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Wool & the Environment

Tools to Assess Environmental Performance

Life cycle assessment (LCA) is a quantitative method for evaluating environmental impacts of a product, such as a woollen sweater, across its entire life from raw material production (cradle) to disposal (grave). While the social and economic effects of textiles are also important pillars of sustainability, LCAs currently focus on environmental aspects of resource use and depletion and emissions to land, water and air.

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Understanding Environmental Impacts in Textile Supply Chains

Just as it's important for technical experts to understand the rules and methods for conducting an LCA, it's important for all users to understand what the results mean for managing environmental impacts across the supply chain or for making 'sustainable choices' related, for example, to garment design or purchase. Users benefit from taking into account that:

- the science of LCA is still evolving and improving, especially for agricultural and other natural products, and studies should be based on up-to-date data and methods
- valuation in LCA is currently restricted to those environmental impacts able to be quantified, while qualitative aspects which are also important depend on information sourced outside of LCA studies
- for diverse production systems such as for wool where the complex data required for truly representative LCA are not fully available, results are affected by assumptions made in systems simplification or extrapolation from case studies.

Differences between products or systems in the relative contribution of each stage make it fundamentally incorrect to make comparisons of products based on partial life cycle assessment. For example, comparing climate change impacts for the fibre production stage of wool and nylon shirts is equivalent to comparing around 50% of total life cycle greenhouse gas emissions for the wool shirt with 10% of life cycle emissions in the case of the nylon shirt.

The Importance & Challenge of Quantifying Consumer Use

Consumer practices for care and repair of clothing and in post-use decisions (e.g. passing on valued garments to family, friends or charity; sending for re-selling or recycling) vary between and within regions and cultures. In early LCA studies, collecting data to model this phase in the life cycle of textiles has often been neglected, and most have either included assessment only to the fibre or retail boundary or defaulted to an assumption that the use phase (and sometimes post-use phase) is the same for all clothing.

“The service life of many wool garments is several years, even decades”

An assumption common to several studies is that all items of clothing are washed once a week using hot water and disposed of to landfill after one year. In contrast, the service life of many wool garments is several years, even decades, and weekly laundry is much less common. For items such as wool coats, infrequent cleaning with simple no-impact airing between wears is more common.

Environmental Impacts & Sustainability

LCA studies of textiles and clothing are valuable for quantitative benchmarking of supply chains and informing decisions on changes to reduce environmental impacts. They also support engagement with stakeholders on environmental performance and allow sustainability programs and policies to be evaluated against significant environmental impacts.

However, challenges remain in understanding broader impacts on environmental sustainability beyond those currently included in quantitative models, and additional information may be required to identify ‘sustainable’ fashion’ or ‘eco-friendly’ textiles. Case studies evaluating positive or negative effects of products can inform decisions on good practice for managing biodiversity.



About IWTO

With a world-wide membership encompassing the wool pipeline from sheep to shop, the International Wool Textile Organisation (IWTO) represents the interests of the global wool trade. By facilitating research and development and maintaining textile industry standards, IWTO ensures a sustainable future for wool. To learn more about IWTO and its activities, visit www.iwto.org.

