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Social value of mitigation on Kenyan dairy farmers: Knowledge, perception, and willingness to act

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Abstract

Climate change and livestock farming are intricately connected, with ruminant production being a significant contributor to greenhouse gas emissions, particularly methane. In Africa, dairy farming is facing growing challenges due to rising temperatures, unpredictable rainfall patterns, and pasture degradation, all of which threaten both the productivity and sustainability of the sector. Heat stress, for example, severely impacts cows' reproduction rates and milk yields, while small-scale farms are especially vulnerable to these climate-related risks. Despite these challenges, adopting resilience strategies, such as the use of improved forages, silvopastoral systems, and better manure management practices, can significantly mitigate the impacts of climate change and foster sustainable dairy production. This study aims to investigate how Kenyan dairy farmers perceive the effects of climate change, their level of concern, and their willingness to adopt mitigation strategies. A social valuation experiment was conducted with 46 farmers from Nandi and Uasin Gishu counties to assess their knowledge, perceptions, and willingness to act. The experiment employed a social value indicator, measured on a scale from 0 to 1, to quantify these factors. The results indicated that farmers exhibited strong knowledge (0.93) and concern (0.81) regarding climate change, yet their willingness to take action was relatively low (0.38), largely due to financial constraints. Despite these challenges, more than 50 % of the farmers expressed an interest in adopting hybrid and improved forages as a strategy to reduce emissions. The study concludes that while Kenyan dairy farmers acknowledge the risks posed by climate change, they require external support, including financial assistance and technical guidance, to effectively implement mitigation strategies. This highlights the critical need for policies and programmes that provide targeted support to help farmers adopt climate-smart practices and ensure the long-term sustainability of dairy farming in the region.

Keywords: Climate change mitigation, dairy farmers, ecosystem services. , principal component analysis, social valuation

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