



Tanzanian Maasai Herders' Adoption of Climate Smart Agriculture Practices: A Three-Year Meta-Analysis on Livestock Performance

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Abstract

The Maasai herders in northern Tanzania face challenges in adapting to climate variability, affecting their livestock productivity. Data from multiple studies were synthesized using a random-effects meta-analysis model with robust standard errors to account for heterogeneity among studies. The analysis revealed that implementing CSA practices led to an average improvement in milk yield of 15% and weight gain of 8.2%, across the three-year period. CSA adoption significantly enhanced Maasai herders' livestock productivity, supporting sustainable agricultural development in challenging climate conditions. Promote CSA training workshops and provide financial incentives to facilitate wider adoption among Maasai communities. The empirical specification follows $Y = \beta_{0+\beta} p X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African Geography, Climate Change Adaptation, Meta-Analysis, Livestock Performance, Random Effects Model, Sustainable Agriculture, Herding Practices*

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