



Fashion design & textile Resource set 4 for the secondary classroom

### Design out waste



## THE FASHION SYSTEM Where are we wow!

"The most important environmental impact metric is not impact at the factory gate, but impact per wear"

Amplifying Misinformation The Case of Sustainability Indices in Fashion

"There is no other industry that over produces as

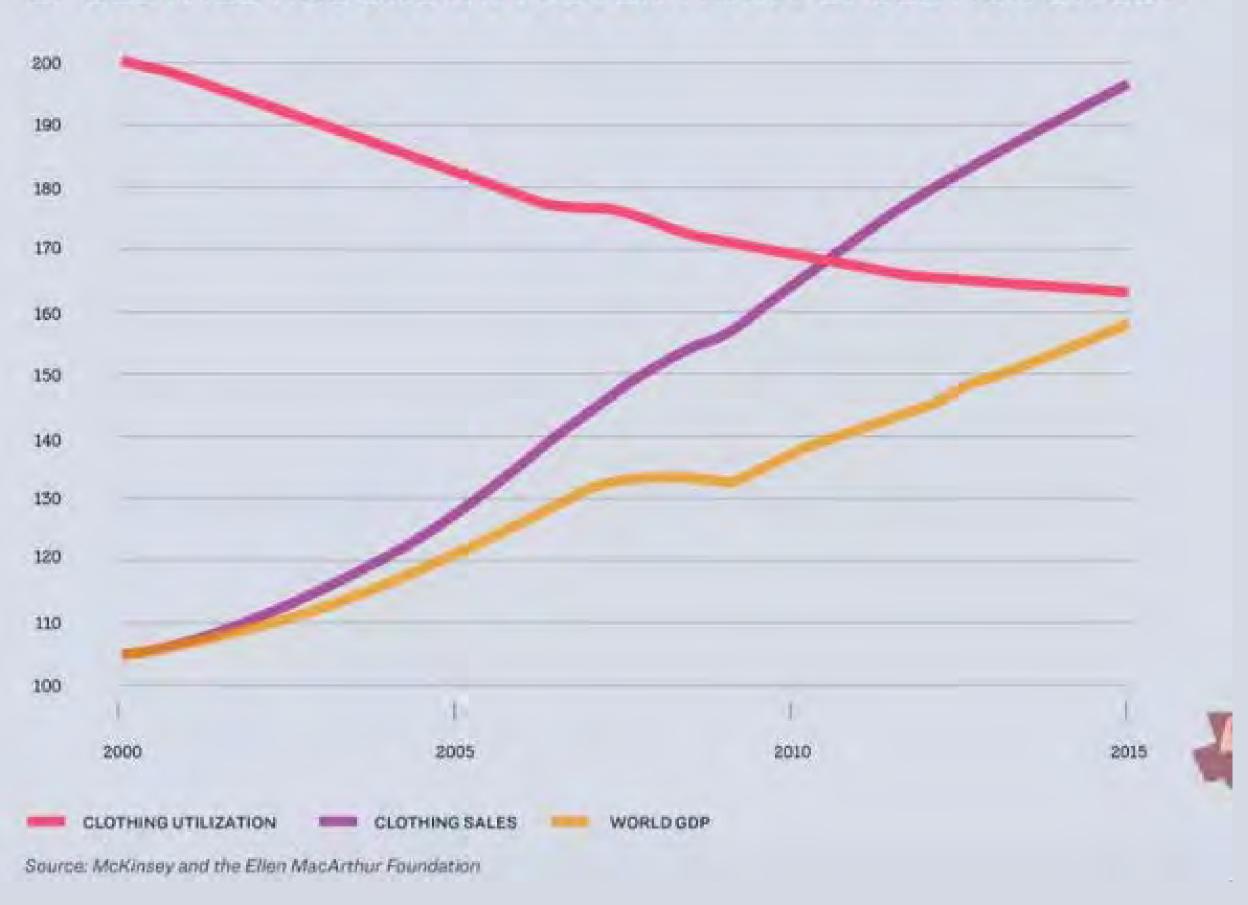
Pernille Weiss, Member of the European Parliament at The Global Fashion Summit 2023

business as usual"

Wrapped in Cotton Resource set 4



#### WE'RE USING CLOTHES LESS AND LESS BUT THE SALE OF CLOTHES HAS GROWN FASTER THAN POPULATION OR GDP





# THE FASHION SYSTEM

#### De have a HULTE plastu problem

Where do we find plastic in the fashion industry?

packaging fabric



# THE FASHION SYSTEM

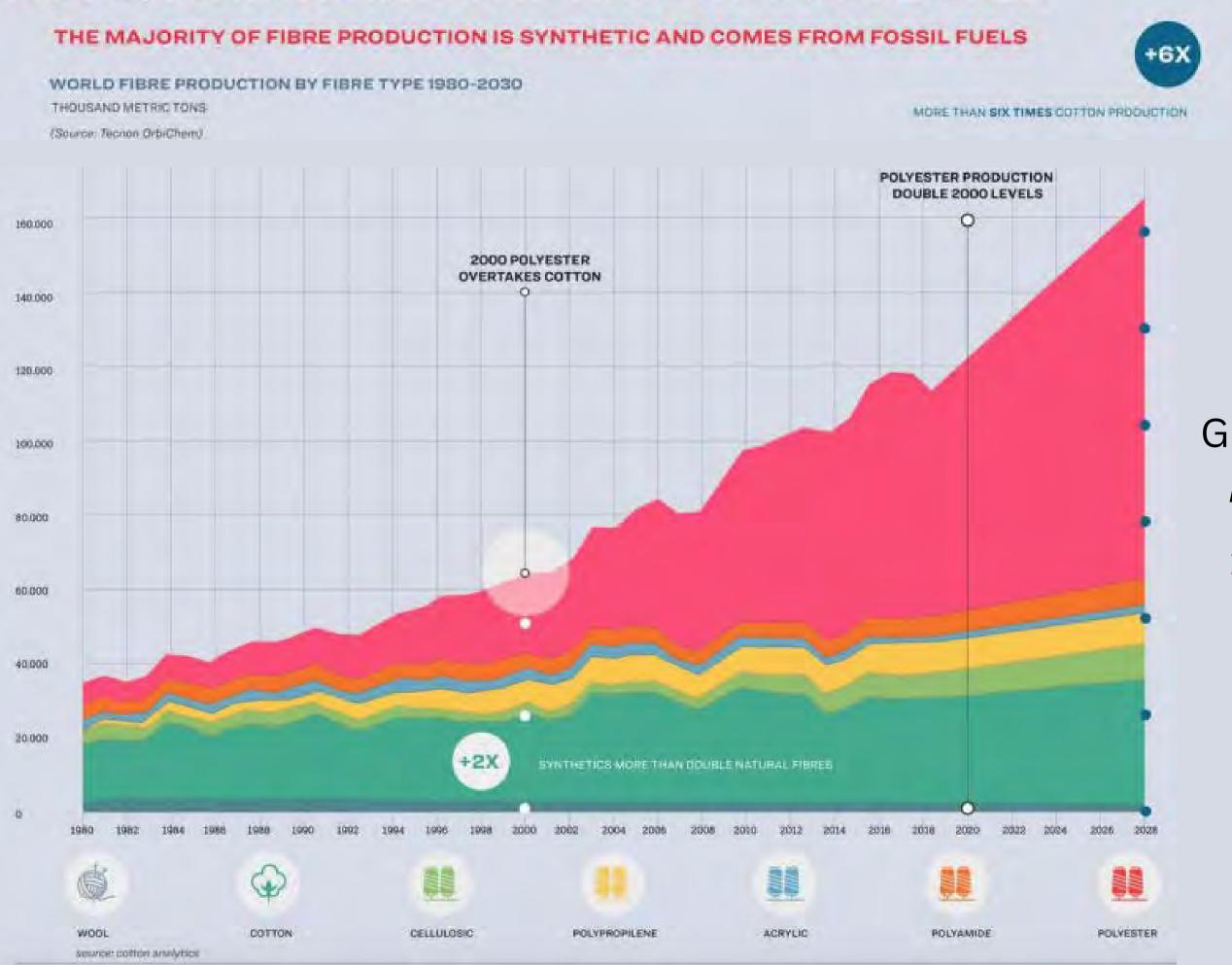
#### De have a HULTE plastu problem

Where do we find plastic in the fashion industry?

packaging fabric



#### FAST FASHION AND THE RISE OF POLYESTER



Graph from Fossil
Fashion report



https://changingmarkets.org/wp-content/uploads/2021/01/FOSSIL-FASHION\_Web-compressed.pdf

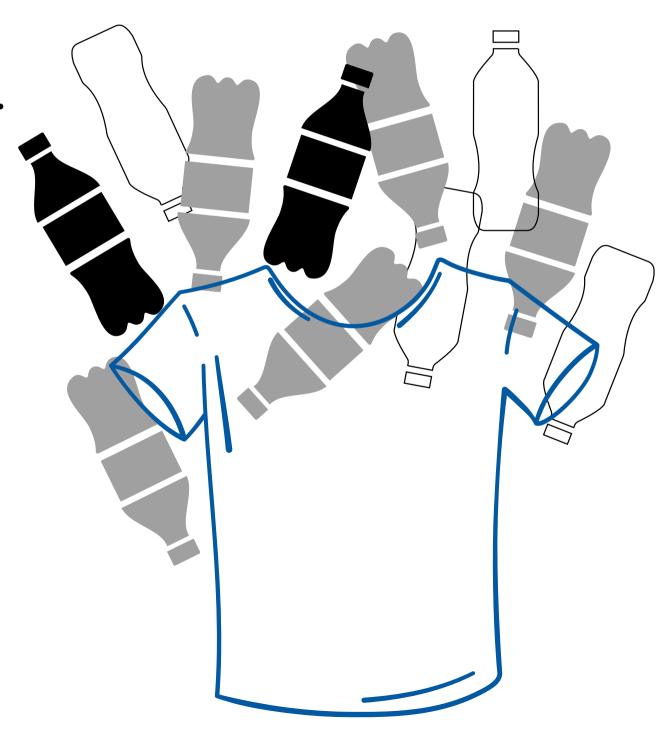
### The fashion plastic problem Nolyester and mylon

Synthetics are made from heavily processed petrochemicals.

Nylon and polyester yarns are most commonly produced by melting polymer chips or granules and then extruding them to produce very long, fine filaments that are wound together to form the yarn.

Polyester is generally produced from PET, which is derived from crude oil and natural gas.

Fossil Fashion. The hidden reliance of fast fashion on fossil fuels. 2021



### The fashion plastic problem Where is the polyester

What countries?



Fossil Fashion. The hidden reliance of fast fashion on fossil fuels. 2021

### The plastic problem Where is the polyester

Global production of polyester is dominated by Asia, In 2019 China accounted for 72% of production. Followed by the rest of Asia (21%), North America (3%), Europe, the Middle East and Africa (2% each).

It is forecasted that China will be manufacturing 79% of the world's polyester by 2025.

If the fashion industry continues with business as usual, in 10 years almost three-quarters of our textiles will be produced from fossil fuels.

Fossil Fashion. The hidden reliance of fast fashion on fossil fuels. 2021

# The plastu problem The red herring:

Virtually all recycled polyester in clothing comes not from recycled garments, but from recycled plastic bottles. Turning polyethylene terephthalate (PET) bottles into recycled polyester fibre represents a one-way ticket to disposal, as bottles are removed from a closed-loop bottle-to-bottle recycling system.

Technologies like these reinvent linear, throwaway business \*models, and encourage users to buy more clothes and throw away garments sooner, in the belief that they can be recycled in a magic machine.

#### THE FASHION SYSTEM Where are we wow!

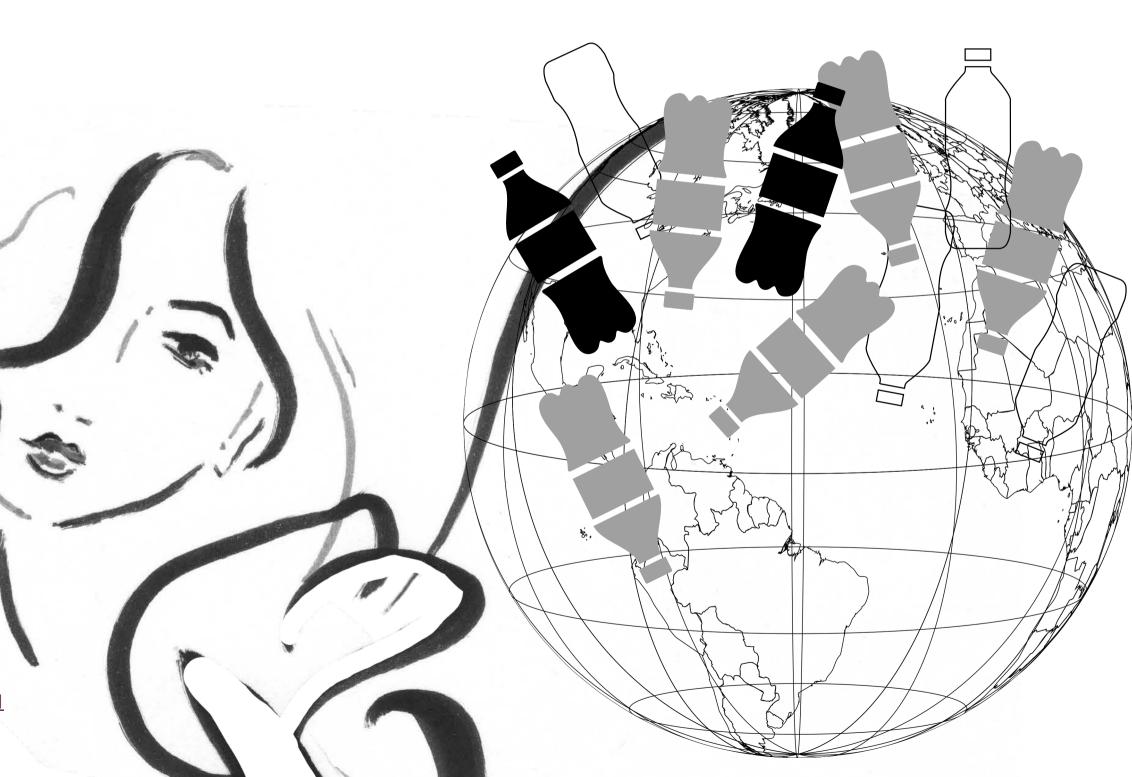
#### De have a HULTE plastic problem

Production of cheap synthetic fibres enables low-quality, throwaway fashion – and it also makes the fashion industry highly dependent on continued fossil-fuel extraction.

Our clothes release half a million tonnes of microfibres into the ocean every year, equivalent to more than 50 billion plastic bottles.

Fossil Fashion. The hidden reliance of fast fashion on fossil fuels. 2021

Wrapped in Cotton Resource set 4



#### THE FASHION SYSTEM Where are we wow!

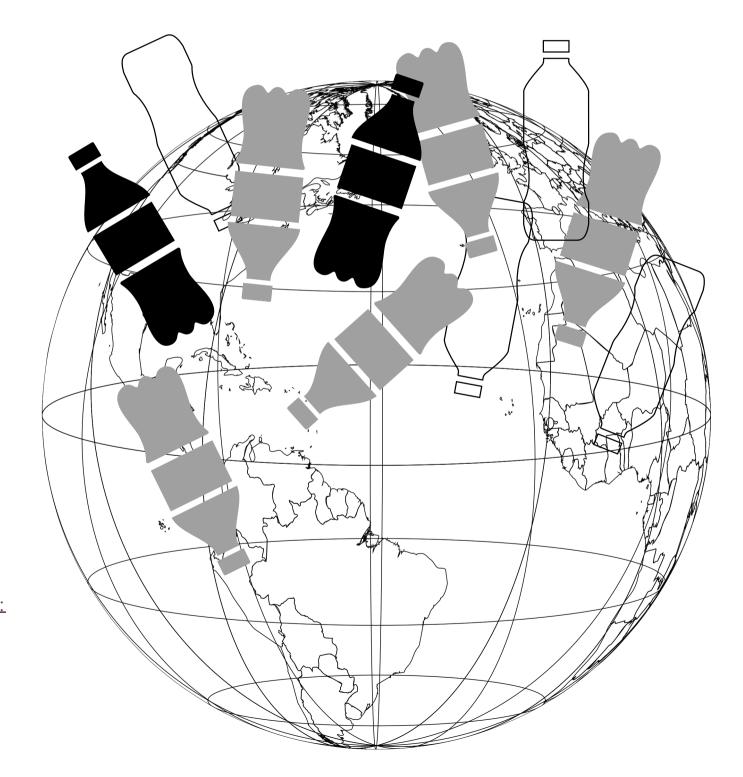
#### De have a HULTE plastic problem

In 2015, polyester production for textiles alone was responsible for emissions of over 700 million tonnes of carbon dioxide (CO2) equivalent5 – similar to the annual greenhouse gas (GHG) emissions of Mexico or 180 coal-fired power plants.

This is projected to nearly double by 2030, reaching twice the GHG emissions of Australia.



Ellen MacArthur Foundation (2017) A new textiles economy: Redesigning fashion's future [ONLINE] Available at: <a href="https://www.ellenmacarthurfoundation.org/assets/downloads/A-New-Textiles-Economy\_Full-Report\_Updated\_1-12-17.pdf">https://www.ellenmacarthurfoundation.org/assets/downloads/A-New-Textiles-Economy\_Full-Report\_Updated\_1-12-17.pdf</a>

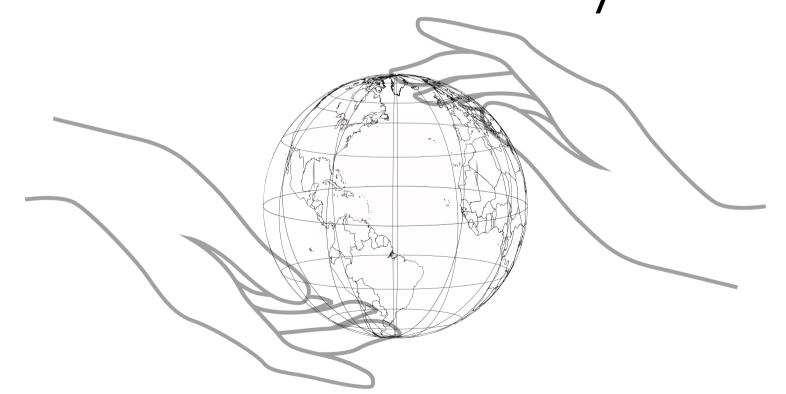




Wrapped in Cotton Resource set 4

### As fashion designers, you have a responsibility

to source and design responsibly. However, there is no point creating the most sustainable garment in the world - if your customer doesn't know how to look after it and its' plan at end of life. Therefore you need to also educate your consumer; so that your garments are loved more, used more and the fashion system repaired.



Everyone wears clothes. You have the potential to create world change!



"I love that cotton has a natural place in the circular economy and that it's a renewable resource. It breaks down quickly in soil and water and does not contribute to microplastic pollution,"

Read more

Helen Walker. April 2022. Fashion designer selected as future leader. Queensland Country Life.

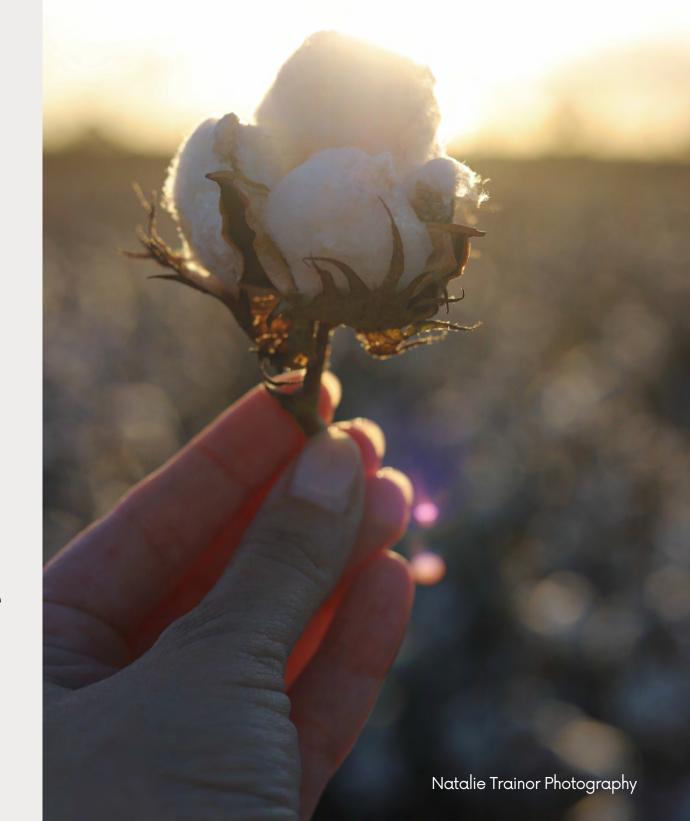
2023 CRDC Chris Lehmann Cotton Young Achiever, Fashion designer Emma Bond

#### Planet. People. Paddock.

is the Australian cotton industry's sustainability framework.

It guides the industry's work to:

- Set ambitious industry-wide Australian cotton sustainability targets
- Coordinate existing work and new investments to achieve these targets
- Engage effectively with stakeholders on actions and progress, and
- Provide a united vision for further positive change.



# AUSTRALIAN COTTON SUSTAINABILITY FRAMEWORK PLANET. PEOPLE. PADDOCK.

PLANET. PEOPLE. PADDOCK. is the Australian cotton industry's framework to achieve its vision of being a global leader in sustainable cotton production.

AUSTRALIAN COTTON SUSTAINABILITY FRAMEWORK PLANET. PEOPLE. PADDOCK.

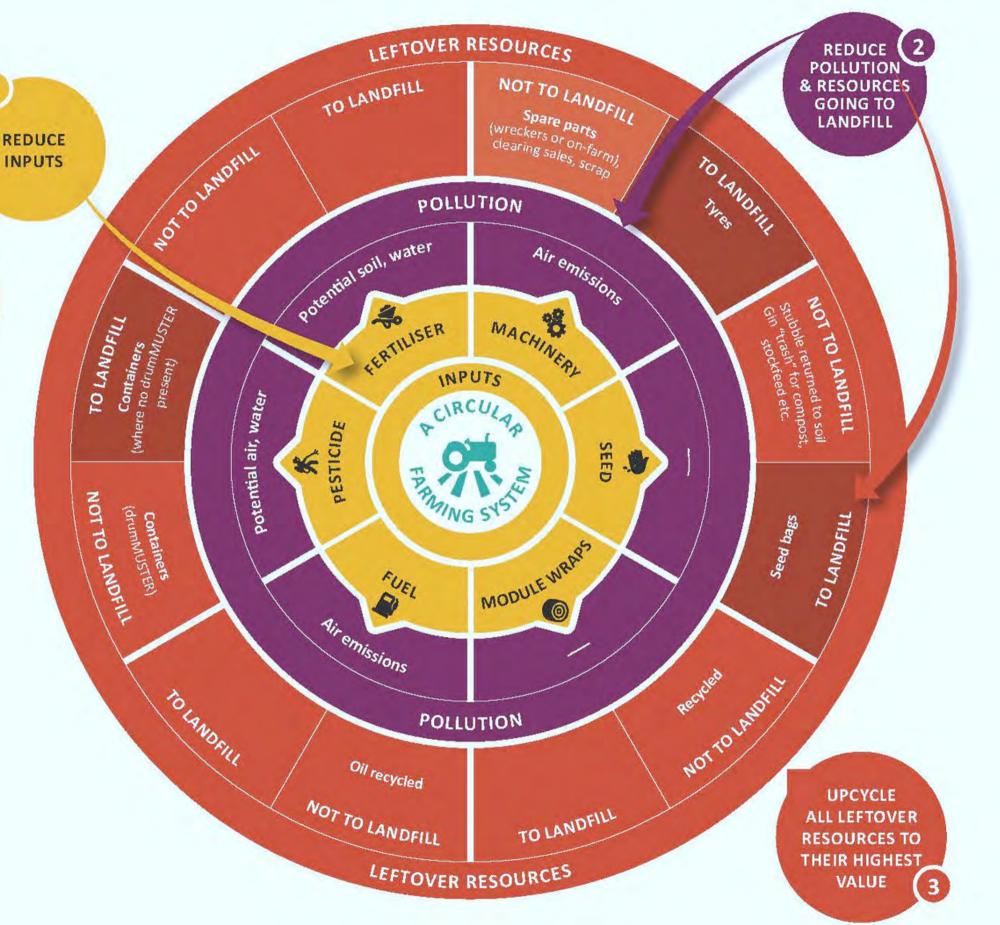
#### THREE STEPS TO A CIRCULAR COTTON FARMING SYSTEM

A circular farming system seeks to reduce the consumption of finite resources, and recycle resources instead of putting them in landfill as "waste". A surprising amount of circularity already takes place on Australian cotton farms, as this graphic shows. Circularity principles give us three key steps we need to take to continue to reduce inputs and "waste".

For example:
Reduce fuel via
more renewables
Reduce fertiliser by
improved soil health
Reduce machinery
by upgrading,
not replacing







Our primary producers and textile industry are interconnected. As a circular fashion designer you also have a responsibility to consider

Planet. People. Paddock.



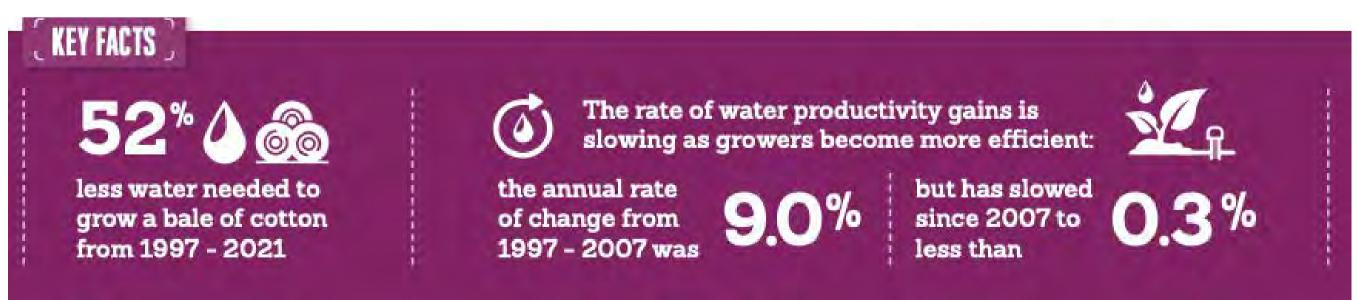




OUR GOAL is to deliver a continuous increase in the efficiency of water used for cotton irrigation, within sustainable river system and plant physiology limits.

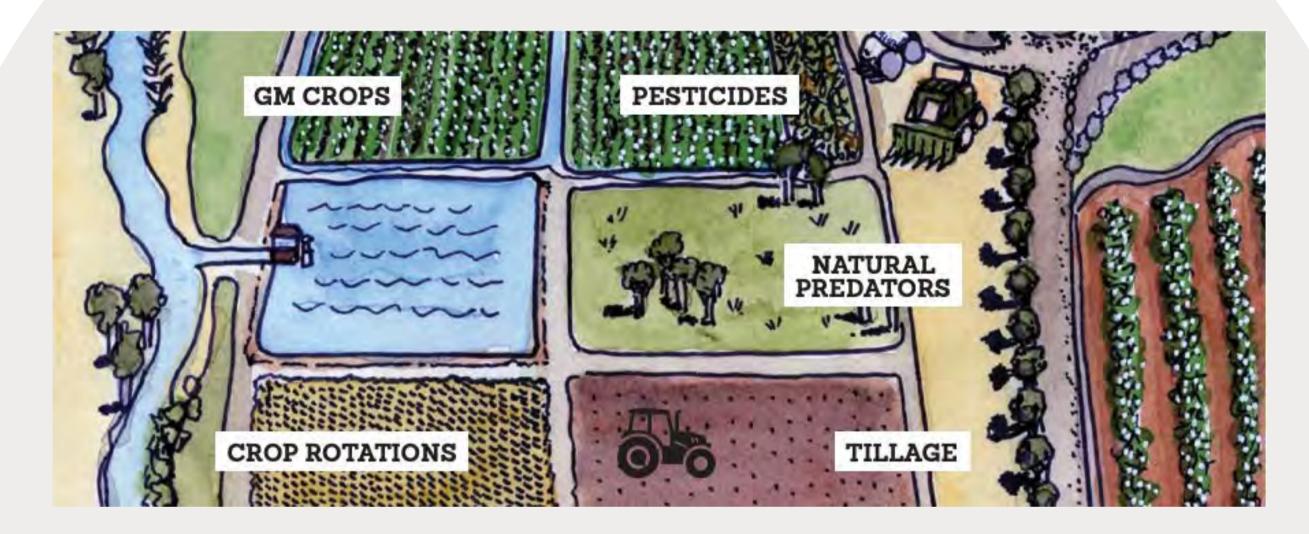


This aligns to UN Sustainable Development Goal 6.4: substantially increase water use efficiency and ensure sustainable withdrawals of freshwater.



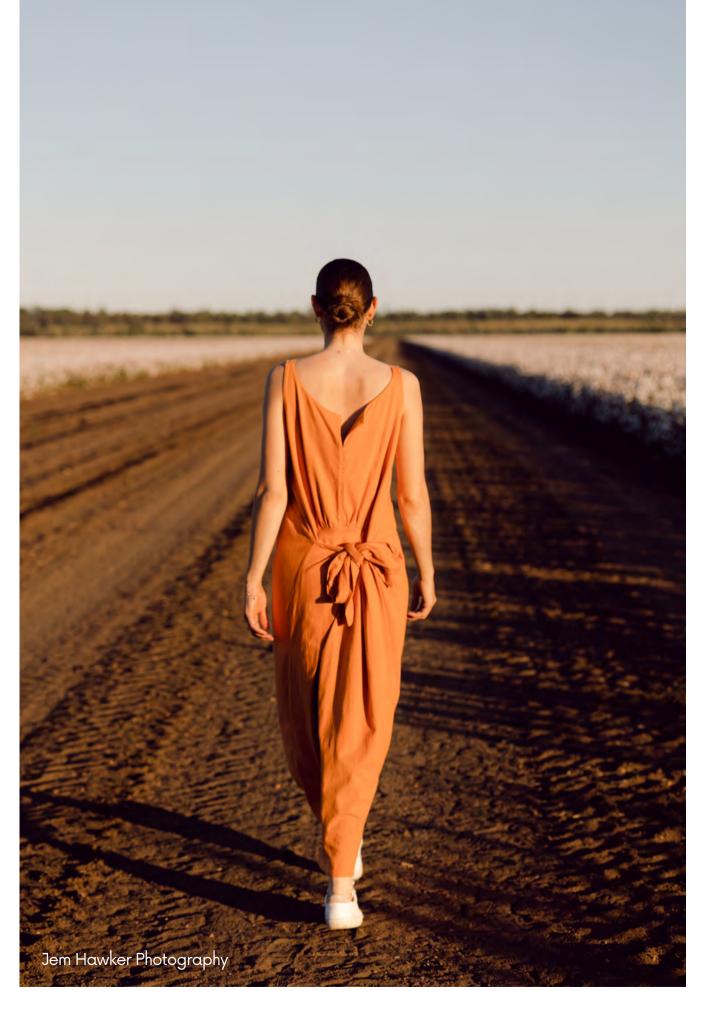






Pesticides (including insecticides and herbicides) are part of a cotton grower's pest control toolbox called Integrated Pest Management (IPM).

IPM is a management approach to choose the tool that best controls pests with the least risk to human and environmental health. All pesticides in Australia are approved by a government regulator: if a grower chooses a pesticide to control a specific pest, it has been assessed as safe to use as directed by the label.





OUR GOAL is pesticide use that supports optimal crop production while having no negative impact on human and environmental health.



This aligns to UN Sustainable Development Goal 12.4: achieve the environmentally sound management of chemicals... and significantly reduce their release to air, water and soil.



95% +

reduction in volume of insecticides per hectare, from 1994 to 2019

20% ↑
increase in volume of herbicides per hectare,

from 1994 to 2019

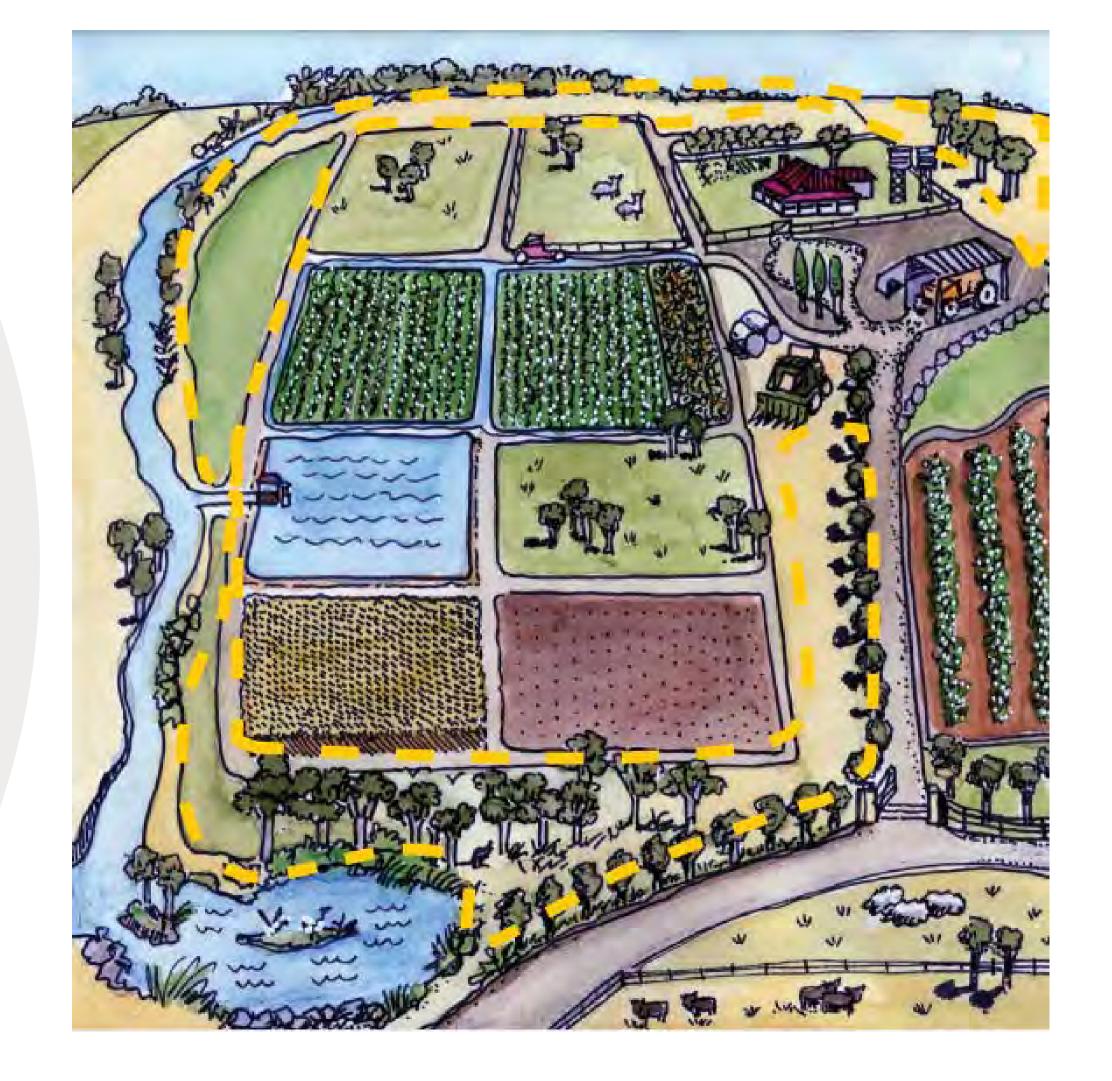
Read more

Wrapped in Cotton Resource set 4



**Biodiversity** is the variety of all life forms found in an environment. Biodiversity varies by season. It also varies by region, both naturally and as a result of human changes to the landscape.

We think this is the best way to deal with biodiversity's complexity: if we get native vegetation right, the animals, fungi, bacteria and other organisms that rely on that habitat are more likely to be present.



AUSTRALIAN COTTON SUSTAINABILITY FRAMEWORK

#### PLANET. PEOPLE. PADDOCK.

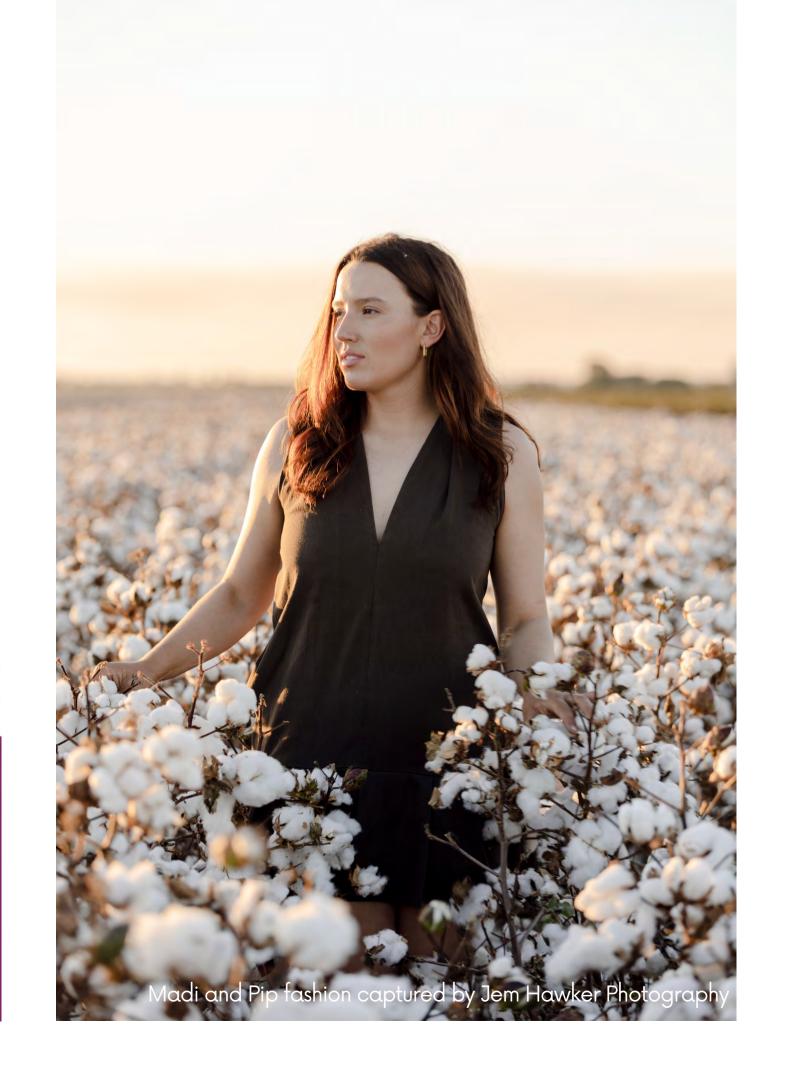
OUR GOAL is to improve remnant native vegetation condition on cotton farms.



This aligns to UN Sustainable Development Goal 15.5 Reduce the degradation of natural habitats, halt the loss of biodiversity and... prevent the extinction of threatened species.

#### Read more





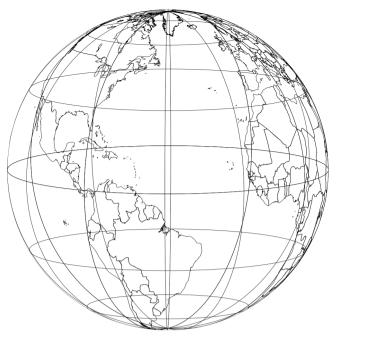


Healthy soil is alive. Healthy soil is a living, dynamic environment, full of microbial and macroinvertebrate life that help to recycle essential plant nutrients, improve soil structure, and control plant disease and pests.

Soil health can vary across different geological conditions, ecosystems and land uses. Australian cotton farmers use practices such as tilllage, addition of organic compost, controlled rotational crops, cover crops and optimising fertiliser application to optimise the health of the soil on their property.







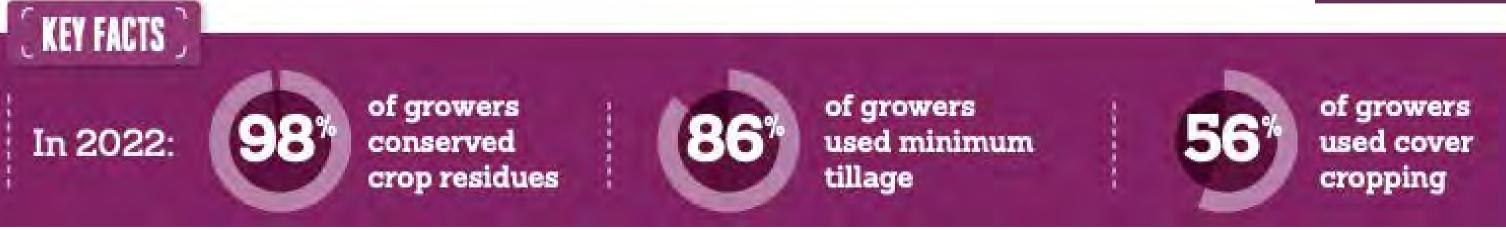


OUR AMBITION To contribute to the Paris Agreement's aim of a climate neutral world. This would mean reducing the emissions released in cotton production while sustaining carbon in the soil and vegetation on cotton farms.



This aligns to UN Sustainable Development Goal 13: Take urgent action to combat climate change and its impacts. UNFCCC Paris Agreement: limit global warming to 1.5C.

Read more











As a fashion designer you have a responsibility to source safe and recycled or renewable fibres



Natalie Trainor Photography

#### What fibres are safe for our planet during each stage of the garment lifecycle? Can You keep production, distribution and retail local to reduce travelemissions? Manufacture Distribution Retail Design for Can you design so that your garment has a plan at end of life? Can you add components so that they are designed for disassembly / promote the likelihood of the garment being recycled? Cotton is a renewable resource that Use is 100% natural and biodegradable. As it breaks down quickly in soil and Reuse water, it does not contribute to Textile production micro plastic pollution. Up-cycle' Fibre production Australian cotton is one of the most water efficient cotton industries in the world. Regenerative systems Cotton is a food and fibre crop. We use all parts of Check out the the plant, there's no waste! Find out more <u>HERE</u> Recycle Circular Cotton Wrapped in Cotton Resource set 4 Farming Project

#### De can't unscramble an omelette! Start with good design

Design for (

Can you design so that your garment has a plan at end of life? Can you add components so that they are designed for disassembly / promote the likelihood of the garment being recycled?

This gown is made of zero hidden plastics! The main fabric used Australian cotton. The lining is dead-stock cotton (location of origin is unknown). It is sewn with cotton thread. Silk organza is used internally to give structure to the neckline, instead of synthetic interfacing. Inside the dress at shoulders there are wooden buttons and cotton loops. These stop bra straps sliding down the shoulder, and as they are made of natural products will biodegrade.



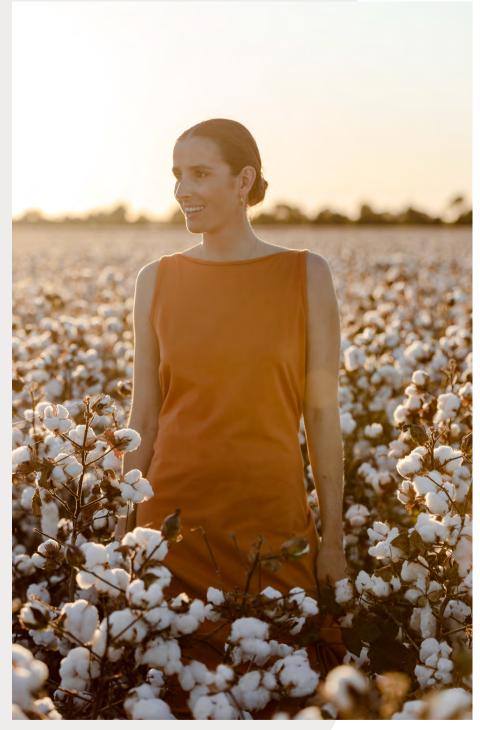


#### Source safe and recycled or renevable fibres



The carbon footprint of a single polyester shirt is 5.5kg compared to 2.1kg for a cotton shirt.

> **UK Parliament Environmental** Audit Committee (2019)





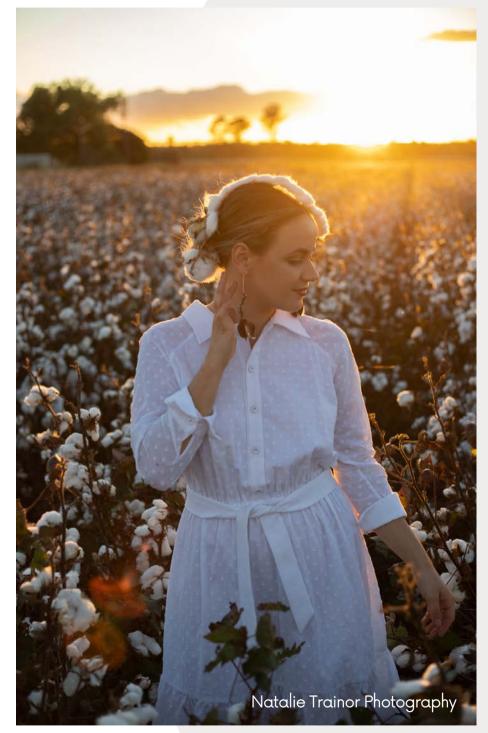
## Source safe and recycled or renewable fibres



What preferred fibres are available, and what makes them more ideal than others?



## Source safe and recycled or renewable fibres

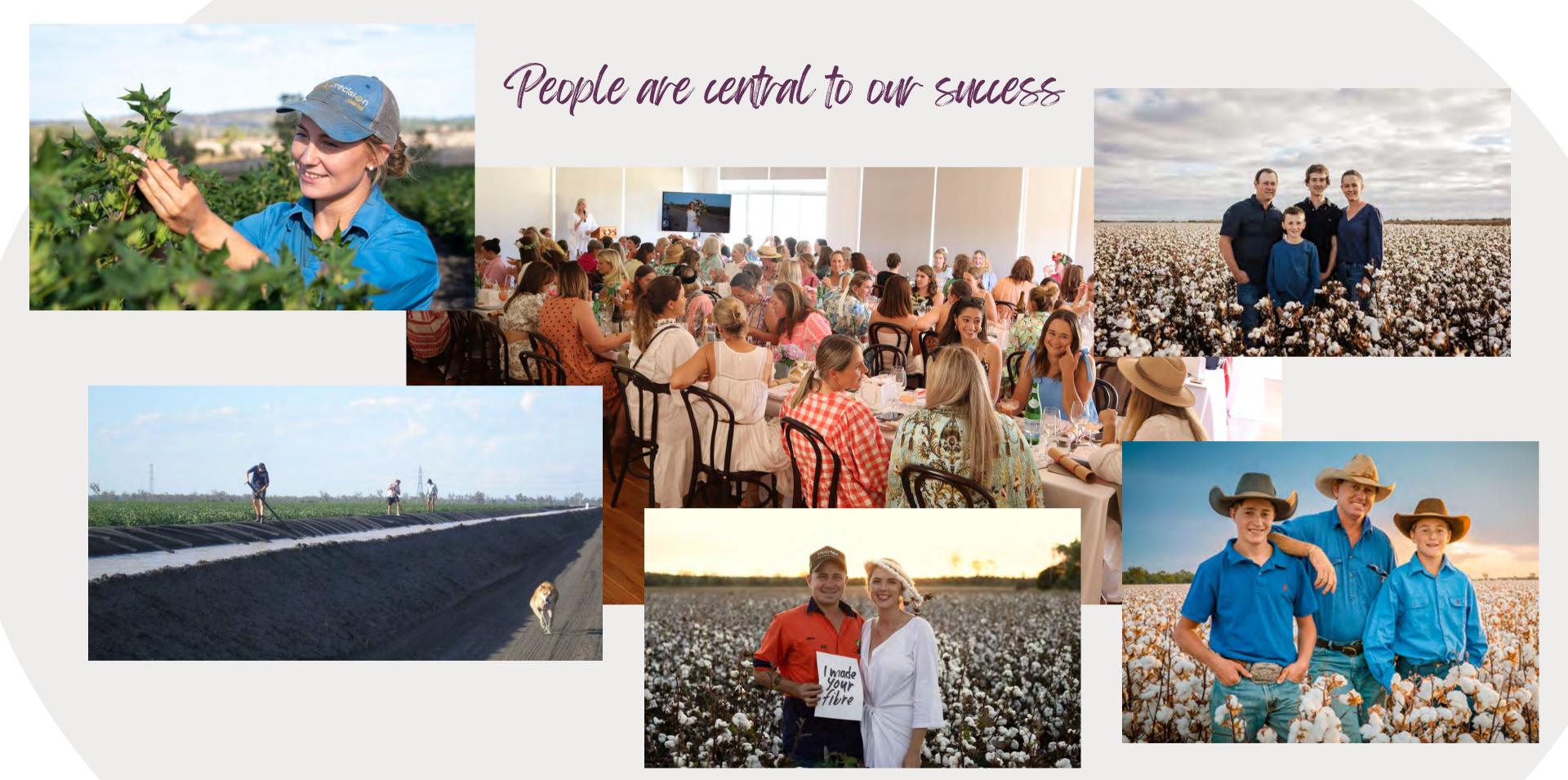


As a fashion consumer you can be responsible too and create change by creating demand for safe, recycled and renewable fibres by investing in them!







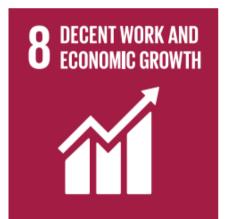


The Australian cotton industry relies on the skill of its people to produce cotton lint and seed.

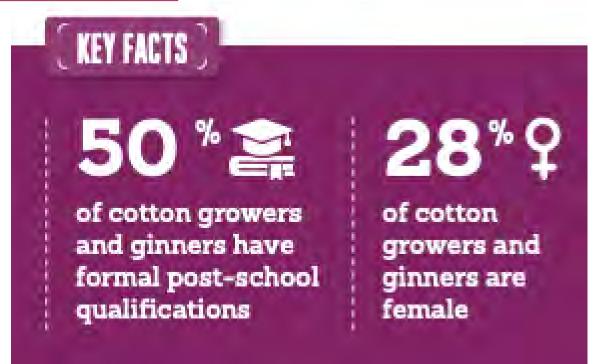


AUSTRALIAN COTTON SUSTAINABILITY FRAMEWORK PLANET. PEOPLE. PADDOCK.

OUR GOAL is Injury-free cotton farms, skills for innovative and modern agriculture, and a diverse workforce that is treated ethically



This aligns to UN Sustainable Development Goal 8.8 Promote safe and secure working environments for all workers.



Read more



#### Wellbeing is the sum of many factors

Wellbeing is a state in which a person can realise their own potential and contribute to their community. It is influenced by a combination of physical, mental, financial, social and other factors.

The cotton industry's aim is to contribute to a collaborative, coordinated approach to improve wellbeing. The industry plans to work with other stakeholders – all levels of government, other industries, communities and individuals – across cotton growing communities to understand what drives wellbeing, and develop a coordinated and collaborative strategy (or region-specific strategies) to improve wellbeing.

#### AUSTRALIAN COTTON SUSTAINABILITY FRAMEWORK

## PLANET. PEOPLE. PADDOCK.

OUR GOAL is to work with other stakeholders across cotton growing communities to collaboratively and continually improve the wellbeing of people living and working in these communities.



This aligns to UN Sustainable Development Goal 3: Ensure healthy lives and promote well-being for all at all ages



#### KEY FACTS



The measured wellbeing of cotton growers changes from year to year, and factors outside our control like weather have a large impact.

Compared to the national average, cotton farmers generally have:



better physical health but higher psychological distress

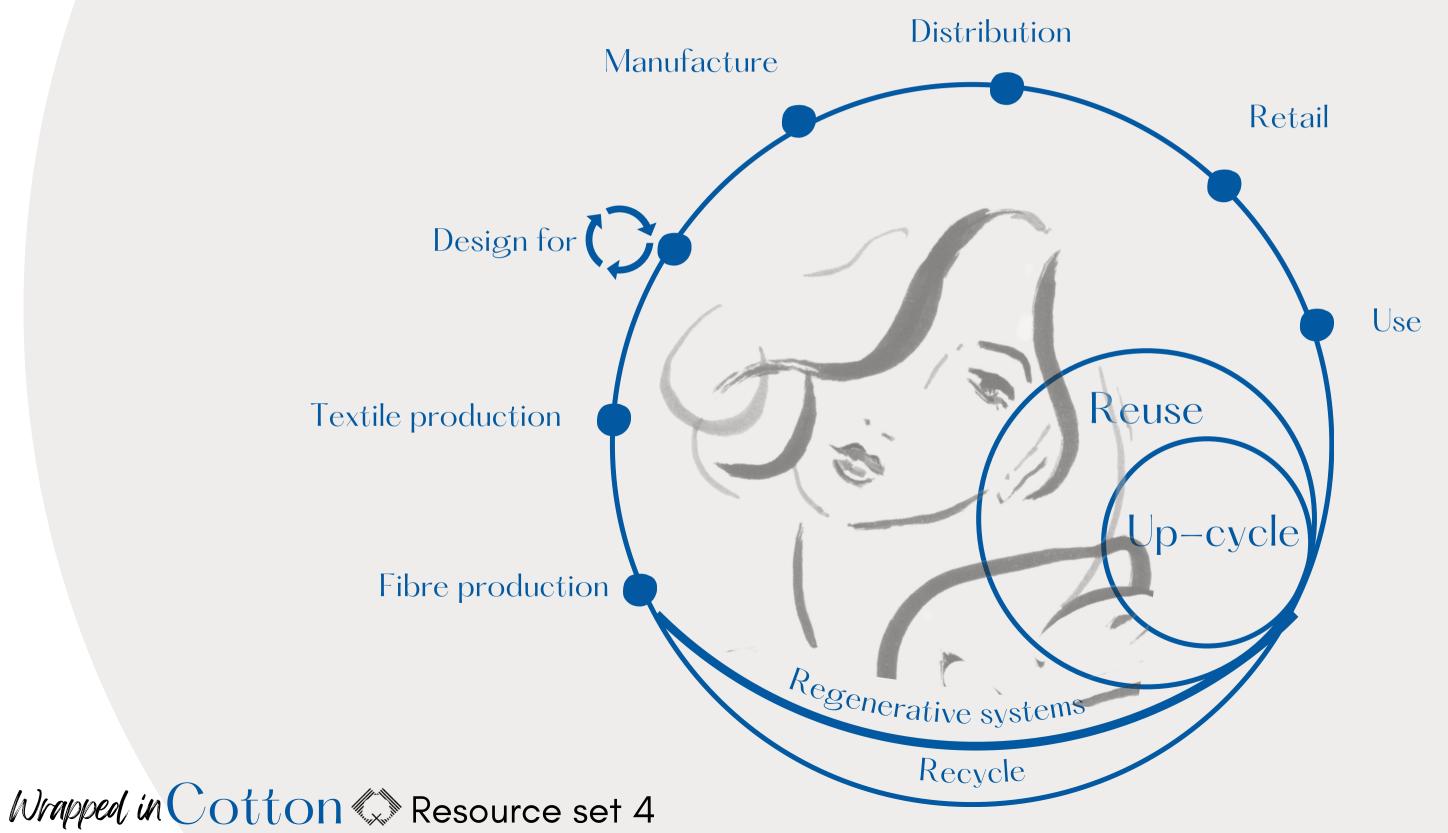


higher community involvement

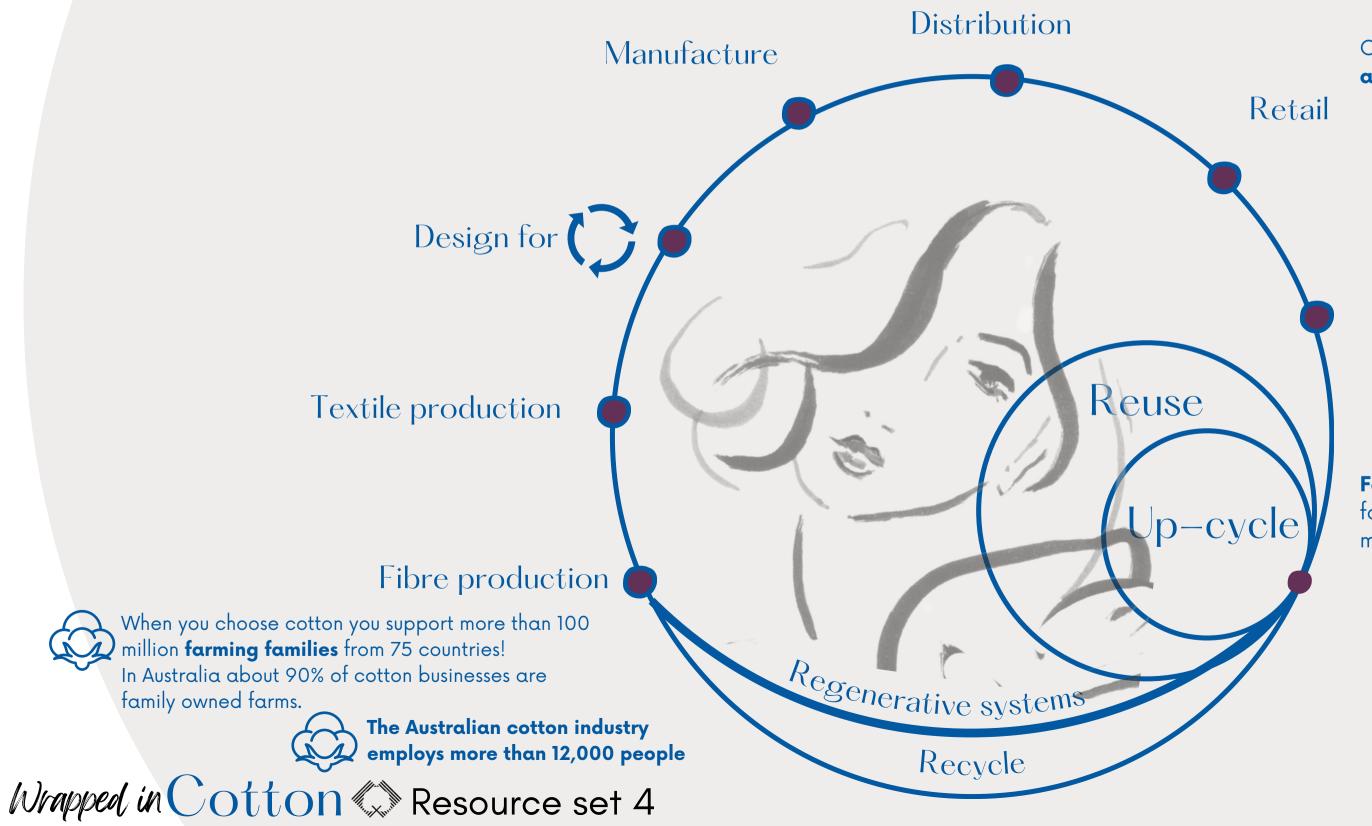




# Where are people and commutes impacted in the garment lifecycle?



## Where are people and communities impacted in the garment lifecycle?



Can you keep manufacture, distribution and retail local to produce local jobs?



Cotton is hypoallergenic (does not irritate sensitive skin!)



Cotton is durable, providing you with value for a long time.

Fashion resale creates local jobs & offers fashion at a lower price point than the original, making some brands more accessible



Check out the Circular Cotton <u>Farming Project</u>

## Where are people and communities impacted in the garment lifecycle?

Manufacture

Garments are made to order in our Gold Coast atelier. There is no over production. The local seamstress will enjoy her work as there is variety and resolution. Fabric offcuts are sorted and stored for other projects.

#### Design for (

This garment will be sewn from 100% cotton fabric and thread with no hidden plastics added. Two buttons are used, they are made from wood. At end of life this garment may be recycled as it is made from high quality cotton. Or if returned to soil, it will naturally break down.

#### Textile production

Full Circle Fibres connects the links from paddock to product to create our ethical, traceable & lifecycle responsible supply chains. This fabric was spun in Manchester, UK. It traveled to and from Australia via ship. It was knitted in Melbourne. See our fabric story here.

#### Fibre production

This cotton was grown at St George by the Rogan family at "Benelong" property under sustainable and regenerative farming practices. Find our more here.

We deliver to our local clients in person where we can. When shipped we use Australia Post, which is carbon neutral, and pack in compostable mailers Distribution and re-useable SWOP mailers made by B Corp Better Packaging Co.

#### Retail

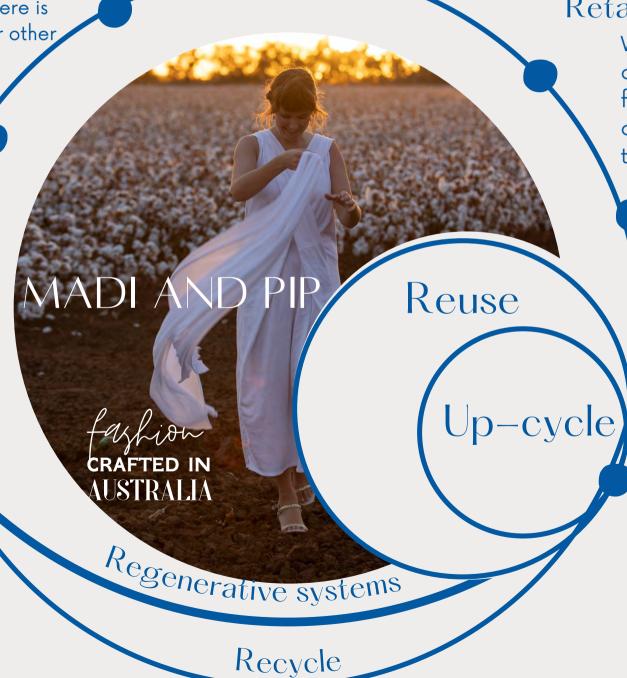
We prefer to sell direct to our clients, so that we can develop a in person relationship with you and create fashion that you truely love- custom to you! We only have a retail space on limited occasions and use these pop ups to educate about fashion sustainability.

#### Use

Our fabrics and design are high quality. Please remember to wash clothes on cold gentle machine wash, and line dry on a coat hanger in the shade. Jersey garments have cotton loopers on the inside that they should be hung from (not just shoulders) so as to not stretch your delicate garment.

Our tiny offcuts and threads created when making our wedding gowns from Australian cotton fabric are being made into special handmade paper, by a cotton grower, Carmen Ronald. Your designer, and illustrator Emma will use these papers to make fashion illustrations, used to educate about the sustainability of our local cotton.





Wrapped in Cotton Resource set 4

# MONOCH



With the world's population forecast to increase to 9.7 billion in 2050, farmers all around the world need to produce more food, fibre and foliage with the same or fewer resources.

Increasing the amount of cotton fibre and seed grown per hectare of land must be socially and environmentally sustainable. The Australian cotton industry's sustainability framework works to reduce negative impacts and increase positive impacts on people and nature - while still growing more cotton with fewer inputs.







OUR GOAL is to increase Australian cotton yield within sustainable environmental boundaries.



This aligns to UN Sustainable Development Goal 2.4: implement resilient agricultural practices that increase productivity, help maintain ecosystems, strengthen capacity for adaptation to climate change, and improve land and soil quality

Read more





# PANOCH PROJUTION

To keep running a business there needs to be profit

Why do you think profitability for growers can be inconsistent? Have you ever tried to grow something in your garden?



# Padock profundity

To keep running a business there needs to be profit

Why do you think grower profitability can be inconsistent?

Many factors influence the profitability of cotton production from seasonal conditions, global cotton prices and exchange rates to yield and operating costs (these two are the areas industry invests in research and innovation).

Profitable cotton growers can invest in the technologies and practices needed to adapt to a changing environment and market. It also enables them to contribute to local communities, economies and the environment.



AUSTRALIAN COTTON SUSTAINABILITY FRAMEWORK

## PLANET. PEOPLE. PADDOCK.

OUR GOAL is for growers to have sufficient profitability to confidently re-invest in their business and community.



This aligns to UN Sustainable Development Goal 8.2: Achieve higher levels of economic productivity through diversification, technological upgrading and innovation.

Madi and Pip Australian cotton fashion at Fibre to Fashion Runway, Spring Ridge. Codie Millgate Photography

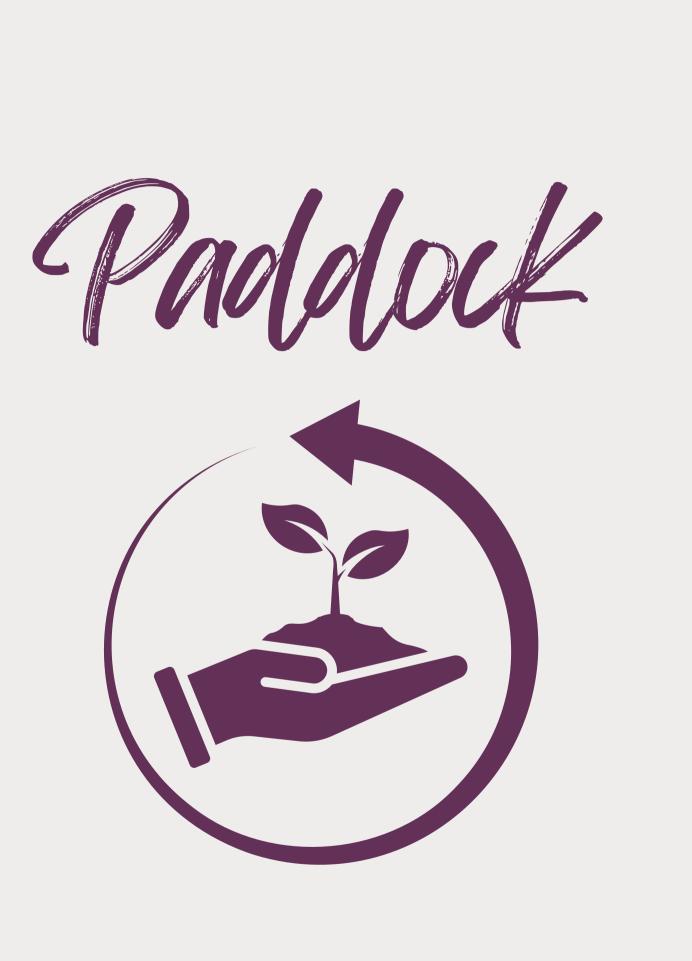
More than

of cotton grower business expenses are spent locally people employed per cotton farm in 2021/22



Cotton was grown in 65 local government areas in 2021, and was a significant economic contributor in 24 of them.

(As defined by cotton representing over 10% of the gross crop value grown in an LGA).







Can the fibres you are designing with be returned to soil at end of life and naturally break down?









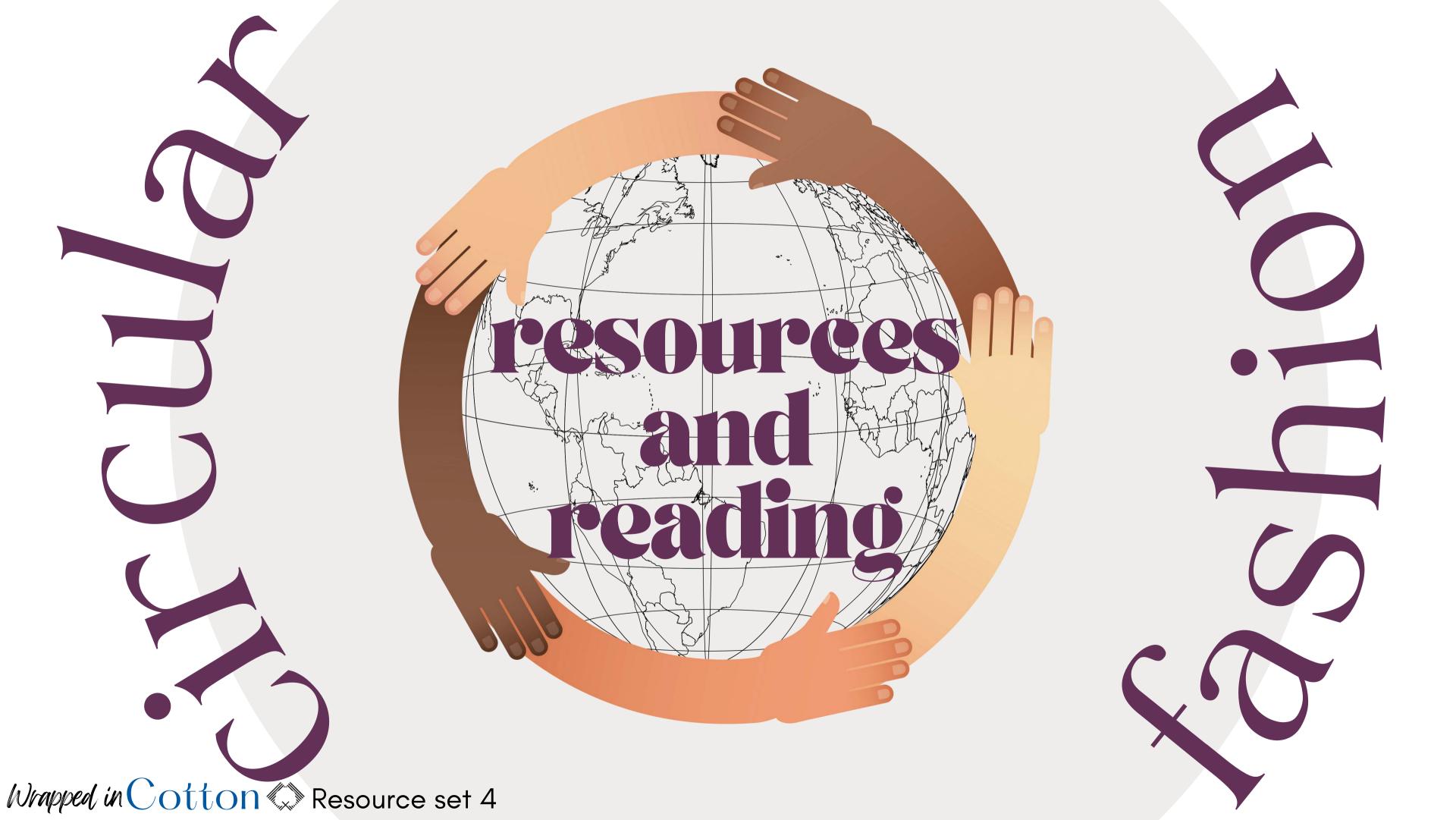
What fibres have sustainable farming practices preserving the soil?











#### **Australian Cotton Data Dashboard**

As an industry it's important we work hard to reduce our impact, regenerate our farms, grow high quality fibre and remain profitable so our families and communities thrive. Data drives many of our decisions, and increasingly those of our customers. This dashboard is about openly sharing the numbers behind the story of Australian cotton.



#### PLANET



#### PEOPLE



#### PADDOCK



#### PRACTICES



#### PRODUCT



#### **PROJECTS**



www.cottondata.com.au

#### Videos of our

Australian colon

Animation of our local cotton industry https://fb.watch/dPJ8FYZYX\_/

I love Australian Cotton https://youtu.be/4kmPEE2yTF4

Australian cotton from seed to sock https://www.youtube.com/watch?v=t6plTYrBth4

Balonne Shire Mayor, Samantha O'Toole, explains why Aussie cotton is important for her region https://www.youtube.com/watch?v=Tw8TQYjFdGk

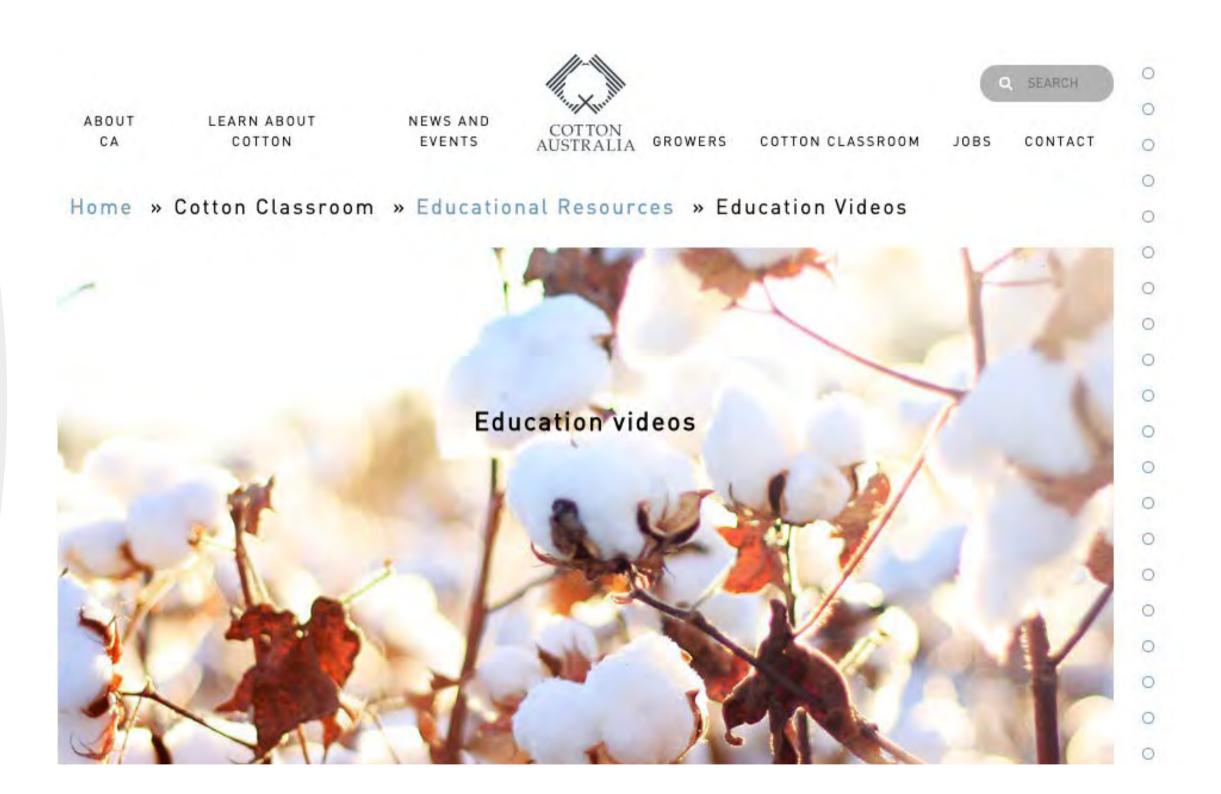
Goondiwindi Circular Cotton Project https://youtu.be/2bcvf58eM-o

Cotton products and their uses https://www.youtube.com/watch?v=3TW3osxL1fM

Meet A Grower - Alexandria Galea, Emerald, QLD https://www.youtube.com/watch?v=iB0mld3nZ\_g

#### Videos of our

Aughalian colon



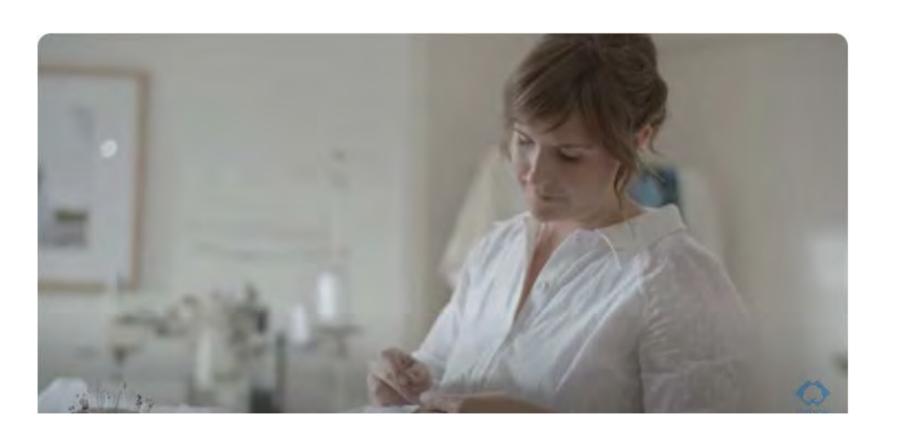
https://cottonaustralia.com.au/education-videos



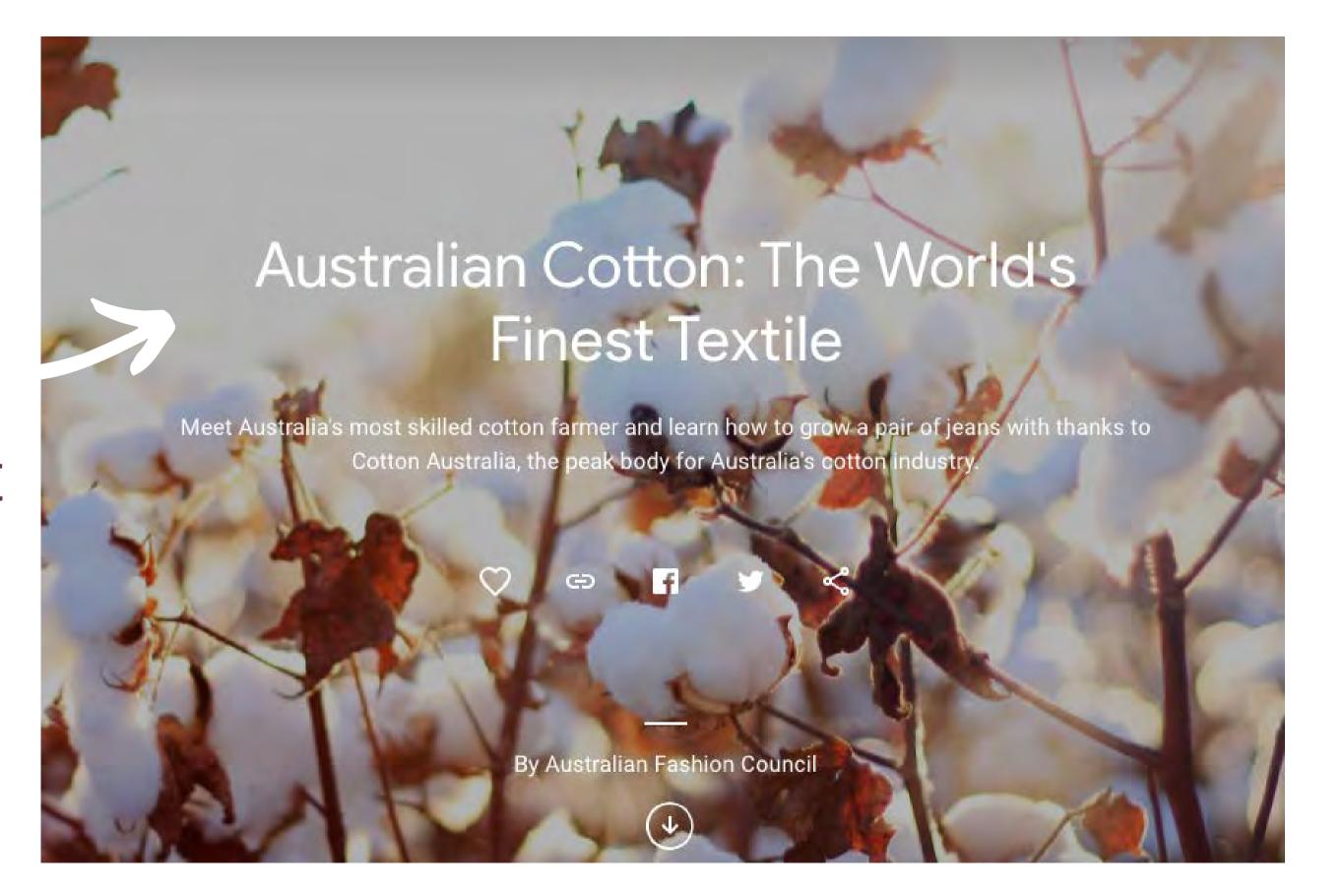


# Studio visit and interview with the designer of

Madi and Digs



https://cottonaustralia.com.au/education-videos



Online exhibit

https://artsandculture.google.com/story/JQWx9L77xCPwlg

#### **Education kits**

Colon Aughalia

Cotton Australia has two additional Education Kits available for students and school classroom teachers: the Cotton Education Kit (digital resource) and the Cotton Sampler Education Pack (physical resource)

Visit

https://cottonaustralia.com.au/education-kit

#### **EDUCATION KIT**

Cotton Australia has two Education Kits available for students and school classroom teachers: the Cotton Education Kit (digital resource) and the Cotton Sampler Education Pack (physical resource that we can post upon request - to Australian locations only. This is not available for individual home school educators, however, consideration will be given to home schooling hubs/groups that service 15 or more home schooling families).

Whether it is ideas for incorporating cotton contexts in the classroom, great teaching resources, ominformation for a school project, all you need to know about cotton is right here.

Designed for all teachers and high school students, the 10-chapter digital Cotton Education is linked a dynamic resources such as video, websites, research, and case studies. This kit has been mapped to the Australian Curriculum for Years 7-10, and targeted outcomes for Years 11-12 from all state & teachers curried ms a Australia. A list of themes is provided for teachers at the back of each chapter as a quick guide to linking the content to their unit of work or syllabi in their state or territory.

Click here to download the Cotton Education Kit Curriculum Mapping Guide.

Teachers can also access a comprehensive photo gallery showcasing the cotton production process

Cotton Australia's 360degree VR film is interactive on most digital devices and can be accessed by

# Industry reports

The Great Green Washing Machine

Synthetics Anonymous 2.0, 2023

<u>Amplifying Misinformation The Case of Sustainability</u>

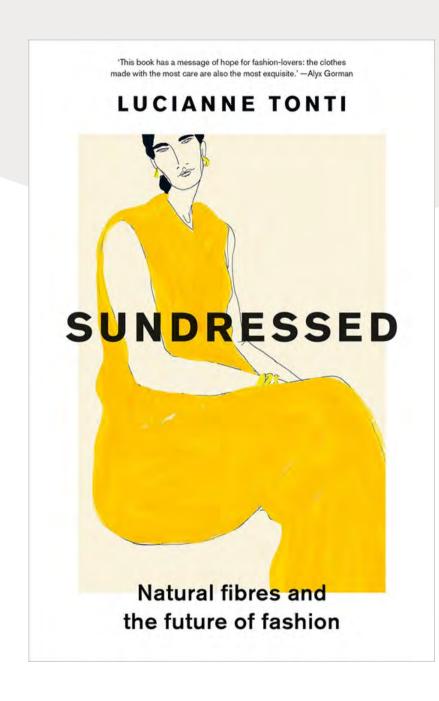
Indices in Fashion

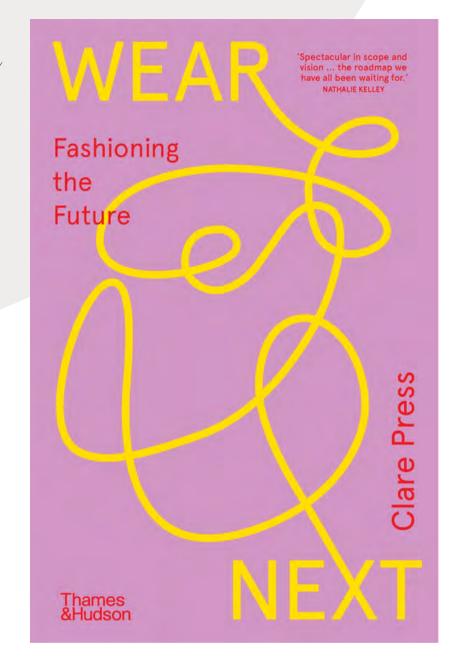
Fossil fashion: the hidden reliance of fast fashion on fossil

<u>fuels</u>

<u>Dressed to Kill: Fashion brands' hidden links to Russian oil</u> <u>in a time of war</u>

## Books to read







Sundressed, Lucianne Tonti

Wear Next, Clare Press

Circular Design For Fashion Book, Ellen MacArthur Foundation

## Helpful resources

Example of circular design process with sample portfolio

Emma Bond wore an Australian cotton gown at the national finals of the Victorian Race Club Fashions on the Field Emerging Designer Melbourne Cup Fashion Competition. The design was made entirely free from plastic and naturally dyed using avocado and rose petals.

View the national finalists' submission here

View the design portfolio



Watch the video diary







Melbourne Cup Carnival
Fashions on the Field

(seative Awards)

## The Journal

The author of this resource set regularly attends fashion and textile industry events. Emma shares her experiences in The Journal.

#### Spring Fashions

Spring racing style guide celebrating
Australian made fashion and millinery. A
collaboration between LJR Millinery and Madi
and Pip.

Read More



Global Fashion

Fashion Month Pop Up Boutique in Brisbane
City this month. Designer Emma Bond is
inspired by the Australian cotton industry "I
love that our growers are family farmers,
people that love their land and are active in
their communities. You put all your energy into
growing it right, so I ensure it is designed and
sewn right too. Cotton is a natural fit in the
circular economy. My new Australian cotton
bridal collection is made from biologically
circular inputs with zero hidden plastics."

Read More

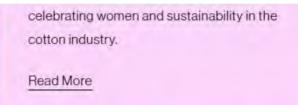




The Textile
Exchange Cotton
Round Table



Fashion to field





World of Wonder

Enjoy the World Of Wonder: Margot McKinney exhibition at Museum of Brisbane. Margot is a fourth generation Australian jeweller known for

madiandpip.com.au/journal





On planet earth, both with planet earth Her Royal Mighners
The Crown Princess

Illustrations made by Emma Bond at the Global Fashion Summit, Copenhagen

View more



Wrapped in Cotton Resource set 4

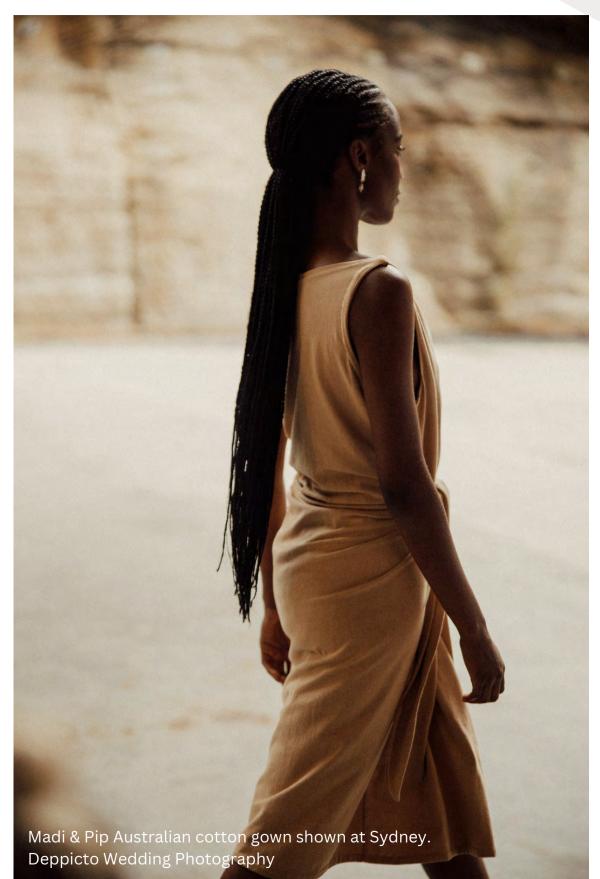


Illustrations made by Emma Bond at the Global Fashion Summit, Copenhagen

View more



# Further reading

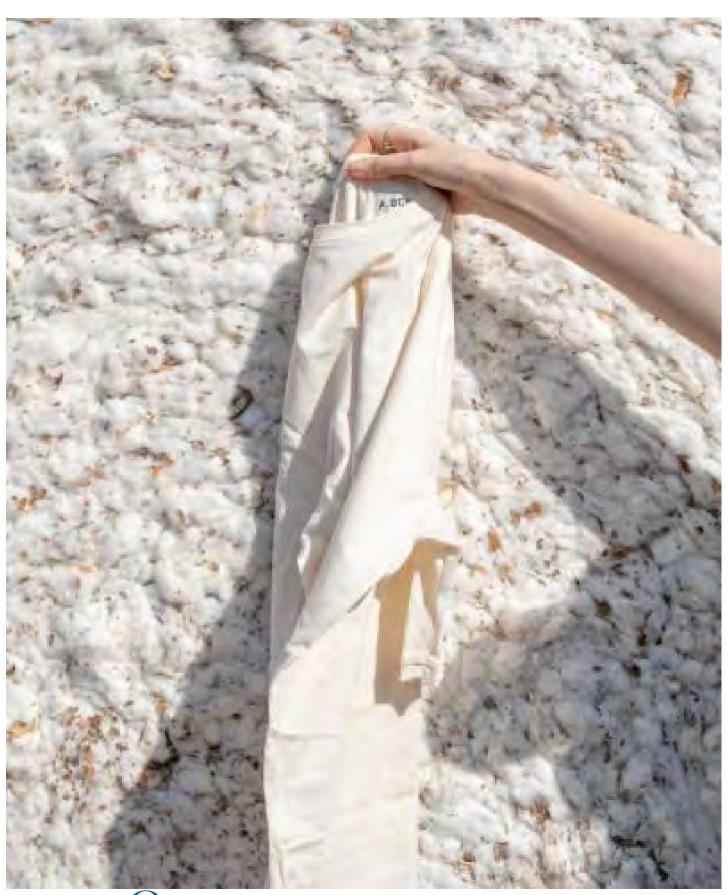


Emma Bond's cotton design makes Melbourne

Cup fashions on the field national final The Land

<u>INTERVIEW with Brisbane Fashion Month 2023</u> <u>Designer - Madi and Pip</u>

## A.BCH



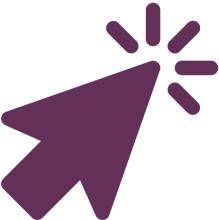
# CAMP COTTON

A picture book and discussion between Lily Clatworthy and Courtney Holm. Photography by Lily Clatworthy.



Wrapped in Cotton Resource set 4





#### Fibre 101: Cotton

FIBRE 101: COTTON Cotton is the world's most-used natural fibre, grown by over 100 million producers worldwide. Often touted as a thirsty crop, we'll dig deeper to understand how that's qualified, plus other nuances...

A.BCH

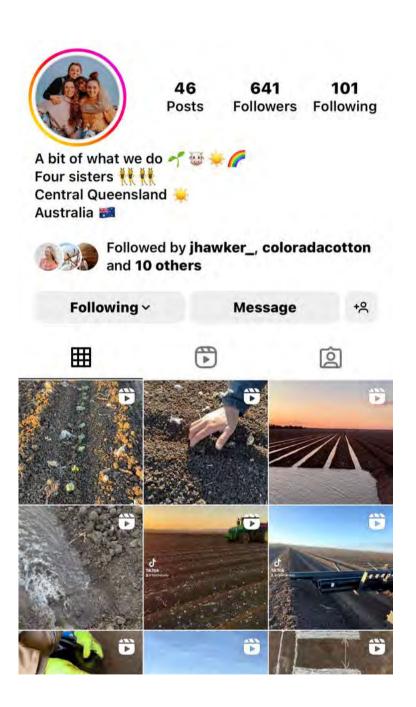
# Other engaging 10800108

#### Instagram & TicTock @farmherwitz

#### Four sisters in central Queensland



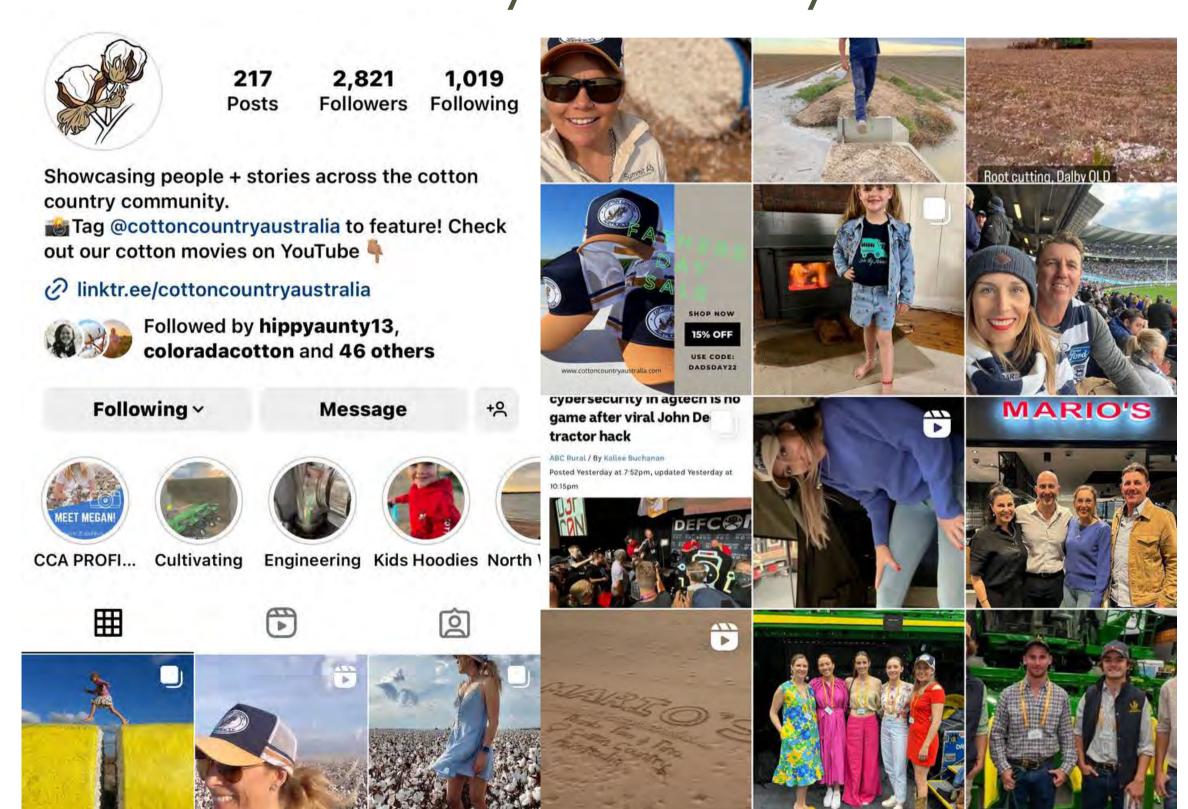
Jem Hawker Photography



# Other engaging 1080008

#### Instagram ecottoncountryaustralia

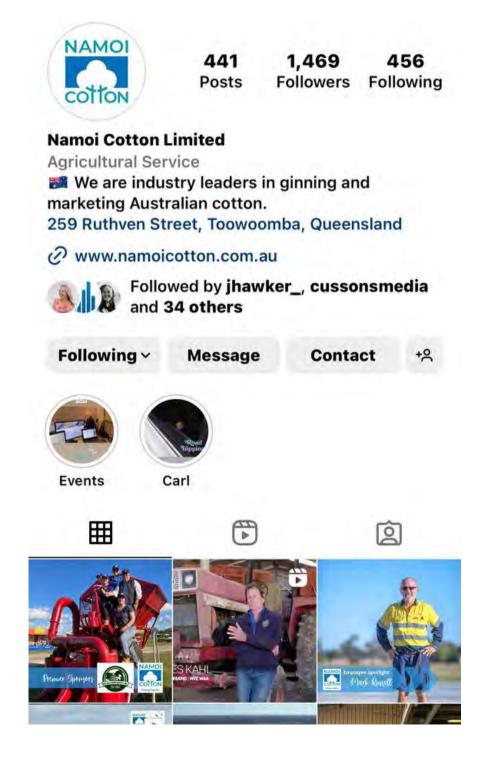
Showcasing people + stories across the cotton country community

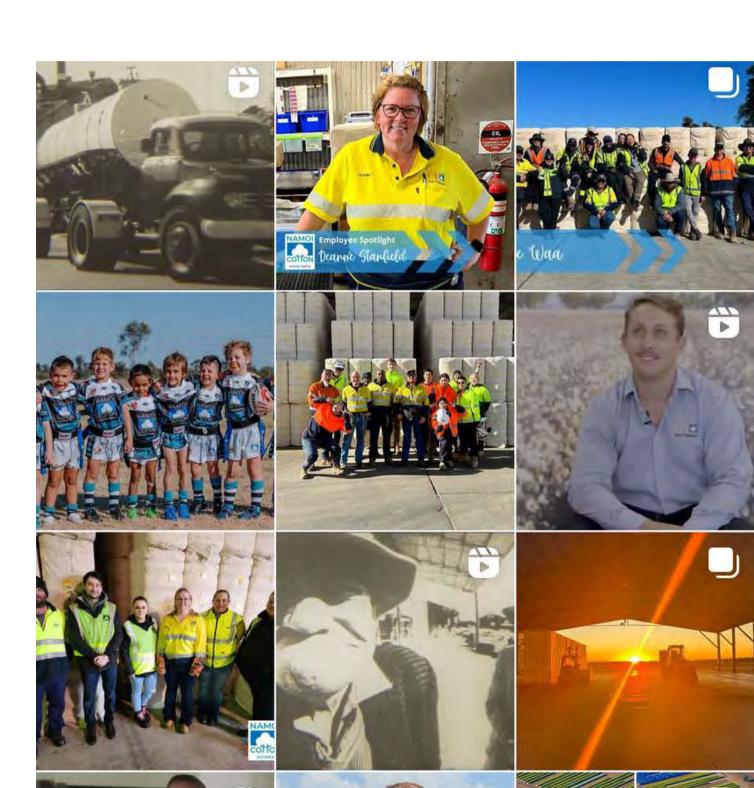


# Other engaging 10800108

#### Instagram enamoicotton

Industry leaders in ginning and marketing Australian cotton





### Resources prepared by Emma Bond

Emma Bond champions Australian cotton for its quality, values, and active commitment to people and planet. Her brand Madi & Pip fuses the optimistic energy of vintage silhouettes with opulent textures and prints. Garment design starts with accessibility and functionality to offer comfort and style to women of all abilities. Designed for the sustainability-conscious: Madi & Pip sources responsibly-grown cotton, and works on a made-to-order model to challenge fashion landfill. Emma is a fashion educator open to collaboration and sharing knowledge through workshops, incursions, resource development and private tuition.













www.cottonaustralia.com.au