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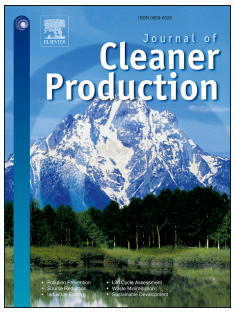

When geography matters. A location-adjusted blue water footprint of commercial beef in South Africa

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When Geography Matters. A Location-Adjusted Blue Water Footprint of Commercial Beef in South Africa.

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Highlights

A comprehensive top-down approach of the South African commercial beef value chain was implemented to investigate the WF of beef;

Local impacts via WSI were accounted at WMA resolution and a sensitivity analysis investigated possible scenarios;

The base-case blue WF is 437 L/kgCW; accounting for local environments results in a best-feasible case with a WF of 276 $L_{eq.}$/kgCW, with a 2 % probability of occurring;

The feed contribution is significant ranging from 43 % to 94 %; the contribution from drinking and service water is non-negligible.

Abstract

Should South Africa be concerned about the water use associated with its meat consumption? South Africa is water stressed: it is considered a nation approaching physical water scarcity and predictions foresee that by 2040 it will be facing high levels of water stress; meat consumption is on the rise; and there is a perception that the water footprint of meat is large. The aim of this work was to quantitatively assess a range of stressed-adjusted blue/consumptive water footprints (WF) for commercial beef in South Africa. Local environment was accounted for via local water stress indices (WSI).

A comprehensive top-down approach to represent the South African commercial beef value chain was implemented. A model of a generic herd was developed, by using elements of a Life Cycle Assessment (LCA) approach as a guide to define the