

# MEASURING WOOL'S ENVIRONMENTAL FOOTPRINT

The wool industry is continuing to invest strongly in an accurate and scientifically credible assessment of wool's environmental footprint from its cradle on the farm, through all life stages to wool's ultimate biodegradation back into the soil. By working with the apparel ratings agencies, through the provision of contemporary data and sound methodology, we are seeking to improve the accuracy of the ratings.

Despite wool being 100% natural, renewable and biodegradable, environmental ratings agencies have historically rated wool poorly against competing synthetic fibres. However, there are severe shortcomings to their ratings because they consider only a limited part of the supply chain and only consider some environmental impacts.



## ASSESSING SUSTAINABILITY

The sustainability of the global textiles industry is important for consumers, brands and the environment, but “sustainability” is a difficult term to understand and communicate, with little agreement scientifically on what a sustainable product is. There are many ways to assess environmental sustainability. One popular method is Life Cycle Assessment (LCA).

## LIFE CYCLE ASSESSMENT: WHAT IS IT?

Life Cycle Assessment is a tool that attempts to tell the environmental story of products across the entire supply chain, including raw material acquisition, manufacturing, use, recycling, end-of-life and disposal.

However, LCA is a young science and the apparel ratings are not yet scientifically defensible or robust. They only assess part of the supply chain and consider a limited number of impacts, so the environmental burden isn't accurately assessed. Comparisons should only be made when the full life cycle impacts are known, but the apparel ratings agencies have not yet done this. As a consequence, environmental ratings agencies such as SAC and MadeBy, rate non-renewable synthetics above wool. This puts wool at a disadvantage, particularly as their ratings are used by brands to help choose raw materials to include in their products.

## WOOL'S LIFE CYCLE ASSESSMENT



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### UNDERSTANDING THE TOOLS

Rating tools like the Material Sustainability Index from SAC, or the Made-By benchmarking tool, rate fibres using only a 'partial' LCA technique. Studies funded by The Woolmark Company are progressively correcting the weakness in these rating tools, generating wool's true environmental credentials and communicating this information to environmental agencies. The wool industry has identified a number of concerns with the current ratings:

**Comparisons shouldn't be made between fabrics without taking into account the whole supply chain:**

The environmental impact of producing wool is more significant at the earlier end of the supply chain, but it's a superior fibre that lasts longer, requires less washing and is frequently recycled to extend the use phase even further. However, apparel ratings agencies only assess the first part of the supply chain up to fibre production and exclude the use phase and end of life, resulting in an incomplete analysis.

**Consideration of the use phase is critical as it strongly affects overall environmental impact:** A comprehensive survey (The Nielsen Company, 2012) of seven countries established that the average lifetime of wool garments was more than 50% longer than cotton garments and are washed less often. A longer life and less washing mean a smaller footprint as garments have to be replaced less often and require less inputs (water, energy and detergents) during use.

**It's important to consider the end-of-life for garments:** At the end of its first life, wool is highly valued by recyclers, extending the 'use' of the raw fibre even further. LCA studies to date have assumed that at the end of a wool product's life, it is immediately disposed of in landfill, ignoring the level of reuse and recycling of wool garments/products. However, studies have identified a high donation rate of wool garments – about 5%, which far exceeds wool's 1.3% share of virgin fibre supply. There are also many recycling options for wool giving it a second and possibly third life, including use for industrial and automotive insulation because of wool's inherent flame resistance and acoustic insulation characteristics.

**Comparisons should only be made between comparable products:** Attributes such as insulation properties, odour resistance, washing requirements and

resilience must be considered according to the principles of LCA detailed in ISO 14044 – the governing document from the International Standards Association for how to undertake an LCA – but this isn't the case in the current rating agency tools.

**All important environmental impacts should be considered:** SAC's current rating tool only quantifies four impact categories – climate change, eutrophication, water scarcity and abiotic resource depletion – but there are other important environmental impact categories for apparel that are not yet considered. For example, there is growing evidence of the impact of microplastic pollution from synthetic fibres on waterways and marine life. Once in the food chain, microplastics potentially also affect human health via seafood consumption but this impact is not yet sufficiently well quantified.



**Because most rating agency tools are still under development, there are still big gaps in the methods used to estimate environmental impacts. And other important impact categories, such as micro-plastic pollution of waterways and solid waste generation, are not considered at all.**

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### REFERENCES

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