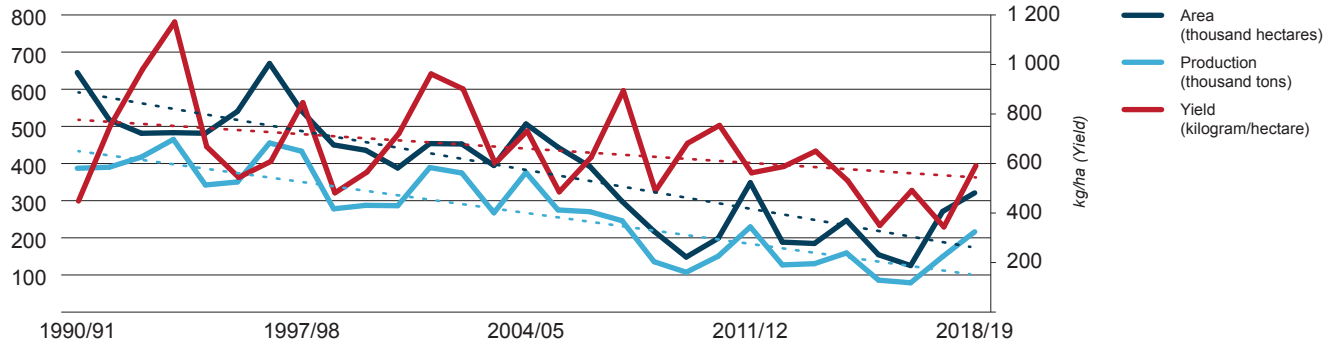
Mill use in sub-Saharan Africa rose 30 000 tonnes between the end of the Great Recession and 2018/19, when it reached 220 000 tonnes. Cotton spinning in Ethiopia rose from 4 000 tonnes to 50 000 tonnes over the same period, while mill use in Tanzania rose 10 000 tonnes to 45 000 tonnes between 2011/12 and 2018/19.

As in the cases of Malaysia and Mexico, African countries are benefitting from the efforts being made by international brands and retailers to diversify their textile and apparel supply chains.

2.15 Egyptian and Sudanese cotton production recovering

Production in Egypt and the Sudan more than doubled between 2016/17 and 2018/19, with production in Egypt rising to 110 000 tonnes and in the Sudan up to 100 000 tonnes. The agriculture is irrigated in both countries and temperatures are extremely uniform. Production in North Africa has been on a long downward trajectory from a high of more than 400 000 tonnes in the 1990s (Figure 44) for decades. Nevertheless, the rise since 2016/17 indicates that the long slide may be over.

Figure 44. North Africa cotton



Source: OECD/FAO, 2020.

Production in Egypt and the Sudan rose due to increases in both area and yields during 2017/18 and 2018/19. In Egypt, the Ministry of Agriculture supplies seeds, fertilizer and insecticides to farmers, and disruptions to government services caused by the political turmoil that began in 2009 were reflected in both reduced cotton area and yields. Government services are now being restored to former levels and areas and yields are recovering.

Mill use in Egypt has been trending downwards for decades because of adverse pressures from economic and political changes. However, the relative political stability in recent years has encouraged industrial investment and mill use rose 50 000 tonnes between 2011/12 and 2018/19 to reach 170 000 tonnes. The rise in domestic mill use has resulted in higher prices being paid to domestic producers, which has contributed to the recovery in domestic cotton production.

Mill use of cotton in Egypt is nearly double the amount of production and it continues to export extra-fine cotton. Egypt has therefore become a significant importer of more than 100 000 tonnes per year, importing upland[3] varieties used in medium count yarns.

Production in the Sudan is rising primarily as a result of increased area. Variabilities in yields primarily reflect input use and the efficacy of pest management efforts. The country is investing in commercial agriculture and encouraging farmers from Brazil, South Africa and elsewhere to operate in its territory. The Sudan's textile industry accounts for 18 000 tonnes of cotton use, and a balance of the production is exported.

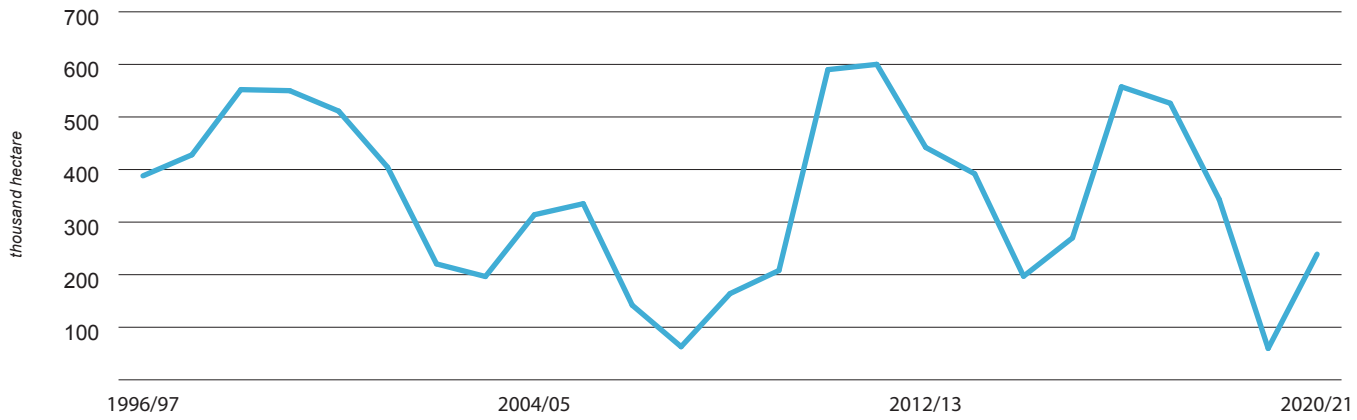
2.16 Australia dependent on water

Cotton areas (Figure 45) and yields in Australia vary from year to year according to water availability. With sufficient water for irrigation in 2017/18, production rose to 1 million tonnes, generating a national yield of 2.1 tonnes of lint/ha, the highest in the world.

However, as is a common pattern in Australia, cotton areas fell by about half in 2018/19 due to water shortages and production dropped to 590 000 tonnes of lint.

[3] *About 95 percent of all cotton in the world is classified as 'upland', a historical term from the US colonial period. The first cotton grown in the colonies that would become the United States of America was planted on islands off the coast of Florida, Georgia and the Carolinas. This was known as Sea Island cotton, and small amounts are still produced. As colonists moved onto the mainland, they needed different varieties for the different agronomic conditions. The new varieties were called 'upland', a name that persists to this day.*

Figure 45. Cotton area in Australia

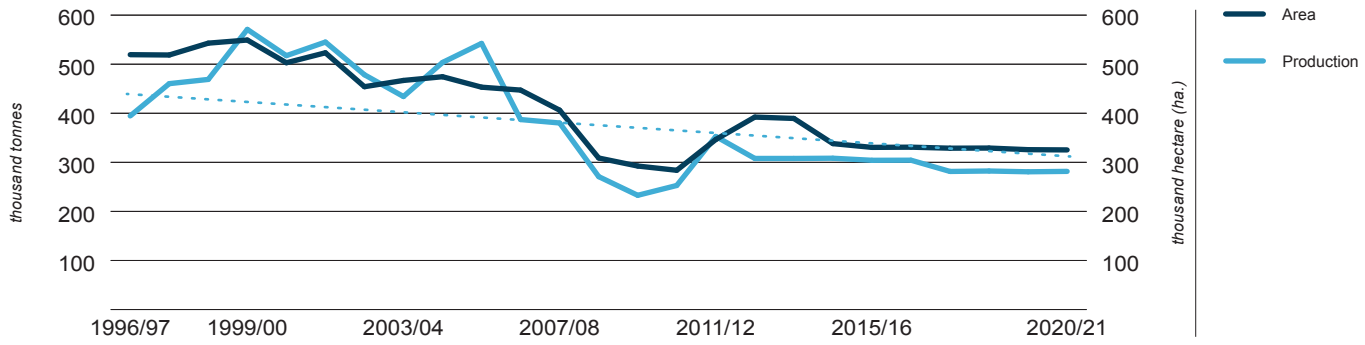


Source: OECD/FAO, 2020.

2.17 Yields trending sideways in the European Union

Production in the European Union rose by 20 000 tonnes to 290 000 tonnes in 2017/18 and remained stable since then (Figure 46). In spite of the increases during the two most recent seasons, the long-run trend in cotton production in Europe is still negative. Reduced government support for the cotton sector, together with a partial decoupling of support from current production and the rising wages and alternative employment opportunities outside agriculture, are leading to reductions in cotton areas and production.

Figure 46. EU cotton



Source: OECD/FAO, 2020.

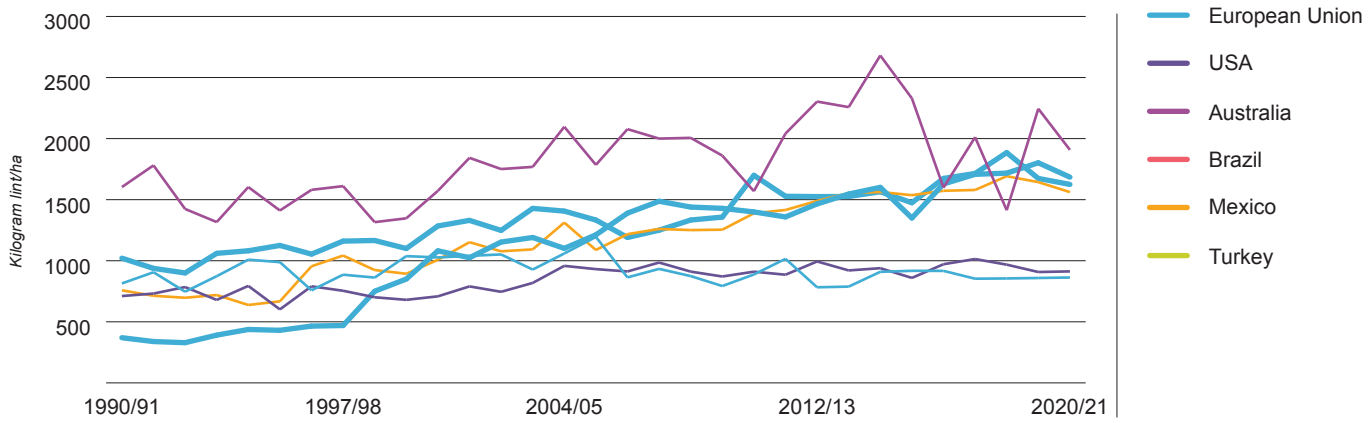
The combined yield in Greece and Spain of 1 085 kg of lint/ha in 2018/19 was lower than in 2005/06, about the same as 30 years earlier. While there are annual variabilities in yields linked to weather and pest pressures, there have been no marked increases.

By contrast, cotton yields rose in other major producing regions over the past three decades. For example, yields in Australia rose by one-third between the early 1990s and more recent seasons, while in Brazil yields tripled and almost doubled in Mexico and Turkey.

In general, agricultural yields tend to rise in regions where area declines, because lands that are marginally suited to any given crop are the first to switch to alternative crops or revert to pasture or forests. However, although the total area in the European Union devoted to cotton decreased from more than 500 000 ha in the

late 1990s to about 300 000 ha, the volume of cotton harvested from the remaining hectares has not increased (Figure 47).

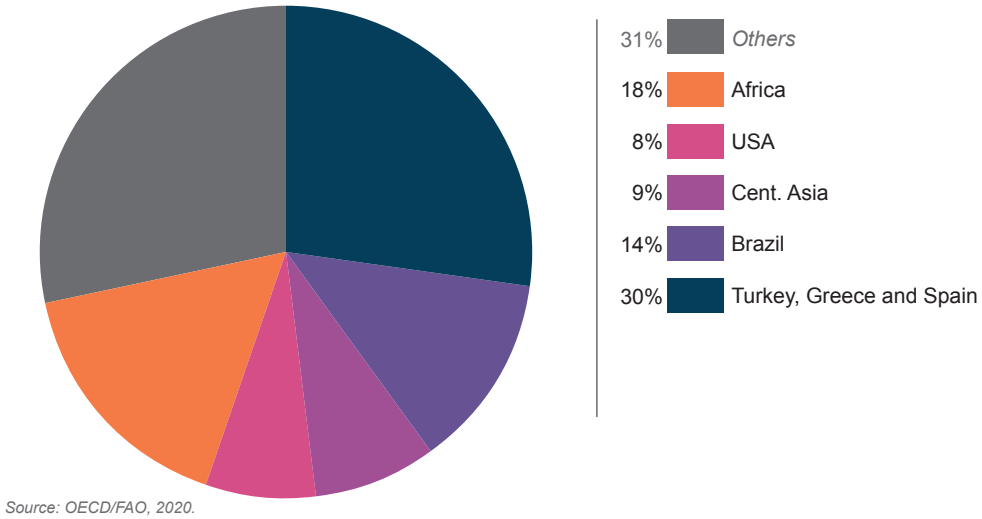
Figure 47. Cotton yields



Source: OECD/FAO, 2020.

Overall, mill use in the European Union dropped by more than 50 000 tonnes to 130 000 compared to 2011/12. The two largest cotton spinning industries in the European Union are Italy and Portugal, with 30 000 tonnes each in 2017/18, followed by Germany and Greece with 20 000 tonnes, respectively. Growth in the demand for textile products has declined in Europe, as a result of the limited increase in GDP per capita and population growth that has had a negative impact on mill use.

Figure 48. EU cotton imports by origin (2017/18)



Source: OECD/FAO, 2020.

The four largest countries in terms of cotton use in the European Union – Italy, Portugal, Germany and Greece – imported 110 000 tonnes during 2017/18, of which one-quarter represents intra-EU trade from Turkey, Greece and Spain (Turkey being a member of the EU Customs Union). Brazil and the United States of America supplied one-fifth of total imports purchased by the largest four importers, while Central Asia supplied an additional one-tenth.

Chapter

3

© Pxhere

3. Policy instruments in major cotton producing countries

3.1 Global support provided to cotton

Policies and programmes affecting cotton production have been implemented in many countries. These include direct payments to producers to support incomes and government purchases of cotton and buffer stocks to stabilize prices and guarantee domestic supplies. Furthermore, subsidized premiums for insurance products to protect farm income during seasons of adversity, barriers to cotton imports to protect domestic industries and input subsidies to raise yields and lower production costs, are among some of the other policy instruments used by governments. The aggregate cost of government support for cotton production paid by countries around the world ranged from USD 4.4 billion to USD 7.4 billion in 2015/16, 2016/17 and 2017/18 (Table 2). The government measures include direct support paid to producers, border protection, crop insurance subsidies and price support mechanisms.

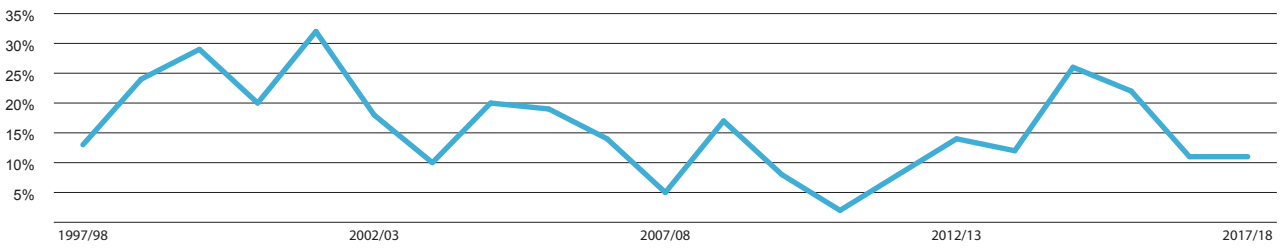
Table 2. Estimates of support to cotton worldwide and total agriculture in OECD countries

Season	Cotton value of production	Cotton value of support	Cotton support as a % of value of production
	USD billions	*USD billions*	*%*
2015/16	33 .1	7.4	22
2016/17	42.2	4.4	11
2017/18	51.7	5.9	11

Source: ICAC, 2018b.

The levels of government support to cotton in addition to all agricultural products, tend to fall during the years when prices rise. Support provided by governments represented approximately one-quarter of the value of world cotton production in 2015/16, but fell to one-tenth of the value of production in 2016/17 and 2017/18 (Figure 49).

Figure 49. Support to cotton as a percentage of the value of world cotton production



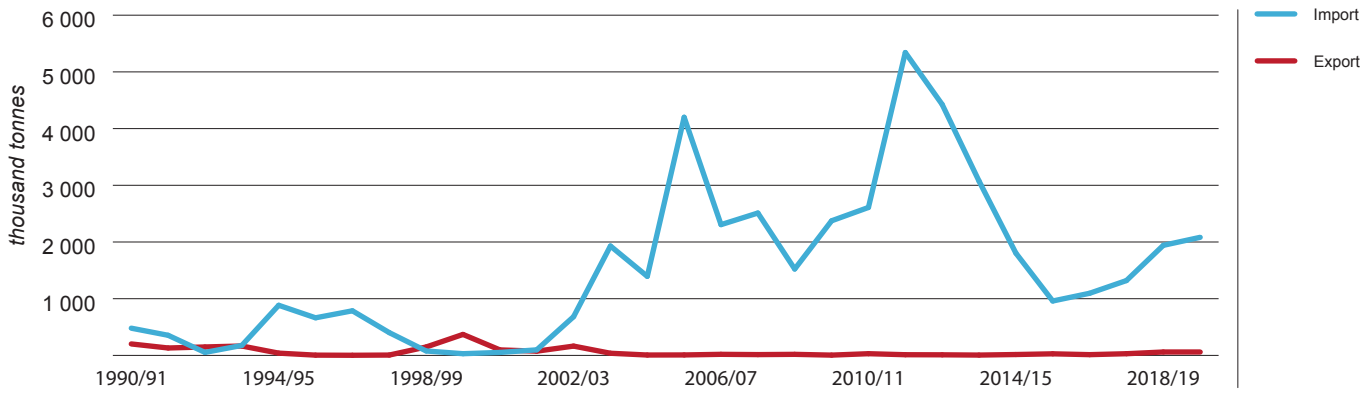
Source: ICAC, 2018b.

It should be noted that while the cotton industry in all cotton producing countries benefits from indirect support provided to the agricultural sector, in general, between half and three quarters of the world cotton production receive direct support during most seasons[4]. ICAC estimates that support to the cotton sector accounted for USD 5.9 billion globally in 2017/18 (ICAC, 2018b).

3.2 China

China was for a brief time a net cotton exporter of about 350 000 tonnes in the late 1990s. However, the country became a net importer in the early 2000s. Since the 1990s, changes in Chinese cotton policy due to global and domestic factors have turned China into a major cotton importer, with imports managed by a system of quotas and duties.

Figure 50. China cotton trade



Source: OECD/FAO, 2020.

The main elements with regard to China's cotton policy can be summarized as follows:

State Reserve

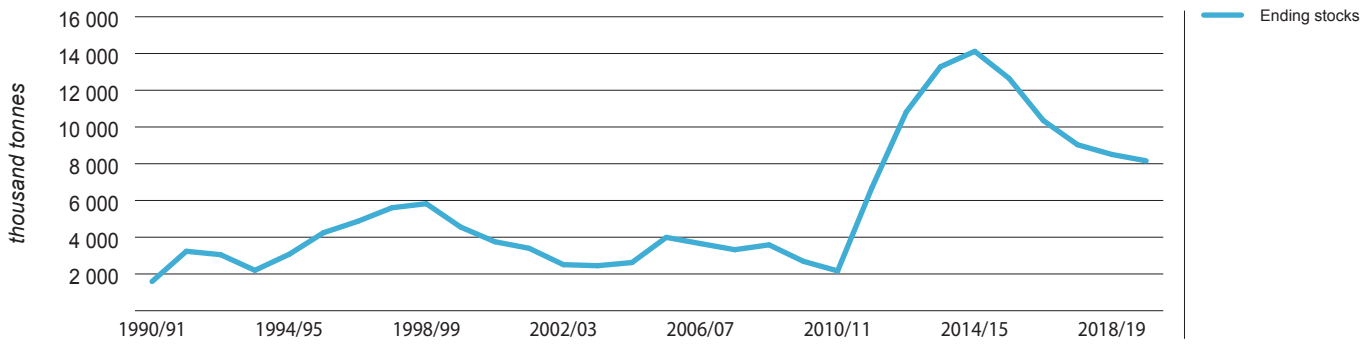
In 2010/11, mill use in China declined significantly due to a scarcity of cotton available in the world market. World cotton production fell from nearly 27 million tonnes prior to the global crisis in 2008 and 2009 to just 22 million tonnes in the year following the crisis. This led to a spike in prices (the Cotlook A Index jumped from a long-term average of US 73 cents/lb to a season average of USD 1.64 /lb in 2010/11), which limited the quantities that Chinese spinners could acquire from the global market.

A policy response by China was to augment the state reserve that had existed but was scarcely used. Stocks in China rose from 2 million tonnes at the end of 2010/11 to 14 million tonnes in the space of four seasons (Figure 51). As a result, at the end of 2014/15 three-fifths of world cotton stocks were held by China's state reserve.

The objective of the state reserve was both to stabilize domestic prices and ensure that the domestic textile industry would never to curtail activities due to supply constraints. The system used by the state reserve was that the Government of China allowed the sale of cotton in auctions during times of shortage, and to rebuild stocks during times of abundance, thereby stabilizing domestic prices.

[4] *Direct support includes measures that are specifically identifiable when applied to cotton production, consumption, prices or trade. Indirect support refers to government funding for research or infrastructure that provides general assistance to agriculture in a country.*

Figure 51. China cotton ending stocks



Source: OECD/FAO, 2020.

With the passage of time, concerns about supply disruptions have abated and the high cost of maintaining the reserve has become apparent. Accordingly, there have been no purchases into the state reserve since 2014/15, and dropped to about 7 million tonnes by the end of 2017/18, while total ending stocks in China fell to about 9 million tonnes. An additional decline in both the state reserve and stocks held by mills is expected over the next several years. China currently holds approximately half of the world's cotton stocks.

Import quotas and tariffs

When it joined the World Trade Organization (WTO), China agreed to allow imports of 894 000 tonnes each calendar year with a tariff of 1 percent of the landed cost. At the same time, the out-of-quota tariffs range between 5 percent and 40 percent.

The main objective of the tariff-rate-quota (TRQ) system is to ensure that imported cotton does not undermine domestic prices. In fact, between 2015 and 2018 China did not issue any quotas beyond the TRQ. As a result, the state reserve was reduced and domestic prices in China exceeded international prices.

Direct payments to producers

Since 2016/17, the Chinese Government has made a significant shift in its cotton policy towards the provision of direct payments, differentiating among regions. Payments to producers in Xinjiang Uygur Autonomous Region are calculated based on the difference between market prices and a target price. The target price beginning in 2016/17 and continuing through 2018/19 was CNY 18 600 per tonne of lint, or about USD 1.30/lb.[5] The lint equivalent of the market price for seed cotton delivered to procurement centres in Xinjiang Uygur Autonomous Region was about USD 1.10/lb in both 2016/17 and 2017/18, and it remained at that level during 2018/19. Thus, direct payments to farmers in Xinjiang Uygur Autonomous Region have been equal to approximately US 20 cents/lb of lint.

In the eastern provinces cotton receives less support, as land in these regions is considered to have a higher valued use in the production of food. A fixed payment rate of CNY 2 000/tonne of lint was established in 2016/17, and is still in place. As such, the payment rate equals approximately US 13 cents/lb.

The Government also encourages the use of certified planting seed by subsidizing the cost of high-quality seeds paid by farmers. Around the world cotton farmers tend to use seed from each harvest to plant the next crop, a practice that reduces plant vigour and varietal purity and spreads disease. To prevent this type of problem, a number of governments subsidize the use of certified seed each season.

[5] *All exchange rates used in this paper come from The World Bank, https://data.worldbank.org/indicator/PA.NUS.FCRF?locations=PK For 2016/17, a CNY-USD exchange rate of 6.64 is used; for 2017, 6.76, and for 2018, 6.88.*

3.3 European Union

The European Union market for cotton is open, meaning that there are no restrictions on imports or exports. The European Union is the world's largest market for textiles, but its imports of cotton lint have been declining steadily for decades. Imports of cotton in 2018/19 are estimated at 130 000 tonnes.

Even though production in the European Union is not particularly large, Greece is among the ten largest cotton exporters in the world. Cotton producers in Greece, Spain and Bulgaria receive payments from the European Union under the Common Agricultural Policy. Subsidies for cotton have been paid in the European Union since 1981, when Greece joined. The European Union has a legal commitment to support the production of cotton in regions where it is important to the local agricultural economy. Its cotton policies have been reformed several times, most recently in 2006, with further adjustments in 2009. Support for cotton was largely decoupled from current production in 2006 and is now provided in two separate parts. Decoupled payments account for 65 percent of the total aid that used to be provided under the previous support programme, and cotton-specific aid accounts for 35 percent of the total.

European Union farmers are entitled to receive decoupled payments in return for respecting strict standards of environmental protection, animal welfare and food safety, and they are free to produce whatever they wish. As such, for a farmer to receive such payments no specific production (cotton or any other crop) is required. Since decoupled payments are not cotton-specific, they are not considered to be direct support to the cotton sector.

Cotton-specific payments are limited to 250 000 ha in Greece, 48 000 ha in Spain and 4 000 ha in Bulgaria. To be eligible for cotton-specific aid, farmers must grow cotton only on land authorized by member states, use authorized varieties of seed and are furthermore subject to a minimum quality of cotton actually harvested. ICAC estimates that cotton-specific aid equals about US 45 cents/lb of lint (USD 1/kg) in Greece, and about US 50 cents/lb of lint (USD 1.10/kg) in Spain. It should be noted that the total aid in Euros does not change each season. The support for Greece is EUR 234.18/ha and for Spain, EUR 362.15/ha. Year-to-year fluctuations in ICAC's calculations of support per kilogramme in US dollars occur only in the event of fluctuations in exchange rates. Overall, cotton-specific aid equals about one-third of gross revenue/kg received by growers in Greece and Spain.

A restructuring scheme was launched in 2009 under which subsidies were authorized for the dismantling of gins or for investments to modernize gins, facilitate farmer participation in cotton quality programmes, and support contractors of agricultural machinery. These payments are not considered cotton-specific.

It should be noted that the European Union has banned the planting of biotech or GM cotton varieties, however, no such restriction applies to end-use (retail) level.

3.4 India

The Government of India operates a Minimum Support Price (MSP) scheme, although from time to time it also restricts exports or limits imports for various domestic reasons. However, since 2018/19 no barriers have been imposed to trade in cotton.

Minimum Support Prices

The Government of India announces the MSP for 25 major agricultural commodities each year. Seed cotton (called kapas in India) is one of the 25 major commodities.

In order to establish the MSP, the following considerations should be included:

- the need to encourage production and investment in agricultural infrastructure while ensuring adequate domestic supplies for consumers; and
- the need to encourage sustainable use of land, water and other resources, and the impact of prices on the national economy, wages and the cost of living.

After MSPs are announced, if prices fall below an MSP the Government buys that commodity on the open market to strengthen demand and boost prices.

When price support operations are under way, representatives of the Cotton Corporation of India (CCI) compete with private sector buyers in each procurement centre for the purchase of seed cotton. CCI personnel bid the MSP on each lot. If another buyer does not submit a higher bid, the CCI bid is accepted and CCI takes ownership of the seed cotton. It is then the responsibility of CCI to pay the farmer and arrange for ginning and storage. As the market situation evolves and prices eventually rise, CCI will then begin auctions for the ginned cotton and cotton seed in its inventory, so as to gradually liquidate the stocks and provide supplies to domestic users.

The most recent MSP operations for seed cotton were conducted during 2014/15 and 2015/16. During 2014/15, CCI purchased 1.6 million tonnes of lint, or one-quarter of national production, in order to maintain domestic prices at the equivalent of US 85 cents/lb of lint. The Cotlook A Index averaged just US 71 cents/lb during 2014/15, and the average domestic price for seed cotton purchased from farmers was the equivalent of approximately US 66 cents/lb of lint.

3.5 Turkey

Turkey plays a significant role in the world cotton market, being the sixth largest cotton producer, the sixth largest consumer and the sixth largest importer in the world since 2018/19. As in the case of Egypt, Pakistan and other countries, Turkey imports cotton even though it exports it, due to the specific quality needs of textile mills.

While Turkey's market is substantially open, it imposes phytosanitary requirements that are among the strictest in the world, as phytosanitary certificates for cotton must be dated within 14 days of a consignment's arrival at any of its ports. Most other countries typically allow a window of two months between the issuance of a phytosanitary certificate and arrival at port.

The Government of Turkey makes direct payments to cotton producers who plant certified seeds. The payments are based on seed cotton production, and ICAC has estimated that the lint-equivalent was approximately US 22 or 23 cents/lb, or about US 50 cents/kg in both 2016/17 and 2017/18. According to ICAC, payments in Turkey represent about one-third of the farm value of cotton production (ICAC, 2018b).

Turkey allows imports of GM cotton produced in the United States of America and elsewhere, but does not allow the use of GM varieties by its own producers.

3.6 United States of America

As previously mentioned, the United States of America is the world's largest cotton exporter and as such, policies that affect its cotton production have an impact on other countries.

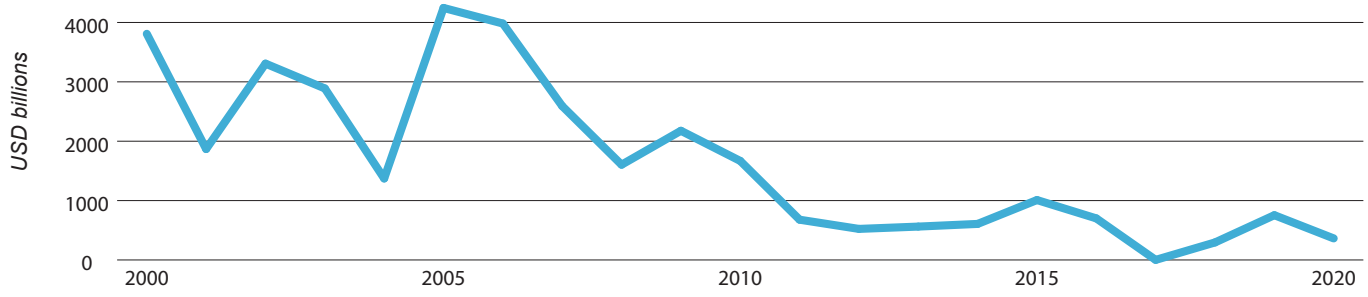
In terms of market access, the United States imposes quotas on imports of upland cotton based on policies dating back to the 1930s. The United States allows imports of extra-long staple cotton but only a few thousand tonnes actually arrive each season, mostly from Egypt. In terms of intervening in agricultural markets, the United States Government has prioritised and put into place since the 1930s, supply-side programmes intended to boost unit prices by restricting production and subsequently, as of the 1970s, programmes to boost incomes while allowing market prices to vary with supply and demand conditions.

During the 2000s, cotton farmers in the United States of America received between USD 2 billion and USD 4 billion in support from the Government (Figure 52). However, between 2011 and 2015 support for cotton dropped to between USD 600 million and USD 1 billion per season.

Under the 2014 farm bill, covering the 2015/16, 2016/17 and 2017/18 cotton seasons, annual average government expenditures on upland cotton, as reported by the United States Department of Agriculture (USDA), fell to USD 400 million.

Under the 2018 farm bill, in effect, for four seasons beginning in 2018/19 the annual average government expenditures on upland cotton was forecast by the United States Congressional Budget Office at between USD 500 million and USD 1 billion per year.

Figure 52. United States expenditures on upland cotton



Source: ICAC. 2018b.

Cotton farmers are benefitting from subsidized crop insurance, marketing loans and the ginning cost share programme. In addition, they are eligible to receive counter-cyclical payments if market prices fall below a reference price. Finally, the Government of the United States provides subsidies to textile mills and guarantees loans made by US banks to non-US banks for the purchase of exported agricultural products.

Crop insurance subsidies

For most cotton farmers, crop insurance (which continues under the 2018 farm bill) is the most important component of the 'safety net' programmes provided by the United States Government, and about 90 percent of the cotton area in the United States of America is enrolled in a crop insurance policy. Crop insurance is intended to protect farmers against the adverse impacts of poor weather, diseases, pests or other menaces, but coverage does not extend to loss due to negligence.

The Government pays 80 percent of the insurance premiums and also covers all administrative costs. During 2016/17 and 2017/18, crop insurance subsidies were estimated by ICAC to be about US 5 cents/lb of total US production each season. Since provisions for crop insurance remained unchanged in the 2018 farm bill, it is likely that crop insurance subsidies will continue at roughly the same level in the next years.

Minimum prices provided by a marketing loan

All cotton farmers in the United States of America are eligible to harvest their cotton and store the bales in warehouses. The Government then extends loans to farmers equal to the weight of the cotton stored in the

warehouse multiplied by the loan rate, plus or minus quality premiums and discounts.
During the past decade, the national average loan rate was US 52 cents/lb every year except for 2017, when the loan rate fell to US 49.5 cents/lb. The loan rate returned to US 52 cents/lb during 2018, and the rate for 2019 is again US 52 cents/lb, the maximum rate foreseen in the farm bill.

If market prices are below the loan rate, farmers can keep the rate and forfeit the cotton to the Government, which then auctions the bales used as collateral. However, if market prices are above the loan rate, farmers have nine months in which to repay the loan – including interest and storage charges – recover control of their cotton and market it through normal commercial channels.

The existence of a loan rate encourages increased cotton production, since farmers have the certainty that even during an economic collapse, they can still 'sell' their cotton to the United States Government. The loan is therefore an effective floor for prices received by farmers for the base quality of cotton at average location.

Direct payments through the Ginning Cost Share Programme

The Cotton Ginning Cost Share Programme was added to the list of benefits received by farmers in the United States of America in 2016. Under this initiative, cotton farmers receive a payment based on acreage planted and the average cost of ginning in each region of the country. ICAC has estimated that farmers receive about USD 200 million per year in payments under the Ginning Cost Share Programme, and these payments continue under the 2018 farm bill. The purpose of the Cotton Ginning Cost Share Program is to boost US cotton farmers' incomes.

Direct payments through price loss coverage

Under the 2018 farm bill, seed cotton (un-ginned cotton) is a covered commodity eligible for price loss coverage. The 'reference price' for seed cotton is fixed at US 36.7 cents/lb (US 80.9 cents/kg). During each season, the USDA collects data on the prices received by farmers for cotton lint and cotton seed from gins, merchants, cooperatives and farmers. At the end of each season, it calculates a weighted average price for lint and seed received by farmers across the United States of America. When the season average price for lint and seed falls below the reference price, cotton farmers receive a payment equal to the difference. The maximum payment rate allowed under the farm bill is US 11.7 cents/lb of seed cotton.

The payments are not based on current production. In other words, the payment rate is applied to historical area (called 'base acres' in the farm bill) and historical yields (called 'programme yields' in the farm bill). The payments are received by the farmers regardless of whether they actually have grown cotton that season or not.

For 2018/19, the cost to the Government was expected to be between USD 150 million and USD 200 million.

Subsidies to textile mills

The Economic Adjustment Assistance Programme provides a subsidy of US 3 cents/lb to textile mills in the United States of America for each pound of upland cotton consumed. The annual cost to the government is around USD 40 million.

Short-Term Export Credit Guarantees

Under the Short-Term Export Credit Guarantee Program, known as GSM-102, the United States Government guarantees loans made by US banks to non-US banks for the purchase of agricultural products exported by the United States of America. For example, a textile mill in Turkey might wish to import cotton from the United States of America but needs a loan in order to pay for the cotton, which will be spun into yarn and sold to repay the loan. The textile mill will contact a cotton merchant and the merchant will arrange for a bank in the United

States of America to extend a loan to the textile mill via a bank in Turkey. Under GSM-102, the loan will be guaranteed by the US Government, resulting in increased credit availability and lower interest rates charged in order to purchase agricultural export products from the United States of America.

The duration, or maximum term of the credit guarantees is 24 months and fees paid by the borrower must cover the operating costs and losses of GSM-102 over the long term. In recent seasons, the USDA guaranteed loans for exports of cotton amounting to an average of USD 275 million per year in exported value. At average prices, the GSM-102 guarantees would have covered exports of around 130 000 tonnes of cotton per year, or about 5 percent of total US cotton exports. The largest recipients of GSM-102 guarantees for cotton are Turkey and the Republic of Korea, because the banks in these countries meet the programme's criteria for issuing credit.

3.7 Uzbekistan

The Government of Uzbekistan is actively encouraging value-added exports of cotton yarn, fabric and clothing. First, the Government allocates certain districts and regions for cotton production and cotton farmers receive preferential access to scarce land and water resources, which are provided free of charge. Second, the Government sets the prices for seed cotton delivered by farmers to procurement centres, and over the past ten years the administered prices for cotton have been increasing in real terms. Finally, the Government sets the prices and provides financing to farmers for production inputs.

Together with the benefits of receiving land and water free of charge and other inputs at reduced rates, farmers are expected to meet production targets. Of an estimated 66 000 commercial farming units in Uzbekistan, about 36 000 are involved in cotton and wheat production. Cotton farmers belong to some of the highest income earning households in the rural areas of Uzbekistan.

3.8 Other countries

In Viet Nam, following the efforts by the Government to boost production since the late 1990s, its cotton policies are currently focused on encouraging the development of textile chains using imported fibre. Similar efforts to boost production have been more successful in Bangladesh, thanks to the development of new varieties better suited to conditions in the country. There are no specific subsidies or programmes to encourage cotton production in Bangladesh, other than funding for research and extension activities.

In Africa, Burkina Faso, Côte d'Ivoire, Mali and Senegal, support is provided for cotton production in the form of subsidized fertilizer and planting seed. During 2017/18, such support represented about US 5 cents/lb of lint production (ICAC, 2018b).

Chapter

4

4. Changes in demand for textile products

The world market for textile products (yarn and fabric) was estimated at about USD 850 billion at manufacturer's prices in 2019, growing at around 5 percent by value annually, and accounting for about 1 percent of world GDP.

Around 84 percent of the value of textile products consists of fabrics, while yarns account for 16 percent. Some 60 percent of total textile production by value occurs in the Asia-Pacific region, 19 percent in Europe, and 11 percent in the United States of America.

4.1 Cotton prices and relative cotton polyester prices

For decades it was possible to forecast world mill use on the basis of GDP growth, population growth and prices of cotton relative to competing fibre prices, particularly polyester. In overall terms, the use of world cotton mill rose on average by about 2 percent per year. Since world population growth from year-to-year is relatively stable, most of the annual variation in cotton mill use was attributed to the change in the pace of world economic growth and fluctuations in prices of cotton relative to the prices of polyester. During years of robust world economic growth and competitive prices for cotton as related to polyester, mill use might rise faster than 2 percent, while during years of slow economic growth when cotton prices are higher than polyester, mill use could rise by less than 2 percent.

However, following the global financial crisis of 2008 and 2009, the impacts of relative fibre prices on cotton consumption seem to have put a damper on the effects of economic growth and population growth. Between 2007 and 2018, the world GDP increased more than 40 percent, while the world population rose by 900 million, yet cotton mill use did not rise at all. Over the 11-year period, world cotton consumption per capita fell from 4.0 kg to 3.5 kg, while per capita consumption of fibres other than cotton rose from 6.8 kg to 9.5 kg (ICAC, 2018c).

Two main reasons could be identified that explain the stagnation in world cotton mill use, despite growth in incomes and population: i) above-average prices of cotton and ii) a change in relative fibre prices, with polyester becoming much cheaper than cotton.

4.1.1 Above-average prices for cotton

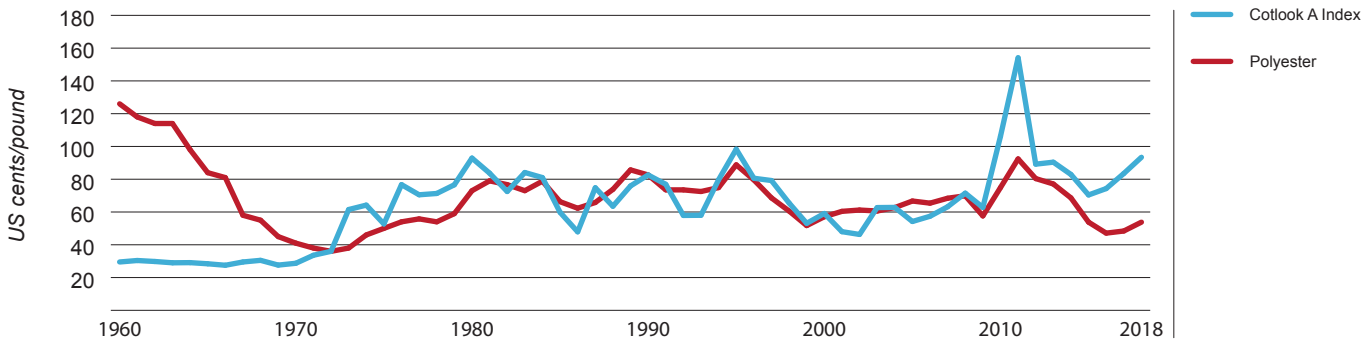
The Cotlook A Index averaged US 73 cents/lb (USD 1.61/kg) between 1973/74 and 2016/17, but the A Index averaged US 92 cents/lb (USD 2.02/kg) (21 percent above the average) during the ten seasons from 2009/10 to 2018/19 (Figure 13). There were only two seasons during the ten-year span where the Cotlook A Index was near the long-term average, and during the other eight seasons cotton prices were well above average.

Estimates of the relationship between changes in cotton prices and cotton mill use vary, but in the case where the own-price elasticity of demand is assumed to be 0.15, it would mean that if all other factors are kept constant, the decade of prices, roughly one-fifth above the long-run average, depressed cotton mill use by about 3 percent, or roughly 800 000 tonnes per season.

4.1.2 Cotton and polyester relative prices

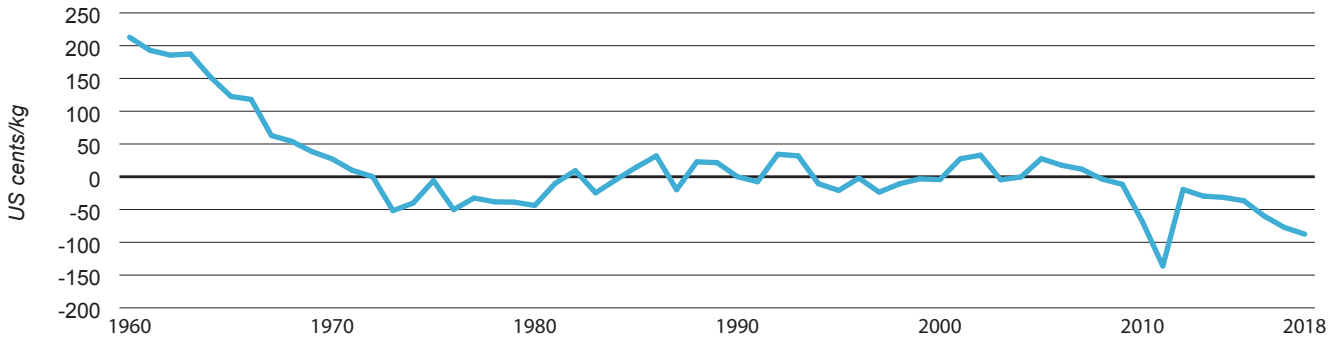
When polyester was introduced commercially in the 1960s, polyester prices were more than USD 2/kg, at a time when the Cotlook A Index was around US 30 cents/lb or US 65 cents/kg (Figure 53 and 54). Furthermore, the polyester of the 1960s was nothing like the polyester fibres of today. The first generation of polyester was coarse, shiny, hard to spin and dye and with few functional properties other than sturdiness. Polyester posed a weak challenge to cotton at that time.

Figure 53. Average fibre prices



Source: OECD/FAO, 2020.

Figure 54. Average difference polyester - cotton



Source: ICAC, 2018c.

However, by the 1970s the industrial processes used to make polyester had improved and prices had fallen to competitive levels with cotton. In addition, technical improvements to polyester had been achieved and today polyester can be engineered for different diameters, surface textures, sheen and dyeability, with moisture management, ultraviolet protection, odour control and other technical properties.

Throughout the 1970s, 1980s, 1990s and up until 2009, the Cotlook A Index and the average price of polyester were essentially equal, with one price series never exceeding the other by more than a few US cents, and never for more than a year or so. However, since 2008 the price per kilogramme for polyester has averaged more than US 50 cents less than the Cotlook A Index converted to US cents/kg. The differential is equal to approximately one-quarter of the value of cotton, and the price advantage for polyester has persisted for 11 years.

4.2 Textile and apparel manufacturing: High volumes/small margins/ financial stress

Textiles and apparel are among the oldest industries known to humanity, and both are the very definition of 'mature' sectors. Textile and apparel manufacturing are among the most competitive industries in the world, characterized by high volumes and small margins, with bankruptcy or profitability determined by small differences in efficiency.

Financial pressures on manufacturers are intensifying as consumers become increasingly concerned about sustainability issues, including the environmental and social impacts of production activities. Therefore, although profit margins are small, textile and apparel producers are being pressured to invest in equipment, processes and employee training that would reduce resource use as well as environmental impacts, in addition to improving wages and working conditions. The resulting financial stress in textile and apparel production is leading to industry consolidation.

Barriers to entry in the textile and apparel segments of the clothing value chain are relatively low and new producers can therefore have easy access to either segment. The technology used in textile manufacturing and apparel assembly is widely disseminated and easily accessed. Incremental improvements in existing technologies are constantly under way, with machinery becoming faster and more automated, using less energy and creating more uniform products. However, there have been no fundamental breakthroughs in the way that yarn has been produced since the 1930s, when open-end spinning was invented.[6] Most cotton is still spun into yarn on spindles, a technology that is many hundreds of years old. Power looms[7] and circular knitting[8] were both invented in the early 1800s, and apparel has been stitched together with sewing machines since the 1850s.[9]

Consequently, entrepreneurs in any country with access to an adequate amount of capital[10] can buy the latest, most efficient machinery and produce the highest quality products. Moreover, if they have access to labour, energy and buildings at competitive rates in an environment with efficient logistics, they can compete with producers anywhere in the world. As a result, production capacity expands inexorably worldwide, and there is relentless, downward pressure on profit margins in the fibre-textile-apparel supply chain.

Data from the United States of America illustrates just how competitive margins in the cotton value chain are (Table 3). The United States of America is still one of the ten largest cotton yarn-producing countries and the largest consumer market in the world. About three-quarters of the cotton yarn produced in the United States of America is exported either as yarn or fabric;[11] thus, export unit values are indicative of prices received by manufacturers. The average export unit values for cotton yarn and fabric in 2016 were USD 2.52 and USD 7.50/kg, respectively.

[6] *https://en.wikipedia.org/wiki/Open-end_spinning*

[7] *https://thescrubba.com/blogs/news/the-history-of-weaving-and-the-textile-industry*

[8] *http://knittinghistory.co.uk/resources/a-short-history-of-machine-knitting/*

[9] *https://www.timetoast.com/timelines/123481*

[10] *A modern spinning mill with the latest equipment and an annual capacity of 20 000 tonnes of cotton yarn will cost about USD 100 million, including land and buildings. A state-of-the art apparel company with 10 lines of 40 sewing machines each, producing about 3 million pieces per year, will cost about USD 2 million for equipment, not including land and buildings.*

[11] *US mill use of cotton in 2015/16 was 751 000 tonnes. Exports of cotton yarn and fabric on a raw fibre equivalent basis in 2016 were approximately 570 000 tonnes.*

Table 3. Margins in the United States apparel value chain

Margins in the United States apparel value chain	Increment	Cumulative	Proportion of retail price	Proportion received by farmers
	USD/kilo	*USD/kilo*	*%*	*%*
Average price received by United States farmers 2015/16	1.35	1.35	1.90	100
Merchants-Insurance-Freight-Finance 2015/16	0.19	1.54	0.27	87
Export unit value of one kilogram of yarn (spinning margin) 2016	0.97	2.51	1.37	54
Export unit value of one kilogram of fabric (weaving margin) 2016	4.98	7.5	7.02	18
Dye & finishing	-	-	-	-
Cut & Sew	-	-	-	-
Retailer's cost, one kilogram equivalent of woven cotton shirts	8.5	16	11.98	8
Average retail price of one kilogram equivalent of woven cotton shirts	55	71	77.46	2

Source: Authors' calculations.

The average price received by US farmers for cotton in 2015/16 was USD 1.35/kg. Thus, the price paid to cotton farmers alone accounted for 54 percent of the export unit value of cotton yarn in 2016 and 18 percent of the export unit value of cotton fabric.

The average wholesale cost paid by retailers for 1 kilogramme-equivalent of woven cotton shirts[12] was approximately USD 16 in 2016, indicating that the processes of dyeing and finishing, cutting and sewing, transport to retail and other inventory costs accounted for USD 8.50/kg of woven shirt equivalent.

Finally, the average price paid by consumers for 1 kilogramme-equivalent of woven cotton shirts was about USD 71 in 2016. Therefore, the retail margin, which covers the costs of transport to retail locations, retail displays, in-store labour, inventory in a multitude of colours, styles, sizes and brands, unsold inventory and other costs, was approximately USD 55/kg of shirts.

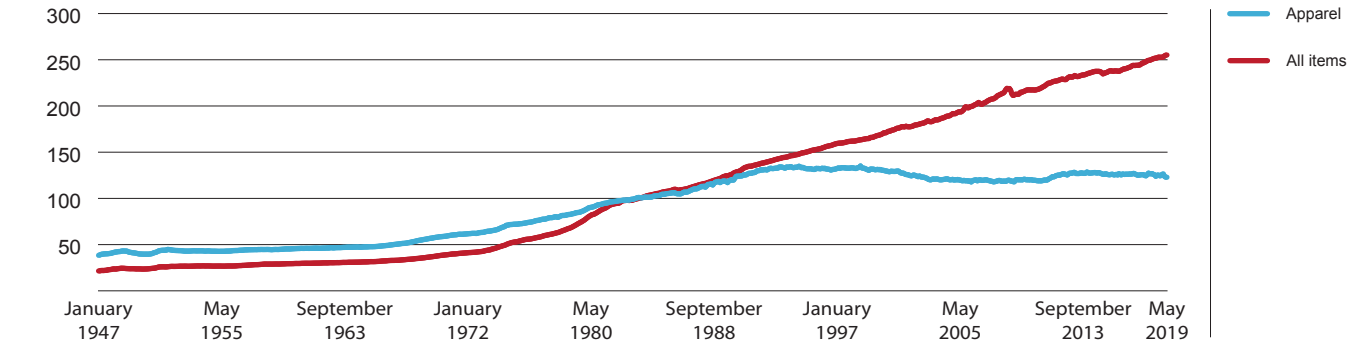
Accordingly, farmers received just 2 percent of the retail market value of woven cotton shirts, while spinners and weavers received just 1 percent and 7 percent, respectively.

According to the International Textile Manufactures Federation, the average manufacturing cost of a 30-count single cotton yarn in the United States of America was USD 1.54/kg in 2016, including the costs of fibre waste, labour, power, auxiliary material, machinery depreciation and interest. Added to the cost of cotton itself, USD 1.35/kg, the total production cost of 1 kg of cotton yarn, USD 2.89 , was more than the average export unit value of cotton yarn of USD 2.52/kg. The negative differential in the calculation of average cost of production and export unit values can be explained by the differences in yarn types and quality, and the timing of production and shipment within a season. Nevertheless, the available data show that textile industry profit margins per kilogram are measured in US cents/kg, not dollars.

Data on consumer prices in the United States of America provide another indicator of the cost pressure faced by textile and apparel producers. The Consumer Price Index for all products in the United States of America, 1981-83=100, rose to 250 by 2019. In contrast, the CPI for apparel in the United States of America, also 1981-83=100, rose to just 117 as of August 2019. The CPI data indicate that there was essentially no increase in retail prices for apparel in approximately 30 years, while the overall level of prices for all goods and services in the US economy rose two-and-one-half times. In 30 years, the cost of labour per hour increased, and insurance, real estate, electricity and other inputs also rose, but the retail prices for apparel did not increase. This means that apparel manufacturers, and all other actors in the apparel supply chain, have been forced to increase efficiency.

[12] *The average weight of the cotton used to manufacture a men's woven dress shirt is 360 g, including waste.*

Figure 55. United States consumer price indexes (1983=100)



Source: FRED, 2019

4.3 Sustainability

Despite the fact that prices paid by consumers for apparel products are not increasing and unit costs for labour, power and other production factors are rising, pressure to manufacture sustainably is being added to the challenges faced by manufacturers. 'Sustainability' means different things to different people, but most consumers generally believe that textiles and clothing should be produced without causing pollution, without exposing workers or consumers to harm, and without exhausting natural resources. Accordingly, all actors in the apparel value chain, from agricultural input suppliers and farmers to apparel producers and retailers, are under pressure to reduce resource use while improving quality and ensuring safety.

There are no estimates of the cost of compliance with sustainability requirements, because such requirements are highly specific to each situation. In spinning and weaving or knitting industries, 'sustainability' might require avoidance of the use of cotton produced with child or forced labour, reducing energy use, ensuring that workers wear proper protective equipment such as ear plugs and ensuring compliance with building codes and fire precautions. In dyeing and finishing operations, it might mean reducing energy and water use and ensuring proper treatment of effluent, along with observance of worker safety precautions. In cut and sew operations, 'sustainability' is usually associated with worker safety, adherence to building and fire codes, and paying 'living wages' to workers, which vary by country.

Nevertheless, although the cost of compliance with sustainability concerns is highly specific to each situation, the costs are real, and add to the pressures faced by manufacturers within an environment of falling real prices for apparel at retail level.

4.4 Consolidation

The cost pressures on manufacturers throughout the apparel value chain are leading to consolidation in textile and apparel production. As of 2018, three countries accounted for 60 percent of world cotton mill use: China, India and Pakistan. Between 2011/12, when world mill use fell to 22.4 million tonnes, and 2018/19, when mill use recovered to 26.7 million tonnes, the entire growth of 4.3 million tonnes occurred in just eight countries: Bangladesh, China, India, Indonesia, Pakistan, Turkey, Viet Nam and Uzbekistan. In all other countries, cotton use either remained unchanged or actually declined, even while the world total was rising.

Consolidation is occurring not just among countries, but also among companies. There are no comprehensive statistics on average textile mill size around the world, but in the 1980s, a typical spinning mill running 100 percent cotton and producing yarn for sale to weaving mills produced about 3 000 tonnes of yarn per year.[13]

[13] *Authors's estimate.*

Today, most spinning and weaving mills are integrated, and a typical spinning/weaving/dyeing and finishing operation will account for about 20 000 tonnes of fibre per year, including blends of cotton and man-made fibres. Some companies are much larger than average and use more than 100 000 tonnes of fibre per year.

Consolidation within the textile and apparel supply chain is likely to continue. Economies of scale lead to reduced overhead, labour and energy use per kilogram processed, and also create advantages in accessing information and capital, and the ability to handle logistics efficiently. Economies of scale are pushing textile and apparel producers to increase their sizes.

Interest rates remain at below-average levels in most countries worldwide, and low interest rates will encourage entrepreneurs to emphasize capital-intensive manufacturing practices at the expense of labour-intensive practices. Accordingly, investments in faster and more automated machinery will continue.

4.5 Policy coherence/industry coordination

Cotton producers and manufacturers of cotton products are dependent on each other, and with cost pressures in the value chain, coordination among producing segments is crucial to the long-term viability of cotton as an industry.

However, systematic coordination and cooperation have been difficult to achieve. Farmers want to receive higher prices; spinners want to pay lower prices. Farmers want lenient grading standards with few parameters; spinners, weavers and knitters need specific quality evaluation standards with objective measurements of fibre performance characteristics. Farmers believe that merchants and spinning mills are always trying to trick them by under-grading, under-weighing, and colluding to depress prices; merchants and spinners believe that farmers are always trying to trick them by adding rocks and water and by hiding contamination to inflate weights. Farmers complain that spinners are constantly pressuring them to produce cotton that is cleaner, longer and stronger, but they will not pay for the improvements in quality. Spinners complain that farmers fail to understand the world market and pressures they are subjected to for improving yarn and fabric quality and eliminate defects.

The result is that industry collaboration occurs at a rapid pace to harmonize grading standards, improve the logistics of storage and transport, improve cotton varieties to deliver the performance characteristics that spinners need and improve transparency in the value chain.

Nevertheless, progress is occasionally made. For example, under the auspices of the International Cotton Advisory Committee and its specialized task force on Commercial Standardization of Instrument Testing of Cotton,[14] the world cotton industry is gradually moving towards 100 percent instrument testing of cotton at producer level. Instrument testing provides yarn and fabric producers with objective measures of cotton performance characteristics, thereby enhancing efficiency in use. Such testing also creates incentives for farmers to produce cotton with the performance characteristics desired by consumers.

As a second example, under the auspices of the International Plant Protection Convention within the Food and Agriculture Organization (FAO) of the United Nations, the world is moving towards the adoption of electronic phytosanitary certificates (e-phyto). The current system of paper phyto certificates is prone to fraud or loss and therefore increases the costs associated with each international shipment. A typical contract for cotton moving in international trade is 150 tonnes, or about six 40-foot containers, and shifting from paper to electronic phyto certificates will save an estimated USD 500 , or about USD 3 per tonne, on the cost of each shipment. Electronic certificates also reduce opportunities for fraud and virtually eliminate physical loss of the certificate. In an industry with tight margins, small improvements in efficiency are significant.

[14] *http://csitc.org*

4.6 Conclusion

Cotton is one of the world's greatest industries, touching almost everyone daily by providing incomes for tens of millions, connecting producers in remote areas to world markets, and enhancing food security. However, the industry must change and adapt in order to compete with polyester, or it will decline. Cotton yields must increase, agronomic limits be overcome, resource use must decrease, and fibre characteristics need to transform to reach a level of performance that meets the demands of consumers. Greater coordination among the value chain segments to enhance transparency, improve efficiency and raise productivity would contribute to the long-term viability of the world cotton industry.

Glossary

Cotton: lint obtained from cotton plants. Six major parameters are used to evaluate cotton quality: length of individual fibres in a bundle, strength of fibres, micronaire (a measure of the inside and outside diameters of fibres), length uniformity of fibres in a bundle, reflectance (what percentage of light bounces back from a sample) and yellowness.

Cotton yarn: long threads produced by spinning cotton fibres together and winding the resulting yarn onto a cone for use by a weaving or knitting mill in the production of fabric. There are about 60 parameters used to measure the quality of yarn, such as strength, elongation, twists per inch, hairiness, and others. Yarn is categorized by the length required to weigh 1 pound.

Cotton thread: the same as cotton yarn, but threads are used to sew pieces of fabric together.

Seed cotton: the product that farmers harvest containing seeds with lint attached. On average, 100 kg of seed cotton yields 35 kg of cotton, 55 kg of cotton seed and 10 kg of leaf, sticks, burrs and other products that come from cotton plants and farm fields.

Cotton seed: seeds produced by the cotton plant. Most cotton seed around the world is fed to cattle, especially dairy cattle, due to its high fat content relative to other forms of dairy feed. Cotton seed can also be crushed for cooking oil, with the remaining hulls and meal fed to cattle.

Gossypol: a toxic compound produced naturally by the cotton plant as a defence mechanism against insects. Gossypol is toxic to humans and non-ruminant animals. Gossypol must be removed from cotton seed oil before human use, and because of gossypol, cotton seed cannot be fed to animals such as pigs and chickens.

Direct payments: in the context of agricultural policy, these are payments made directly by governments to producers. They are distinct from indirect payments, which refer to government support for roads, research or training that benefit farmers and rural areas but are not received directly. Direct payments may or may not be crop-specific.

Indirect payments: in the context of agricultural policy, these are expenditures by governments for general support of agricultural or rural areas. Examples include support for agricultural research, extension or infrastructure in rural areas.

Decoupled payments: in the context of agricultural policy, these are budgetary payments paid to eligible recipients which are not linked to current production of specific commodities or livestock numbers or the use of specific factors of production.

Polyester: a molecule synthesized from oil, coal or natural gas that can be used to produce many products, including either filament or staple fibres for use in manufacturing textiles. Nylon and acrylic are also synthesized from oil, coal or natural gas, but their range of uses is not as wide as polyester. Nylon is used primarily in automobile applications, with some use in apparel, and acrylic is used primarily as a cheaper alternative to wool in knitted products.

Filament fibre: continuous strands of man-made fibre, such as fishing line, but usually much finer. All man-made fibres are produced as filament.

Staple fibre: short fibres, like cotton, that can be spun into yarn for the production of textile products. Man-made fibres can be chopped into short sections of staple for the purpose of blending with cotton. Cotton fibres used in commercial applications range from 22 to 35 mm in length; the mode is 30 mm.

Biotechnology: an umbrella term for a collection of tools used to add or subtract genes from the DNA of plants or animals to enhance performance characteristics. Genetic engineering is a synonym. The public often uses the term 'GMO' for genetically modified organism, to refer to products produced using biotechnology.

Bt cotton: Bt is shorthand for *Bacillus thuringiensis,* a common soil bacterium. One or more genes from *Bacillus thuringiensis* are inserted into the cotton genome, producing increasing levels of one or more proteins that cannot by digested by Lepidopterans (chewing pests). Eventually, the lepidopteran dies after eating the green portions of plants that produce such proteins. Bt is not itself a toxin, and is harmless to humans and any other animal, other than Lepidopterans, which might eat the cotton plant.

Herbicide tolerant (HT) cotton: cotton that can be treated with a common herbicide, but is not affected.

Natural fibres: fibres produced directly by plants or animals that can be used to manufacture textile products.

Man-made fibres: fibres produced by either a mechanical or chemical process. The origin of the molecules used to produce fibres does not determine whether they are natural or man-made. Polyester can be made from corn oil rather than oil, coal or natural gas, but it is still a man-made fibre. Likewise, rayon or viscose is made from the cellulose in wood, but it is still a man-made fibre.

Synthetic fibres: fibres that are synthesized from non-cellulosic molecules (molecules that are not produced by plants or animals). Examples include polyester, nylon and acrylic.

Cellulosic fibres: fibres that are synthesized from cellulosic molecules (molecules produced by plants). Most cellulosic fibres are called either rayon or viscose, and the terms are used interchangeably. Most cellulosic fibres are made from Dissolving Wood Pulp, which is made from the cellulose in trees or bamboo.

References

Cotton made in Africa aid by Trade Foundation, 2015. *Annual report 2015.*
Available at: https://www.cottonmadeinafrica.org/en/english-docs/annual-reports/160-cmia-annual-report/file

DNFI. 2019. *Natural Fibres and the World Economy 2019*.
Available at: http:www.dnfi.org/coir/natural-fibres-and-the-world-economy-july-2019_18043/

FAO and ICAC. 2015. Measuring sustainability in cotton farming systems. Food and Agriculture Organization
Available at: http://www.fao.org/3/a-i4170e.pdf

FAO and International Plant Protection Convention. 2017. *Phytosanitary certificates*.
Available at: https://www.ippc.int/static/media/files/publication/en/2017/10/ISPM_12_2014_En_2017-10-26_InkAm.pdf

ICAC. 2018a. *Proceedings 77th plenary meeting of the ICAC.* December 2018.
Available at: https://na.eventscloud.com/file_uploads/6a9c00c95cfbd8ef6b0d3f69c80daebb_Proceedings_18_revised2.pdf

ICAC. 2018b. *Production and trade subsidies affecting the cotton industry*. November 2018.
Available at: https://na.eventscloud.com/file_uploads/0d29a4b2281774f8113dc8ea4cbd4642_e_cotton-subsidies_2018.pdf

ICAC. 2018c. *World Textile Demand*. International Cotton Advisory Committee, Washington DC.

OECD and FAO. 2020. *OECD-FAO Agricultural Outlook 2020-2029*. OECD Publishing. Paris.
Available at: https://doi.org/10.1787/agr_outlook-2019-en

Office of management and budget, President's Budget. 2020. *Budget 2020*.
Available at: https://www.whitehouse.gov/omb/budget/

International Textile Manufacturers Federation (ITMF). 2017. *International production cost comparison (IPCC)*. January 2017.

Sheng Lu, Associate Professor, Department of Fashion and Apparel Studies, University of Delaware, USA. *Market size of the global textile and apparel industry: 2015 to 2020*. FASH455: Global Apparel and Trade Sourcing

FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/release/tables?rid=10&eid=34483#snid=34517, accessed May, 2019.

Textile Exchange. 2018. *Organic cotton market report.* Available at: https://store.textileexchange.org/product/2018-organic-cotton-market-report/

Recent trends and prospects in the world cotton market and policy developments

CORRIGENDUM

18 November 2021

The following corrections were made to the PDF after it went to print.

Page	Location	Text in printed PDF	Text in corrected PDF
7	Paragraph 2		respectively
7	Paragraph 2	one-quarter of the world total	one-quarter and one-fifth of the world total
12	Paragraph 4	11 percent	share
20	Paragraph 1	lint/ha /19 in 2018	lint/ha in 2018/19
17	Paragraph	dispite	despite
20	Paragraph 3	of	from
20	Paragraph 3	2.4	2.3
20	Paragraph 3		compared to 2.1 million tonnes in 2016/17 and 2015/16,
28	Paragraph 1	rose to	rose by
29	Paragraph	or two-thirds of production	
32	Paragraph 2	from	by more than
32	Paragraph 2	between	compared to
32	Paragraph 2	And 2018/19	
52	Table 3/Row 4	spinning margin	weaving margin

Contact: publishing-submissions@fao.org

ISBN 978-92-5-133951-0

9 789251 339510

CB3269EN/1/06.21