



Methodological Evaluation of Field Research Stations Systems in Kenya: Quasi-Experimental Design for Cost-Effectiveness Assessment

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Abstract

Field research stations in Kenya play a crucial role in agricultural development, but their effectiveness varies across different systems. A quasi-experimental design was employed, including surveys of stakeholders and econometric analysis using a linear regression model with robust standard errors (e.g., $Y = \beta_0 + \beta_1 X + \epsilon$, where Y represents cost-effectiveness index, X is the type of research station system, and ϵ accounts for random error). Field stations operating under a hybrid model showed a significant reduction in operational costs by 25% compared to conventional models (e.g., $p < 0.01$, confidence interval: -30% to -20%). The quasi-experimental design revealed that the hybrid model is more cost-effective for promoting sustainable agricultural practices. Adopting a hybrid research station system could lead to substantial savings in operational costs without compromising on effectiveness.

Keywords: African, experimental, methodology, station, systems, evaluation, cost-effectiveness

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