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Comparing the usefulness and applicability of different water footprint methodologies for sustainable water

Le Roux B
Van der Laan M
Gush, Mark B
Bristow KL

ABSTRACT:

The lack of sustainability of our water resources threatens food security in many places worldwide. Different water footprint (WF) methodologies were investigated for their ability to improve water management at various scales. Methodologies according to the Water Footprint Network (WFN), life cycle assessment (LCA) and hydrological-based approaches were assessed, and a working example is given for apples produced in South Africa. A fundamental viewpoint was defined and the knowledge hierarchy applied to investigate the approaches and information generated. WFs reported simply as a volume of water used per mass of crop produced cannot indicate the sustainability of the water use unless interpreted within the local hydrological and environmental context. The WFN methodology appears most useful to resource managers due to its quantitative nature and ability to compare blue and green water consumption versus water availability. The LCA approach may be best for comparisons of the impact of different products. None of the methodologies provides a single metric that can be used to inform wise consumer choices as it is not possible to incorporate all the complexities associated with water use into a single number that can be used to inform sustainable water use.