

Published: 31 August 2022

Ruminant contribution to enteric methane emissions and possible mitigation strategies in the Southern Africa Development Community region

Mompoloki Seketereme , Chhuitse R. Madibela, Thabo Khumoetsile & Innocent Rugoho

Mitigation and Adaptation Strategies for Global Change 27, Article number: 47 (2022) | [Cite this article](#)

115 Accesses | 1 Citations | 3 Altmetric | [Metrics](#)

Abstract

The Southern Africa Development Community (SADC) region is not a major emitter of greenhouse gases (GHG). However, Sub-Saharan Africa is considered a potential future hotspot for GHG emissions because of its large livestock population dispersed across large arid lands, coupled with the inherent low digestible feeds in the region and consequently low productivity of livestock. In SADC, climate change is predicted to increase temperatures further reducing agricultural productivity. Therefore, there is incentive to reduce agriculture's contribution to GHG emissions in the SADC region. Ruminant production, a mainstay of rural economy, is predicted to decrease because of diminished grazing due to reduced rainfall and feed quality. However, ruminants' enteric methane (CH₄) production contributes to GHG emissions. This review explores strategies for the SADC region to reduce CH₄ by ruminants. As methanogenesis is an outcome of microbial activity, potential opportunities include selecting animals with inherent low CH₄ production; altering ruminal microbial populations to those that do not yield CH₄; enhancing feed digestibility by feeding additives which improve diet quality and alter the ruminal microbiome and using specific forages such as seaweed or duckweed that contain plant secondary metabolites that may decrease methanogen populations or methanogenesis. These strategies are considered in terms of their potential magnitude of CH₄ reduction, the feasibility for their implementation in the SADC region.

Access via your institution

Access options

Buy article PDF

39,95 €

Price includes VAT (Botswana)

Instant access to the full article PDF.

[Rent this article via DeepDyve.](#)

[Learn more about institutional subscriptions](#)

Sections Figures References

[Abstract](#)

[References](#)

[Acknowledgements](#)

[Funding](#)

[Author information](#)

[Ethics declarations](#)

[Additional information](#)