African Visual Communication Studies (Media/Arts)

Artificial Intelligence in Crop Diversification for Small Farmers in Tanzanian Villages: A Nine-Month Impact Assessment

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Abstract

This study addresses a current research gap in Computer Science concerning Artificial Intelligence for Crop Diversification Assistance Programs Among Small Farmers in Tanzanian Villages: Growth Impact After Nine Months in Tanzania. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A mixed-methods design was used, combining survey and interview data collected over the study period. The results establish bounded error under perturbation, a convergent estimation process under stated assumptions, and a stable link between the proposed metric and observed outcomes. The findings provide a reproducible analytical basis for subsequent theoretical and applied extensions. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. Artificial Intelligence for Crop Diversification Assistance Programs Among Small Farmers in Tanzanian Villages: Growth Impact After Nine Months, Tanzania, Africa, Computer Science, original research This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. Model estimation used $\hat{\{\theta\}} = argmin\{\theta\} sumiell(yi, f\theta(\xi)) + \lambda lVert\theta rVert 2^2$, with performance evaluated using out-of-sample error.

Keywords: *Geographic Terms: Tanzania*

Methodological Terms: Artificial Intelligence (AI)

Machine Learning
Data Mining
Predictive Analytics
Precision Agriculture

Theoretical Concepts:
Cultivar Selection
Resource Allocation
Sustainable Farming Practices

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