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The Impact of Drought-Resistant Maize Varieties on Smallholder Farmers in Malawi: A Comparative Study over Three Years

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Abstract

Drought is a significant challenge for agricultural productivity in Malawi, where maize production plays a crucial role in the economy and food security. A mixed-methods approach combining household surveys with field observations was employed to gather data from a representative sample of 200 smallholder maize farmers across Malawi. Data analysis included regression models to assess the relationship between variety adoption and yield outcomes, incorporating robust standard errors for statistical inference. The study found that farmers who adopted drought-resistant varieties had an average yield increase of 15% compared to those using conventional varieties, with a confidence interval around this mean at ±3%. Drought-resistant maize varieties significantly improved crop yields among smallholder farmers in Malawi, contributing to enhanced food security and income stability. However, further research is needed on the long-term sustainability of these practices. Government policies should incentivize smallholder farmers to adopt drought-resistant maize varieties through subsidies or insurance programmes. Additionally, farmer education initiatives focusing on sustainable water management strategies are recommended. The empirical specification follows $Y = \vec{\beta_{0+\beta}} \, p \, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Sub-Saharan, African, Sprinkler, Farmers', Crop Diversity*

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