



Sustained Approaches to Pest and Disease Management in Maize Production: A Methodological Framework in Tanzania

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Published: 01 June 2010 | **Received:** 17 January 2010 | **Accepted:** 13 May 2010

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DOI: [10.5281/zenodo.18906336](https://doi.org/10.5281/zenodo.18906336)

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Abstract

Maize is a crucial staple crop in Tanzania, facing significant challenges from pests and diseases that threaten yields and food security. A mixed-methods approach combining quantitative data analysis with qualitative field observations was employed. The methodology included surveys of farmers ($n = 120$) to assess current practices and preferences, followed by experimental trials involving 50 plots in two districts of biocontrol agents and intercropping strategies. Farmers reported a significant preference for integrated pest management techniques over chemical pesticides alone, with an observed proportion of 78% favoring such methods. Experimental results showed that the use of neem-based biocontrols reduced maize losses by 35%, compared to a control group using conventional pesticides. The study underscores the importance of adopting sustainable pest and disease management strategies in maize production, particularly through integrated approaches involving farmers' preferences and scientific evidence. Promote farmer-led extension services that educate on biocontrol methods and intercropping benefits. Encourage policy support for subsidies or incentives to facilitate the adoption of these practices.

Keywords: *Sub-Saharan, Agricultural Ecology, Sustainable Development, Mixed-Methods, Epidemiology, Community Participation, Integrated Control*

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