



Methodological Evaluation of Regional Monitoring Networks for Efficient Livestock Management in Tanzania Using Time-Series Forecasting Models

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Abstract

Efficient livestock management in Tanzania requires robust monitoring systems to address regional variability and optimise resource allocation. A time-series forecasting model was applied across multiple regions in Tanzania. The model utilised historical livestock data for prediction and adjustment, incorporating robust standard errors to account for uncertainty. The analysis revealed an average increase of 15% in predicted productivity rates over a three-year period, with significant variance among different regions due to varying environmental conditions and management practices. This study underscores the importance of tailored monitoring networks for enhancing agricultural efficiency in Tanzania. The time-series forecasting model provides a valuable tool for future evaluations. Investment should be directed towards refining regional monitoring systems, particularly in areas with higher variability to maximise impact on productivity enhancements. The empirical specification follows $Y = \beta_{0+\beta}^{-} p X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African, Geographic, Monitoring, Forecasting, Efficiency, Methodology, Livestock*

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