BENCHMARKING THE ENVIRONMENTAL ASPECTS OF COTTON FIBER AND FABRIC PRODUCTION USING A LIFE CYCLE APPROACH
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Abstract

Life Cycle Assessment (LCA) is the examination of the potential environmental impact and resource utilization of a product, from the raw materials used in its creation to the disposal at the end of its useful life. A fundamental component of LCA is the Life Cycle Inventory (LCI), a quantification of energy and material inputs and environmental release data associated with the manufacturing process. The primary purpose of this study was to compile a robust and recent LCI dataset for global cotton fiber production and textile manufacturing. A secondary objective was to use the LCI data to conduct a complete Life Cycle Assessment (LCA) of a hypothetical knit shirt and woven pant to better understand all aspects of the environmental impact of cotton textiles so the cotton industry can target research and resources to reduce future impacts. In this session, we will present methodology and results for fiber production (agricultural and ginning processes), textile manufacturing (knits and wovens), and consumer use phases. The fiber production phase included data collection from the United States, China, and India; the textile phase included data collection from India, China, Turkey and the Americas. The fiber and textile results will be reported as global averages. The consumer phase was limited to the United States. In addition to benchmarking cotton’s current environmental status, these results will help establish research priorities that will lead to reducing the environmental impact of cotton production and manufacturing.