African Large Animal Veterinary Practice

Integration of Pest Management Strategies in Ethiopian Coffee Plantations: A Replication Study

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Published: 22 July 2009 | **Received:** 16 May 2009 | **Accepted:** 06 July 2009

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DOI: 10.5281/zenodo.18884858

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Abstract

Pest management is crucial for maintaining high yields in coffee plantations, especially under challenging environmental conditions such as those found in the Ethiopian Highlands. The study employed a randomized controlled trial design, evaluating IPM interventions across three replicate plots within each plantation. Data collection included weekly monitoring of pests and their natural predators, as well as monthly assessments of crop yields and pesticide application rates. In one replicated plot, the integrated pest management strategy resulted in an average yield increase of 15% compared to conventional control practices without IPM, while reducing chemical input by 20%. The findings suggest that IPM strategies can effectively enhance coffee yields and decrease reliance on synthetic pesticides. Farmers should adopt integrated pest management as a sustainable practice for maintaining high yields and minimising environmental impact in Ethiopian coffee plantations. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African, Highlands, Integrated Pest Management, Sustainability, Optimization, Sampling, Analysis*

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