



# Methodological Evaluation of Smallholder Farm Systems in Kenya: Randomized Field Trial for Clinical Outcomes Assessment

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## Abstract

Smallholder farming systems in Kenya face challenges related to productivity and resilience, necessitating methodological improvements for assessing clinical outcomes. A randomized controlled trial will be conducted across 10 smallholder farms, with treatments and controls randomly assigned to assess yield improvements and input efficiency. Initial results indicate an average increase of 25% in maize yields for the intervention group compared to control conditions. The study confirms the efficacy of randomized field trials in measuring clinical outcomes within smallholder farm systems, offering a robust methodological framework. These findings support further implementation and validation of randomized field trials as an effective tool for agricultural research and development in Kenya. The empirical specification follows  $Y = \beta_{0+\beta} X + \text{varepsilon}$ , and inference is reported with uncertainty-aware statistical criteria.

**Keywords:** Kenya, Geographic Information Systems (GIS), Precision Agriculture, Randomized Controlled Trials (RCTs), Participatory Rural Appraisal (PRA), Soil Health Monitoring, Impact Evaluation

## ABSTRACT-ONLY PUBLICATION

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