COTTON AUSTRALIA

COTTON AS A COMPETITIVE COMMODITY

The story of a modern, sustainable agricultural industry that's helping to clothe the world. Cotton Australia's Cotton Education Kit provides current, authoritative information for all teachers and students, and includes:

- Targeted Australian Curriculum outcomes for Years 7-12, and outcomes for Years 11-12 from NSW, QLD, SA, WA, NT & ACT syllabi in each of its 10 chapters.
- Case studies and multimedia that are embedded in the Kit. Additional school resources, lessons and worksheets are found online in the Cotton Classroom.

Cotton Classroom

Raw cotton lint is a commodity sold into a world market. Australia's cotton growers compete against around 75 other cotton producing nations for its share of global cotton trade. About 25 million tonnes of cotton is produced worldwide annually. The greatest annual volume of cotton ever produced globally was 28.04 million tonnes in 2011/12.

Typically, an increase in crop production size equates to better yield, rather than larger production land area. In the past 60 years or more, the average world cotton yield has increased by 4% per hectare every year, or nine kilograms of lint per hectare per annum. Cotton production increased by more than 54% during the 1950s, 12% during the 1960s, 20% during the 1970s, 25% during the 1980s, only 1% during the 1990s, and by 14% during the 2000s. (Source: ICAC)

The top three cotton producing countries in the world in 2020 were India, USA and China. Next came Brazil, Pakistan, Turkey and Uzbekistan. In 2020, Australia was the 8th largest cotton producing country. Global production of cotton fluctuates year-on-year due to global demand, weather events and changing land use. For example, Australia's cotton crop was the lowest in 40 years in 2019/20 after prolonged drought across most growing regions. However, high summer rainfall in Australia during 2020-21 improved water availability which boosted the cotton area planted and bolstered dryland production for 2020/21.

THE IMPACT OF **COVID-19**

From August 2019 to July 2020, global cotton consumption fell by 15% as a result of the COVID-19 pandemic. However, according to the US Department of Agriculture, global cotton consumption from August 2020 to July 2021 was expected to increase by 11.3%.

In early 2021, the International Cotton Advisory Committee (ICAC) provided an update on the 2021 global cotton production statistics:

- Global production for 2020/21 was estimated at 24.1 million tonnes, an 8% decrease from the previous season, with decreases coming from several major producers.
- Double-digit decreases in crop size were reported in the United States, Brazil, Pakistan, West Africa, Turkey and Uzbekistan.
- The US crop would be 25% smaller based on reduced area; Brazil's production was expected to shrink by 12%; and production in Pakistan was expected to contract by 33% due to a decrease in planted area, monsoon damage and pest infestations.
- The 2020/21 crop was expected to increase in both India and China, with India's crop to increase to 6.2 million tonnes and China's crop to increase to 5.9 million tonnes.
- Production decreases in several consuming countries that rely on domestic production saw trade expected to rebound in 2020/21 to 9.3 million tonnes.

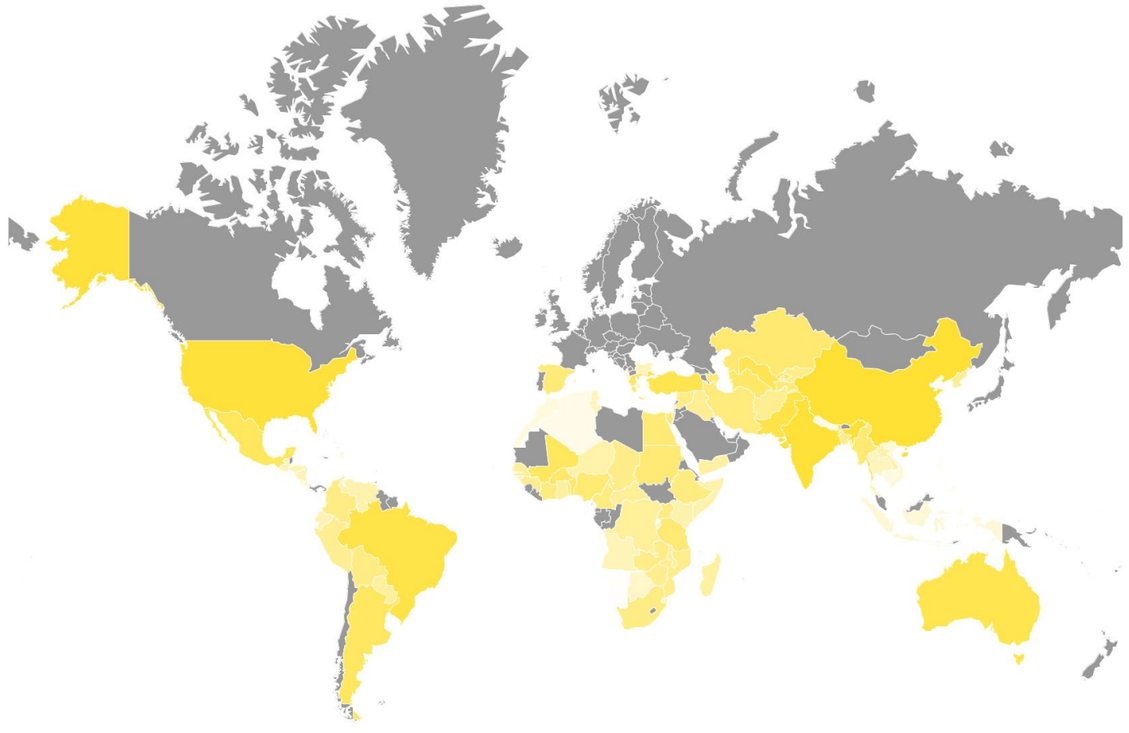


Image Source AtlasBig

Cotton is grown in subtropical and seasonally dry tropical areas in both the northern and southern hemispheres, although most of the world's production takes place north of the equator.

TOP COTTON PRODUCING COUNTRIES IN THE WORLD IN 2020

Source AtlasBig

Rank	Country	Cotton production in thousand metric tonnes
1	India	5,770
2	United States	3,999
3	China	3,500
4	Brazil	2,787
5	Pakistan	1,655
6	Turkey	806
7	Uzbekistan	713
8	Australia	479
9	Turkmenistan	198
10	Burkina Faso	185

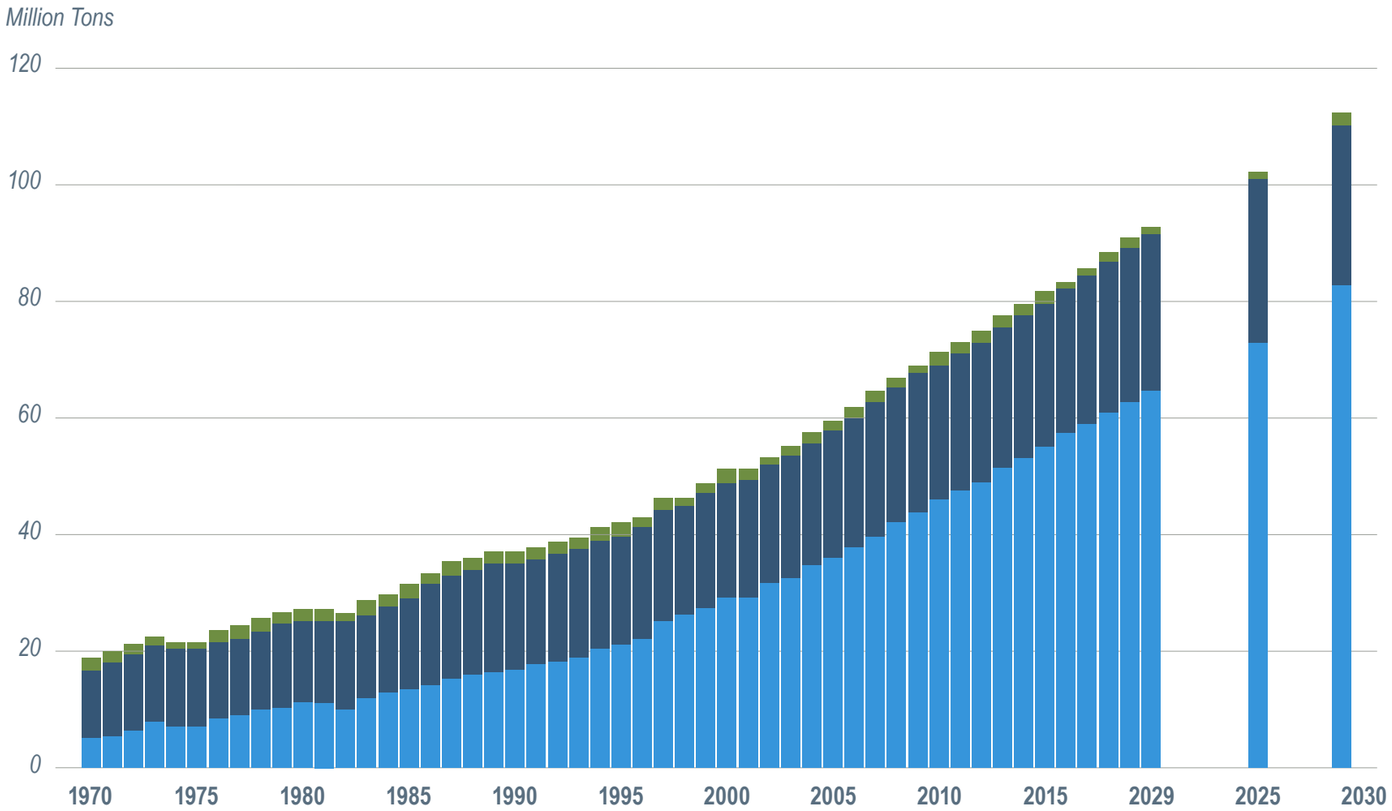
OVERALL CONSUMPTION OF FIBRES SET TO RISE

Worldwide demand for cotton is high and the global fibre market is set to increase in the next decade.

Despite cotton's fall in the share of the world fibre market, consumption of cotton is increasing overall due to increases in population growth. World cotton production is projected to grow 1.5% p.a. to reach almost 30 Mt in 2029.

Cotton Australia's CEO, Adam Kay interviewed on ABC Landline. Cotton industry rebounds as harvest starts on potential $1.5 billion crop, but China still not buying. February 2021.

WORLD FIBRE PRODUCTION



Fact Sheet: The Economics of Cotton.

Market situation and highlights the medium-term projections for world cotton markets for the period 2020-29. OECD-FAO AGRICULTURAL OUTLOOK 2020-2029.

COTTON'S **ECONOMIC AND SOCIAL IMPORTANCE**

As cotton is a global commodity, it is imported and exported between more than 150 countries that either grow cotton, manufacture cotton products, or both.

Cotton and cotton textile industries such as spinning, fabric and garment production are central to the economic growth of both developed and developing countries. Over 300 million farming families are involved in cotton production worldwide. It is a vital cash crop in many countries, providing income to families for education, health, housing and transportation, and serving as a catalyst for rising social welfare.

In many countries, the export of cotton as a commodity not only provides a vital contribution to foreign exchange earnings, but also accounts for a significant proportion of GDP and tax income. Source: International Trade Centre Cotton Guide.

In Australia alone, the average Australian cotton crop is worth $1.5 billion to the national economy every year, employing over 10,000 people and providing support to over 150 regional farming communities that rely on cotton.

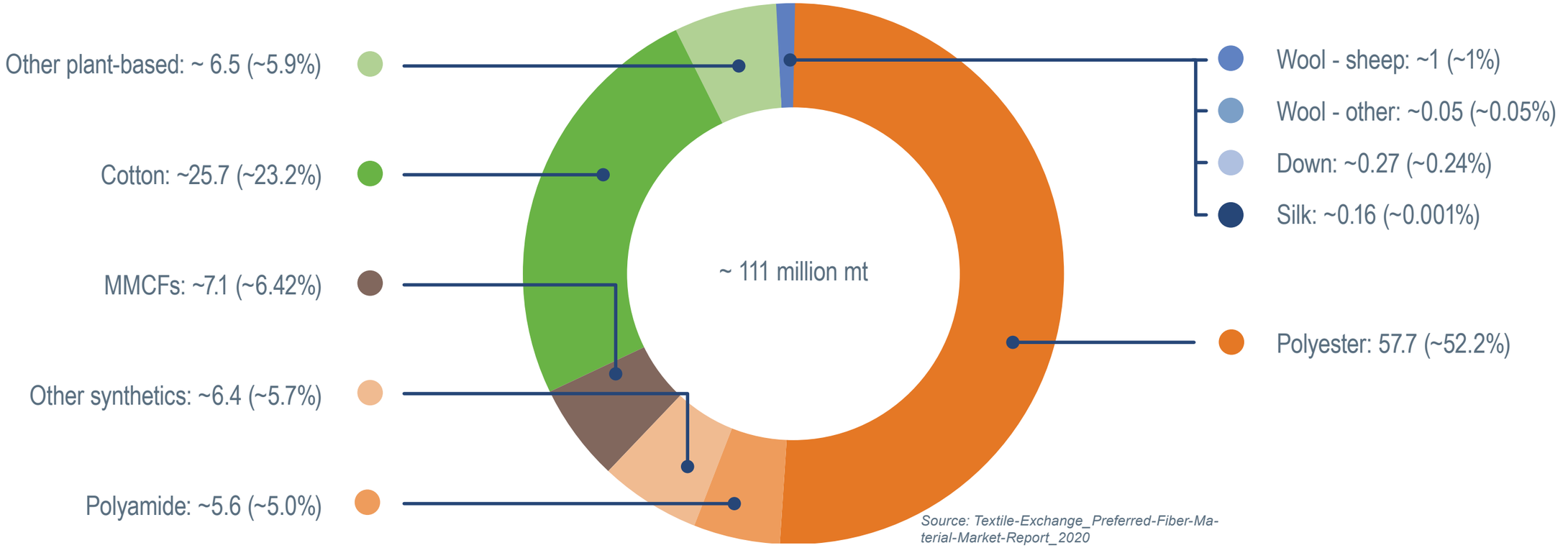
COTTON'S **SHARE OF THE WORLD FIBRE MARKET**

Cotton is the biggest selling natural fibre in the world, but along with wool and other natural fibres, cotton competes with both oil-based synthetics and heavily subsidised farmers in many other countries including the United States.

Cotton's share of the world fibre market has been falling since the 1960s when it dominated with 70% market share. Cotton currently accounts for around 25% of the fibre market, while wool, the most popular animal fibre, accounts for less than 1%.

Man-made synthetic fibres emerged in the mid-1960s, and continued to take market share from cotton and other natural fibres over the next 60 years. In 2019, synthetics held approximately 63% share of the market with polyester the dominant synthetic fibre.

GLOBAL FIBRE PRODUCTION IN 2019 IN MILLION MEGATONNES (+%)



Source: Textile-Exchange_Preferred-Fiber-Material-Market-Report_2020
Note: MMCF=Manmade Cellulosic Fibers

ADDRESSING COTTON'S DECLINING **MARKET SHARE**

The challenge to halt cotton's declining global market share is a complex problem requiring a raft of technical and collaborative solutions to position natural fibres against their biggest competitors – man-made synthetic fibres, and in particular, polyester.

Synthetic fibres are man-made fibres made from petroleum-based polymers produced artificially, for example, from coal or crude oil. In contrast, natural fibres are made from naturally occurring polymers such as cellulose or lignin (from plants) and proteins (from animals).

While there are several strategies used globally and nationally to position cotton against its main competitors, a much more coordinated effort is required by the world's cotton producing countries if there is any hope of stopping the rise of synthetics.

Strategies include:

- Educating brands, retailers and manufacturers about the natural benefits of cotton, including sustainability programs.
- Global partnerships such as BCI or the Cotton LEADS program that engages supply chain partners in the procurement of sustainable cotton options.
- Showcasing cotton's perfect fit in new circular business models for fashion and textiles
- Investing in research and development to find new ways with cotton that meet current market demands around performance and endurance.
- Investing in research that solves issues for cotton such as fibre uniformity, colour fastness and recyclability.
- Drawing attention to the problems associated with synthetic fibres including issues of shedding microplastic pollution and their inability to break down in landfills.
- Educating consumers about what to shop for, how to read labels, how to care for garments and the benefits of cotton as a natural fibre.
- Producers and cotton industries globally opting-in to recognised sustainability programs appropriate to their location that benchmarks environmental accountability, traceability and transparency.

The Sustainable Cotton Matrix summarises global initiatives that support and promote sustainable and environmental programs from growers right through to suppliers and end users.

Cotton UP Guide - a practical guide to sourcing more sustainable cotton.

The Better Cotton Initiative (BCI) is a global program to improve the sustainability of cotton farming globally.

The International Institute for Sustainable Development 2020 Report on Sustainable Commodities focusing on cotton.

What gets measured, matters. In 2019, nearly 200 companies voluntarily participated in Textile Exchange's Corporate Fibre and Materials Benchmark — which feeds into its Material Change Index.

Better Cotton. Chain of custody rules help suppliers, manufacturers, retailers and brands to make credible claims about various raw materials they've sourced. This video explains chain of custody rules for Better Cotton.

CASE STUDY: The Better Cotton Initiative (BCI) is the largest cotton sustainability program in the world. In 2014, Cotton Australia signed a landmark agreement with the BCI on behalf of Australia's cotton industry where cotton grown on myBMP-accredited farms can now be sold internationally as 'Better Cotton'. In 2020, more than 20% of Australia's cotton production was Better Cotton.
BCI Video Series, Stories from the Field takes you on a journey around the world demonstrating how producing Better Cotton has economic, social and environmental benefits. The communities of BCI Farmers are starting to genuinely feel those changes. But it is the stories from the farmers and workers themselves that really convince.

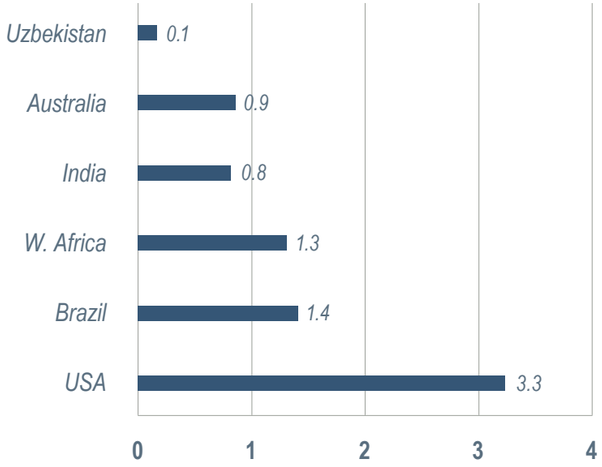
POSITIONING **AUSTRALIAN COTTON IN THE WORLD** MARKET

The Australian cotton industry has earned a reputation as a reliable international supplier of cotton with fast shipping times to export destinations and reliable delivery. The crop is in strong demand internationally and can attract a price premium due to its high quality, excellent sustainability credentials, reliability and a proven track record in meeting manufacturer and consumer needs.

Australia is a relatively small producer of cotton globally, but typically is the fourth-largest exporter in the world cotton marketplace, behind USA, Brazil and India. After years of drought in Australia, the 2020 crop was the smallest in 40 years. As such, Australia's ranking dropped to fifth-largest exporter of cotton.

WORLD COTTON EXPORTS

18/19



Source: ICAC

AUSTRALIA IS TYPICALLY **THE FOURTH LARGEST EXPORTER** OF COTTON

One of the ways that the cotton industry can differentiate Australian cotton from those of other countries is through its documented environmental credentials. While the Best Management Practices Program *my*BMP allows the cotton industry to monitor and improve its performance, it also provides the basis for a powerful marketing story.

A small but influential segment of the consumer market are demanding greater traceability, environmental accountability and ethical labour standards across the supply chain. Brands too are much more focused on sourcing raw materials with high environmental and social standards that are open and transparent. Australian *my*BMP cotton is well positioned to meet this demand and provides one of the foundations of Cotton Australia's supply chain strategy, Cotton to Market.

Brands that are looking to source Australian cotton in their supply chains do so for a number of reasons: very high quality, support of regional communities and farmers, and high environmental and social standards.

The *my*BMP program, along with the industry's Sustainability Strategy – Planet. People. Paddock, and its significant investments in research and development allows Cotton Australia to confidently promote Australian cotton as a sustainable natural fibre of choice to brands, retailers and other supply chain partners.

Since 2013, Cotton Australia has formed partnerships with many global and Australian brands and retailers that are sourcing Australian cotton in their products and calling this out to consumers. Not only does this mean high quality, sustainable Australian cotton is making its way into the hands of customers that share the industry's values, it is helping secure markets for Australian cotton into the future.

Using a paper-based chain of custody, brands and retailers can trace an article of clothing from apparel manufacture, knitting or weaving, spinning, and ginning, right back to where that cotton was grown in Australia. The Australian cotton industry can provide verification that particular bales of cotton are Australian cotton. This country of origin traceability gives brands confidence to continue switching more and more products to Australian cotton, reducing supply chain risks and providing a "locally grown" story that resonates with the staff, sales teams and customers.

The *my*BMP logo is not in use by brands and retailers. The Australian Cotton Mark is the logo that is promoted to brands and retailers. The *my*BMP logo is an industry-facing program logo.

Branding your products with the Australian Cotton Marks.

Transforming the cotton industry for competitive results - CSIRO.

The Australian Cotton logo swing tag.

EXAMPLES OF **BRANDS SUPPORTING AUSTRALIAN COTTON**

Bonds: ‘By partnering with Australian cotton, we source sustainable raw fibres in a way that has increased water efficiency by 40% over the last decade.’

Country Road: ‘Country Road has proudly partnered with Landcare Australia to support the regeneration of Australian farmlands, with a focus on increasing biodiversity in cotton growing regions.’

Sussan: ‘You can always feel the quality of 100% Australian cotton. It’s some of the highest quality cotton in the world. It’s soft to the touch and it’s a breathable fabric you’ll feel good in all day.’

Kmart: ‘Through our partnership with BCI and our relationships with our suppliers, we’re working together to ensure a brighter future for the cotton industry and those whose lives depend on it in countries including Brazil, India, China, Bangladesh and Australia.’

Politix: ‘We support the Better Cotton Initiative.’

MJ Bale ‘Andrew (Watson) is one of the suppliers of cotton to M.J. Bale’s McQueen chinos, which are created entirely from Australian cotton sourced from north-west New South Wales and southern Queensland.’

CB Clothing: ‘The Australian votton industry invests more than $120 million in Research and Development each year to make the world’s best cotton.’

One P Design: ‘Makes a conscious effort to source Australian cotton for our garments’

Love Thy Farmer: ‘We are passionate about farming, rural communities and natural fibres, of which we believe Australia produces some of the best in the world.’

Farm to Hanger: ‘Exclusively working with Australian Super Cotton, they transparently and meticulously produce each roll of fabric with the utmost care for quality and the environment, right here in Australia’.

A.BCH: ‘The Australian cotton industry has truly won me over when it comes to the research and scientific methods used to grow cotton as sustainably as possible.’

Stonemen: ‘We proudly support the Australian cotton industry as one of the most water efficient cotton industries in the world, thanks to biotechnology and advanced precision irrigation.’

Cotton farmer Glen Rogan at Rogan Pastoral Co explains his involvement in developing environmentally sustainable products for the market.

ORGANIC COTTON

Some clothing and homewares products are labelled as containing organic cotton, meaning it was grown without the use of synthetic chemicals, fertilisers or gene technology. The economic, social and environmental conditions in Australia are such that there is almost no organic cotton grown in the country.

The term 'organic' refers to food and fibre farming and production methods that are managed in accordance with organic standards and is grown using seeds that are not genetically modified (source: Australian Certified Organic, 2014). Organic cotton is cotton certified 'organic' by bodies in individual countries. To add an additional layer of complexity, to produce 'organic cotton textiles', certified organic cotton should be manufactured according to organic fibre processing guidelines, which change according to the country in which the clothing is manufactured.

Organic cotton has proven most successful in developing countries where the average farm size is 1-2 hectares. This makes organic farming much more manageable in terms of "hands-on" crop management requirements such as hand sowing, weeding and harvesting. The bulk of organic cotton production comes from Zambia, Zimbabwe and countries in the Middle East and South-East Asia.

Many of the practices used in some organic cotton production are also used in producing modern Australian varieties. In fact, the *my*BMP program goes far beyond the standards required under some organic cotton certification systems.

A small number of Australian cotton growers have experimented with organic cotton in the past, but it proved to be uneconomical to grow and has therefore inhibited it from entering long-term commercial production in Australia. It may be in the future that organic cotton is grown in Australia; however, profitability and sustainability will drive producer decisions, as will consumer demand.

Organic cotton.

Is organic cotton grown in Australia?

Organic cotton in the field ready for harvesting.

Open bolls on an organic cotton plant.

COMPARING COTTON AND HEMP

There are limited hemp varieties suited to growing in areas where cotton is currently grown in Australia. However, there are new varieties being developed for both fibre and grain production.

Water management is particularly important during the first six to eight weeks of hemp crop establishment. Without significant supplementary rainfall, industrial hemp requires 3-6 megalitres of irrigation water per hectare for sustainable production rates (source: NSW DPI). Cotton requires 6-7 megalitres of water per hectare.

Leading CSIRO scientists agree that industrial hemp's water and nitrogen requirements are similar to those of cotton.

Industrial hemp varieties require soil temperatures for germination around 18°C, with optimum temperatures for growth between 15–27°C.

Industrial hemp is intolerant of frost and excessively cold or hot climatic conditions, which narrows the regions in Australia where the crop could be grown.

Very humid conditions give rise to fungal diseases which would need chemical control measures, where there are currently not many registered products available.

Due to the above-mentioned conditions required for growing sustainable fibre hemp crops, it could not replace cotton in most areas of Queensland and NSW where cotton production currently takes place.

In Australia, there is a potential market for hemp stems and hurd. Both these markets require critical volumes in order to supply processing plants and markets.

There is currently no processing plants or infrastructure in NSW or Queensland to deal with the primary processing of industrial hemp, and the cost of transporting plant material more than 100 kilometres makes production unviable.

When a farmer considers growing any crop, they ask themselves whether it is sustainable for their business to produce the crop, and other questions including: What markets are available for industrial hemp material? Is the profit margin equal to or higher than other crops? How will the crop be harvested? What processing facilities are available?

The price for unrefined hemp fibre (off the farm) is much less than the price/kilogram for ginned cotton lint. Therefore, at the farm gate, the hemp textile fibre proposition is quite poor – unless there are processing operations and concentration (of product) at or near the farm.

Cotton Australia does not discourage hemp production in Australia, and wishes the industry well.

A comparative analysis of cotton and hemp production in Australia.

An overview of the hemp industry from AgriFutures Australia.

NSW Department of Primary Industries Industrial Hemp Fact Sheet.

THEMES AND AUSTRALIAN CURRICULUM
OUTCOMES FOR SECONDARY SCHOOL

The Cotton Education Kit has been linked to the Australian Curriculum for Years 7-10, and targeted outcomes for Years 11 -12 from all state & territory curriculums across Australia. A list of themes is provided for teachers as a quick guide to assist linking the content to their unit of work or syllabi in their state or territory.

A full list of the individual syllabuses that have been mapped against the Cotton Education Kit can be found in the Cotton Classroom.

Cotton Classroom

CHAPTER EIGHT THEMES

- Cotton's Share of the World Fibre Market
- Positioning Australian Cotton in the World Market
- Marketing Case Study
- Organic Cotton

Curriculum	Course	Chapter 8: Cotton as a Commodity
Australian Curriculum	Year 7 Economics and Business	ACHEK017 (consumers and producers)
	Year 9 Economics and Business	ACHEK041 (competitive advantage)
New South Wales (HSC)	Agriculture Life Skills (2018)	ALS2 ALS6
	Design and Technology Life Skills (2018)	DTLS7
	Textiles and Design Life Skills (2018)	TDLS7 TDLS8
Victoria (VCE)	Agriculture and Horticulture Studies (2020)	AoS 2 Food and fibre production
	Economics (2017)	Unit 1 AoS 2 Decision making in markets
Queensland (QCE)	Agricultural Practises (Applied) (2019)	E6.2
	Agricultural Science (General) (2019)	Unit 3: Topic 3 Unit 3: Topic 2
	Fashion (Applied) (2019)	Elective 2.2.6: Sustainable clothing
	Economics (General) (2019)	Unit 1: Topic 3 Market forces
Western Australia (WACE)	Economics (ATAR) (2018)	Unit 1: Demand, supply and equilibrium
	Economics (General) (2018)	Unit 3: Demand, supply and equilibrium
	Plant Production Systems (General) (2017)	Unit 2: Economics, finance and markets Unit 4: Economics, finance and markets
	Plant Production Systems (ATAR) (2017)	Unit 2: Economics, finance and markets Unit 4: Economics, finance and markets
South Australia / Northern Territory (SACE)	Agricultural Production Stage 2 (2021)	Topic 4: Agribusiness
	Design, Technology, and Engineering. Stage 1 (2020)	Material solutions: Clothing and textiles
	Design, Technology, and Engineering. Stage 2 (2020)	Material solutions: Clothing and textiles
Tasmania (TCE)	Agricultural Systems (2019)	Unit 6: Agribusiness Case Study
	Economics (2016)	Unit 1: An introduction to economics

KEY **LINKS**

- Cotton Australia.
- 360-degree digital film of a cotton farm, the latest addition to Cotton Australia's suite of educational resources informing city and country residents about the Australian cotton industry.
- Google Arts & Culture
- Australian Cotton
- Cotton Research and Development Corporation
- Cotton Seed Distributers
- CottonInfo
- Primezone: Primezone provides teachers and students with access to the latest quality primary industries education resources

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