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Sustainable Pest and Disease Management Strategies in Maize Production in Tanzania: A Scoping Review

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Abstract

Maize is a crucial staple crop in Tanzania, contributing significantly to food security and economic stability. A comprehensive search was conducted using electronic databases such as PubMed and Web of Science. Studies were selected based on predefined inclusion criteria related to sustainability and efficacy. Findings indicate that integrated pest management (IPM) strategies, including the use of resistant maize varieties and biological control agents, showed a reduction in pesticide application by approximately 40% compared to conventional practices. The review highlights the potential for IPM to enhance maize productivity while reducing environmental impact. However, implementation challenges include limited access to inputs like biopesticides. Investment in training programmes and extension services is recommended to facilitate the adoption of sustainable pest management techniques among farmers. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African Agriculture, Pest Management, Disease Control, Integrated Pest Management (IPM), Sustainable Practices, Maize Production, Crop Protection*

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