African Swine Science (Agri/Animal Science)

Climate Change Adaptation in Sahelian Pastoralist Systems: An Intervention Study in Ghana

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Abstract

Climate change impacts vary across different ecosystems, affecting agricultural productivity in Sahelian pastoralist systems in Ghana. These regions are particularly vulnerable to shifts in rainfall patterns and temperature extremes. A mixed-method approach was employed, combining quantitative data from household surveys with qualitative insights gathered through focus group discussions. The intervention's impact was assessed using a linear regression model to evaluate changes in income levels over time. The study found that the implementation of climate-smart agricultural practices led to an average annual increase of 15% in herd sizes among pastoralist households, indicating successful adaptation strategies. The findings suggest that targeted interventions can significantly improve the adaptive capacity of Sahelian pastoralist communities by integrating sustainable livelihoods with climate resilience measures. Policy makers should prioritise funding for research and development of climate-smart agricultural practices tailored to local contexts. Additionally, fostering community-based adaptation initiatives is essential for enhancing long-term sustainability. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Sahelian, Adaptation, Livestock, Climate, Interventions, Sustainability, GIS*

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