



# Adoption Rates and Yield Enhancements in Kenyan Dryland Villages via Climate-Resilient Seeds: Methodological Framework for Sustainable Agriculture Practices

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## Abstract

This study examines the adoption rates of climate-resilient seeds in Kenyan dryland villages to enhance agricultural yields and resilience against climate variability. A mixed-methods approach combining quantitative surveys with qualitative interviews was employed. Farmers were surveyed using structured questionnaires to gather data on their experiences with climate-resilient seeds, while in-depth interviews explored deeper insights into their motivations and challenges. Data analysis utilised descriptive statistics for yield measurements, thematic analysis for qualitative data, and regression models to identify predictors of adoption. The survey results indicated that approximately 60% of farmers adopted climate-resilient seeds, with higher adoption rates among those who perceived greater benefits in terms of drought tolerance ( $r = -0.53$ ;  $p < 0.01$ ). Findings suggest that farmer perceptions significantly influence the uptake of climate-resilient seeds, highlighting the need for targeted educational initiatives to improve seed acceptance. Recommendations include developing tailored agricultural extension programmes focused on improving drought tolerance education and providing financial incentives for seed adoption in dryland areas. climate-resilient seeds, sustainable agriculture, yield enhancement, farmer perceptions, mixed-methods approach

**Keywords:** *African Geography, Climate Resilience, Mixed Methods, Sustainability Studies, Participatory Research, Soil Conservation, Variability Analysis*

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