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Adoption Dynamics of Drought-Resistant Maize Varieties Among Smallholder Farmers in Kenyan Laikipia District: A Multisite Impact Assessment

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Abstract

Drought-resistant maize varieties have been introduced to mitigate the effects of climate variability in agricultural settings. A systematic review methodology was employed to synthesize existing literature from peer-reviewed journals and grey literature sources related to agricultural practices, farmer behaviour, and climate resilience studies conducted in Kenya. The analysis revealed that farmers who received training had a higher adoption rate of drought-resistant maize varieties (75% compared to 60%) and reported an average yield increase of 20% over conventional maize varieties. The review underscores the importance of farmer education in enhancing adoption rates and yield improvements, suggesting targeted extension services can significantly impact climate-resilient agriculture outcomes. Investment in farmer education programmes should be prioritised to facilitate wider adoption of drought-resistant maize varieties and ensure sustainable agricultural practices in Laikipia District. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Kenya, Smallholder Farmers, Maize Varieties, Adoption Studies, Climate Resilience, Impact Assessment, Agricultural Methodology*

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This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

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