African Poultry Veterinary Science

Methodological Evaluation of Smallholder Farm Systems in Kenya Using Quasi-Experimental Design

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Abstract

Smallholder farming systems in Kenya face significant challenges related to veterinary care and disease management. Understanding these systems is crucial for developing targeted interventions. A mixed-methods approach combining qualitative interviews with quantitative data analysis was employed. The quasi-experimental design included pre- and post-intervention assessments to measure changes in disease prevalence among livestock. There was a statistically significant reduction ($p < 0.05$) of 15% in the incidence rate of respiratory diseases after implementing preventive measures, as evidenced by robust standard errors from logistic regression models. The quasi-experimental design provided insights into how targeted interventions can improve smallholder livestock health outcomes in Kenya. Further studies should explore scalability and sustainability of these findings across different geographical regions and socio-economic contexts. The empirical specification follows $Y = \vec{\beta}_{0+\beta} \, p \, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African agriculture, smallholder farming, quasi-experimental design, randomized controlled trials, agroecology, precision farming techniques, participatory research methodology*

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