



Adoption Dynamics of Drought-Tolerant Maize Varieties among Northern Ghanaian Smallholder Farmers: A Three-Year Impact Assessment

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Abstract

Drought-tolerant maize varieties have shown promise in enhancing agricultural productivity in arid regions of Africa. A mixed-methods approach combining surveys (n=200) and qualitative interviews with focus groups to explore perceptions, practices, and outcomes related to the adoption. The proportion of farmers adopting drought-tolerant maize increased from 35% at baseline to 58% after one year, driven by perceived yield improvements and government support programmes. Three-year follow-up revealed sustained benefits in crop yields (mean increase: 20%) and economic returns (\$10-20 per hectare). The study highlights the critical role of farmer education and government subsidies in fostering adoption and sustaining long-term gains from drought-tolerant maize varieties. Develop targeted extension services to enhance awareness and support for smallholder farmers adopting these technologies, alongside continued government incentives to ensure sustainable uptake and benefits over time.

Keywords: African, GIS, Participatory, SWOT, sustainability

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