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Indigenous Crop Varieties and Food Security in Ethiopia: An Ecological Assessment

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Abstract

Indigenous crop varieties play a crucial role in food security across various ecosystems, including those of Ethiopia. These traditional crops are often resilient to environmental stresses and diverse in their genetic makeup, providing farmers with valuable adaptability. A mixed-methods approach was employed, integrating field surveys with genetic analysis of selected indigenous crops. Data were collected from 50 randomly selected villages across three distinct climatic regions in Ethiopia. Indigenous varieties exhibited a significant survival rate of at least 85% under drought conditions compared to modern varieties (72%), demonstrating their superior adaptability. Genetic diversity analysis revealed over 30 unique alleles per variety, enhancing their genetic stability and resilience. The study underscores the importance of indigenous crop varieties for maintaining food security in Ethiopia's diverse agricultural settings. Further research is recommended to explore broader ecological impacts and potential policy interventions. Government policies should prioritise conservation efforts for indigenous crops by establishing seed banks and promoting their use through farmer education programmes. Enhanced support for these traditional practices can contribute significantly to sustainable agriculture. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Ethiopia, Resilience Agriculture, Agroecology, Biodiversity, Conservation Genetics, Traditional Knowledge Systems, Sustainable Practices*

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