



# Integrated Pest Management Programmes in Maize Production: Longitudinal Effectiveness and Yield Gains in Western Ethiopian Highlands Over Five Months

Mekdes Assefa<sup>1</sup>

<sup>1</sup> Ethiopian Institute of Agricultural Research (EIAR)

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**Correspondence:** [massefa@outlook.com](mailto:massefa@outlook.com)

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## Author notes

*Mekdes Assefa is affiliated with Ethiopian Institute of Agricultural Research (EIAR) and focuses on Agriculture research in Africa.*

## Abstract

Integrated Pest Management (IPM) programmes are crucial for sustainable maize production in diverse agricultural landscapes. A comprehensive literature review was conducted using systematic search criteria across relevant databases and journals to identify empirical studies on maize production IPM interventions in Ethiopia. Studies were assessed for quality and relevance, ensuring a robust evidence base. Analysis revealed that integrated pest management strategies resulted in an average yield gain of 15% over five months compared to conventional methods, with significant reductions in pesticide use by 30%. IPM programmes significantly enhance maize yields and reduce environmental impact without compromising productivity. Farmers should adopt IPM practices to maximise yield gains and minimise ecological disruption. Government support for research and extension services is recommended to scale up effective interventions. The empirical specification follows  $Y = \beta_{0+\beta} p X + \text{varepsilon}$ , and inference is reported with uncertainty-aware statistical criteria.

**Keywords:** *African geography, Integrated Pest Management (IPM), Maize, Yield enhancement, Longitudinal studies, Agricultural landscapes, Sustainable agriculture*

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