

# How garment choice can reduce environmental impacts

Scientific studies confirm 3 steps for brands to reduce the environmental impact of garments

1. Design for long life
2. Educate consumers on best practice care
3. Design for after-life



## The Woolmark Company

The Woolmark Company is the global authority on wool. Through its extensive network of relationships spanning the international textile and fashion industries, the company highlights Australian wool's position as the ultimate natural fibre and premier ingredient in luxury products.

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# Consumers can reduce the environmental impact of garments



Now more than ever, there's the chance – and need – for brands, suppliers and manufacturers to collaborate and produce clothes which don't cost the earth.

Scientific studies have shown that consumers hold the power to dramatically reduce the environmental impact of their clothing. How? Studies show that best practice care, re-wearing garments and extending garments' functional lifetime are highly influential factors impacting garments' environmental impact.

What can designers, brands and retailers do to help consumers reduce the impact of their garments?

1. Design for long life
2. Educate consumers on best practice care
3. Design for after-life



# Fashion industry snapshot



In 2018, the fashion sector was responsible for 2.1 billion metric tons of greenhouse-gas (GHG) emissions, about 4% of the global total<sup>1</sup>. As the global community rallies together to stay on track to keep global warming levels below 1.5°C, the fashion industry looks to new opportunities to help hit this target, with consumer education a crucial piece of the puzzle. By embracing a more conscious approach to consumption and igniting change in consumer behaviour, positive environmental impacts can be achieved.



### +400% consumption

The world now consumes about 80 billion new pieces of clothing every year. This is 400% more than the amount we consumed just two decades ago.<sup>2</sup>



### 92 million tons of waste

The fashion industry produces over 92 million tonnes of waste every year.<sup>4</sup>



### 30% of clothes left unused in wardrobes

More than 30% of the clothes purchased in Europe have been left unused in the wardrobe for more than a year.<sup>3</sup>



### 75% man-made fibres

Man-made fibres account for 75% of all fibres produced worldwide, and approximately 80% in Europe, including Turkey.<sup>5</sup>

<sup>1</sup> McKinsey & Company and Global Fashion Agenda, 2020. Fashion on Climate

<sup>2</sup> The True Cost Movie. [cited 2021 17th May]; Available from: <https://truecostmovie.com/learn-more/environmental-impact/>.

<sup>3</sup> Service, E.P.R., Environmental impact of the textile and clothing industry: What consumers need to know. 2019.

<sup>4</sup> Niinimäki, K., Peters, G., Dahlbo, H. et al. The environmental price of fast fashion. Nat Rev Earth Environ 1, 189–200 (2020). <https://doi.org/10.1038/s43017-020-0039-9>

<sup>5</sup> Association, E.M.-M.F. [cited 2021 17th May]; Available from: <https://www.cirfs.org/man-made-fibers/man-made-fibers>.

# Power of consumer behaviour



The results of a new study<sup>6</sup> show that consumers can greatly reduce the impact their wool clothes have on the environment. This is achieved by choosing and wearing quality garments that have a lengthy life and need minimum laundering, such as those made from Merino wool.



**100x**

Wearing a wool sweater only once before disposal increases its greenhouse gas impacts by more than 100 times compared to current usage.



**75%**

Wearing wool clothes to maximum potential and practicing optimal garment care can reduce their environmental impact by 75% compared to current practices.



**38%**

Current use-phase practices account for 38% water stress in the full lifecycle of a wool sweater.



**68%**

Increasing the number of wears from current practice to 400 wears per wool sweater over its lifespan can reduce the environmental impact of that garment by up to 68%.



**30%**

Current use-phase practices account for 30% of fossil energy demand in the full lifecycle of a wool sweater.



**28%**

Reusing a wool garment by multiple users can increase its life span and reduce environmental impacts by up to 28%.

# What brands can do to help reduce garments' environmental impacts

There are three key initiatives designers and brands can do to help consumers reduce the environmental impact of their clothing.



# 1. Design for long life

In order for consumers to re-wear clothing and keep it in use for a long time, garments need to be designed for long life. For designers and brands to do this, here are 5 design steps to consider:

1. Choose quality fibres that are durable.
2. Design garments that meet the needs of the wearer.
3. Use quality dyes, finishes and construction methods.
4. Design garments that don't go out of fashion.
5. Design garments that can evolve with the needs of the wearer, especially adjustable fit.



## *Why choose wool*



### Odour resistant

In contrast to synthetics, Merino wool can absorb moisture vapour which means less sweat on your body. Merino wool even absorbs the odour molecules from sweat, which are only released upon washing, keeping the garment fresher for longer.



### Stain resistant

Merino wool fibres have a natural protective outer layer that helps prevent stains from being absorbed. And because Merino wool tends not to generate static, it attracts less dust and lint.



### Wrinkle resistant

At microscopic level, each Merino wool fibre is like a coiled spring that returns to its natural shape after being bent. This gives Merino wool garments a natural resistance to wrinkles.



### Designed for longevity

Wool is a quality valued fibre. Consumer wardrobe surveys found wool jumpers are kept for more than 14 years.<sup>7</sup>

## 2. Educate consumers on best practice care

Consumer education on how to properly care for clothes and keep them in circulation for a long time is an important initiative for brands and retailers to help reduce the environmental impact of the fashion industry. Here are 4 initiatives designers and brands can do to reduce the environmental impact of their clothing.

### *1. Promote re-wearing of wool garments*

Wool garments lend themselves to be re-worn often. Consumer surveys show that wool garments are worn at least 400 wears during the lifespan of that garment<sup>8</sup>. Consumer wardrobe surveys found wool jumpers are kept for more than 14 years<sup>9</sup>.

Increasing the number of wears per garment lifespan has the largest effect on the environment, reducing impact by up to 68%<sup>2</sup>.

### *2. Promote the care instructions of wool garments*

- a. Wash wool garments on a wool wash at 30°C (86°F) or less.
- b. Air-dry wool garments, don't tumble dry.
- c. Don't wash wool after every wear. The optimal number of wears per wash for a wool sweater is 14 times.

Reduced washing and drying could deliver 186 million tonnes of carbon emission reductions if consumers skip one in six washing loads, wash half below 30 degrees and substitute every sixth dryer usage with open-air drying<sup>1</sup>.

<sup>8</sup> Wiedemann S, Biggs L, Nebel B et al (2020) Environmental impacts associated with the production, use, and end-of-life of a woollen garment. Int J Life Cycle Assess 25:1486–1499.

<sup>9</sup> The Nielsen Company (2012) AWI - Wardrobe Ethnographic Interviews. Topline Reports for Australia, China, Italy, Japan, Korea, United Kingdom and the United States of America.





*“Passing the garment on to a second or third owner extends the garment’s lifespan.”*

### *3. Communicate wool’s performance and care benefits*

Wool is naturally odour, stain and wrinkle resistant which means garments made of wool can be worn and re-worn for longer intervals between washing. This reduces its washing frequency impact and extends the garments’ functional life.

### *4. Give wool garments a second or third life*

Passing the garment on to a second or third owner extends the garment’s lifespan. In a recent consumer survey, 76% of wool garments were either donated to charity, gifted to friends or family or sold<sup>3</sup>. Reusing a wool garment by multiple users increases its lifespan and reduces environmental impacts up to 28%.<sup>2</sup>

### *5. Offer repair services*

Keep your garments in use by offering repair services to your customers. Not only will repairing garments keep them in service for longer, repair services work to build trust and loyalty with your customers.

### 3. Design for after-life

The fashion industry greatly contributes to pollution. Globally, an estimated 92 million tonnes of textiles waste is created each year and the equivalent to a rubbish truck full of clothes ends up on landfill sites every second.<sup>10</sup> By 2030, we are expected as a whole to be discarding more than 134 million tonnes of textiles a year.<sup>11</sup> Only 1% of textile waste is currently recycled into new clothing.<sup>12</sup>

Furthermore, man-made fibres account for 75% of all fibres produced worldwide.<sup>13</sup> 35% of microplastics in the marine environment are fibres from synthetic clothing.<sup>14</sup>

44% of people don't realise that synthetic fibres in their clothes such as polyester, acrylic or nylon are actually fossil fuel-based plastic.



## 1. Choose natural fibres

Choose natural fibres such as wool over synthetic fibres such as polyester and acrylic. Wool biodegrades in marine and terrestrial environments so does not contribute to the microplastic problem.<sup>15</sup>

## 2. Communicate the benefits of natural fibres

Inform your customers about the natural performance attributes of wool, including odour, wrinkle and stain resistance, that provide the opportunity to reduce laundering frequency.

Adoption of best practice care maintains the ‘as new’ appearance of a wool garment and enables it to be worn more often – lightening the footprint of that garment on the planet.

## 3. Design for disassembly

Recycling blended fibres is difficult and very few commercial technologies have the ability to do so. To ensure the garments you make can be fully recycled, use mono-fibre yarns and materials.

Reducing the number of components of a garment makes disassembly faster and offers more recycling possibilities. Design garments with fewer components and little to no trimmings.

## 4. Explore wool recycling opportunities

The monetisation of the textile end-of-life and recycling industries is estimated to have the potential to double to value of the \$3 trillion fashion industry. Wool has had a commercially viable recycling industry for more than 200 years. Research has shown that wool products have the potential for two or more users, and a total ‘active life’ of up to 20–30 years.<sup>16</sup>

Explore partnerships with textile end-of-life initiatives to reduce waste and keep materials in use for longer.

*“To ensure the garments you make can be fully recycled, use mono-fibre yarns and materials”*

## 5. Explore take-back and donation opportunities

The donation rate of wool garments is high, at about 5%, which far exceeds wool’s 1.3% share of virgin fibre supply.<sup>17, 18</sup>

The resale and take-back market is growing. By utilising wool’s high reuse value, you can extend the life of your garments and add value to your business through take-back and resale opportunities with wool.

<sup>10</sup> A New Textiles Economy: Redesigning Fashion’s Future. 2017, Ellen MacArthur Foundation

<sup>11</sup> Pulse of the Fashion Industry. 2017, Global Fashion Agenda & The Boston Consulting Group

<sup>12</sup> A New Textiles Economy: Redesigning Fashion’s Future. 2017, Ellen MacArthur Foundation

<sup>13</sup> Association, E.M.-M.F. [cited 2021 17th May]; Available from: <https://www.cirfs.org/man-made-fibers/man-made-fibers>.

<sup>14</sup> Henry, B., K. Laitala, and I.G. Klepp, Microfibres from apparel and home textiles: Prospects for including microplastics in environmental sustainability assessment. *Science of The Total Environment*, 2019. 652: p. 483-494.

<sup>15</sup> Hodgson A., Collie S. December 2014. Biodegradability of Wool: Soil Burial Biodegradation. Presented at 43rd Textile Research Symposium in Christchurch. AgResearch, Microfibre Pollution and the Marine Biodegradation of Wool. 2020.

<sup>16</sup> Russell, P.S., A Second Life for Wool Clothing. 2014, Leeds University: IWTO Congress in Cape Town.

<sup>17</sup> Y Chang, H.L.C., and S Francis, Market Applications for Recycled Postconsumer Fibres. *Family and Consumer Science*, 1999. 27(16): p. p.320.

<sup>18</sup> G. D. Ward, A.D.H., and S. J. Russell, Waste and Resource Management in Proceedings of the ICE. 2013. p. pp.29-37.



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