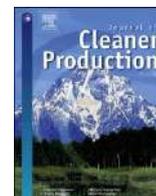


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Certified palm oil reduces greenhouse gas emissions compared to non-certified



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abstract

Consumers are increasingly demanding products containing palm oil produced without harm to the environment. The industry response to this demand has been the creation of the Roundtable on Sustainable Palm Oil (RSPO) and the development of a certification system to ensure sustainable palm oil production. However, currently there is no scientific evidence of the benefit gained through the RSPO certification schema. This paper quantifies the environmental impacts of RSPO certified and non-certified through a detailed Life Cycle Assessment (LCA) of 1 kg of RBD palm oil to factory gate, produced in Indonesia and Malaysia in 2016, to identify potential benefits and trade-offs of RSPO certification. The ISO 14040/14044 compliant LCA is carried out following both a consequential and an attributional LCA approach. The inventory model presents a high level of detail. Primary inventory data describing the certified production system are obtained from RSPO assessment reports, covering 73% (634 estates) of the certified estate, including 111 smallholders, and 58% (165 oil mills) of the certified mills. Data for the total industrial production are drawn from national statistics and scientific literature. The non-certified flows are derived by subtracting the certified flows from the total industry flows. The consequential results show that RSPO certified oil reduces GHG emission by 35% compared to non-certified i.e. 3.41 (2.61e4.48) kg CO₂ eq./kg for certified vs 5.34 (3.34e8.16) kg CO₂ eq./kg for non-certified. Based on a thorough data quality assessment and uncertainty analysis, this result is deemed sufficiently robust and thus conclusive. Certified production achieves the largest GHG emissions reduction because of higher yields, i.e. less land use per unit of product, less oil palm cultivated on peat soil and higher share of palm oil mill effluents treated with biogas capture technologies. We also found that nature occupation is reduced by 20% in certified production while respiratory inorganic is slightly higher (3%) in certified production, due to the larger use of fertilisers. For other impact categories, results are associated with a larger uncertainty and therefore shall be considered as indicative. Similar results are found in attributional modelling.

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