Climate Smart Agriculture Initiatives and Maize Yield Trends in Northern Cameroon: An Ecological Assessment

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Abstract

This study addresses a current research gap in Environmental Science concerning Evaluation of Climate Smart Agriculture Initiatives on Maize Yields in Northern Cameroon in Cameroon. 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. Evaluation of Climate Smart Agriculture Initiatives on Maize Yields in Northern Cameroon, Cameroon, Africa, Environmental Science, original research This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. The empirical specification follows $Y = \vec{\beta_{0+\beta}} \, p \, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Sub-Saharan, GIS, agroecology, climate change adaptation, sustainable intensification, remote sensing, yield gap*

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