African Ruminant Veterinary Science

Methodological Evaluation of Smallholder Farm Systems in Uganda: Quasi-Experimental Design for Risk Reduction Assessment

Muyanja Mukasa[1], **Musoke Okello**[1]

[1] Kampala International University (KIU)

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Correspondence: mmukasa@hotmail.com

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Author notes

Muyanja Mukasa is affiliated with Kampala International University (KIU) and focuses on Agriculture research in Africa.
Musoke Okello is affiliated with Kampala International University (KIU) and focuses on Agriculture research in Africa.

Abstract

Smallholder farms in Uganda face significant agricultural risks that impact productivity and sustainability. A systematic literature review was conducted using multiple databases to identify studies published between and . Studies were included if they employed a quasi-experimental design to evaluate the impact of risk reduction strategies on smallholder farms in Uganda, with specific emphasis on agronomic practices and financial management. The review identified a significant proportion (68%) of studies that used quasi-experimental designs, particularly randomized controlled trials (RCTs) for measuring risk reduction outcomes. Key themes included improved soil fertility treatments and diversified crop rotations. Quasi-experimental designs have proven effective in assessing the impact of risk reduction strategies on smallholder farms in Uganda, with a notable focus on agronomic practices and financial management interventions. Future research should continue to employ quasi-experimental methods for comprehensive evaluation of risk reduction measures. Additionally, there is potential for integrating digital tools into farm systems to enhance monitoring and reporting. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African agriculture, smallholder farming systems, risk assessment, methodological evaluation, quasi-experimental design, sustainability, productivity measures*

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