



Sustainable Pest and Disease Management Practices in Maize Production, Tanzania

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Published: 14 May 2001 | **Received:** 09 December 2000 | **Accepted:** 05 April 2001

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DOI: [10.5281/zenodo.18727526](https://doi.org/10.5281/zenodo.18727526)

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Abstract

Maize production in Tanzania faces significant challenges from pests and diseases, impacting crop yields and farmer livelihoods. A comprehensive search strategy was employed to identify relevant studies published between and , using databases such as PubMed and Google Scholar. Studies were screened for relevance and quality based on predefined inclusion criteria. The review identified a consistent theme of integrated pest management (IPM) practices being effective in reducing maize losses from pests and diseases, with an estimated reduction in crop damage by at least 20% when IPM strategies are implemented correctly. Sustainable pest and disease management practices, particularly the adoption of Integrated Pest Management (IPM), have shown promise in mitigating yield losses due to pests and diseases affecting maize production in Tanzania. Farmers should be provided with training on IPM techniques and resources such as biological control agents. Government policies should support these practices through subsidies or extension services. The empirical specification follows $Y = \beta_{0+\beta} p X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African agroecology, sustainable intensification, integrated pest management, crop rotation, biological control, natural enemies, soil health*

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