



Methodological Evaluation of Smallholder Farm Systems in Uganda: A Randomized Field Trial for Measuring Clinical Outcomes

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Abstract

Smallholder farming systems in Uganda face significant challenges related to productivity and sustainability. A randomized field trial was conducted across ten districts in Uganda, with a stratified random sampling method applied to select farms. Data collection included pre- and post-intervention surveys, agricultural assessments, and market analyses. The intervention increased average crop yields by 20% compared to control groups, with a 15% reduction in input costs per unit of output. Randomized field trials provide robust evidence for the efficacy of certain interventions on smallholder farming outcomes. Further research should focus on scaling up successful interventions and assessing long-term impacts. Smallholder farms, clinical outcomes, randomized field trial, crop yields, input costs The empirical specification follows $Y = \beta_{0+\beta}^{-1} p X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African agriculture, randomized trials, smallholder farming, yield assessment, sustainability metrics, resource management, econometrics*

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