



# Improving Soil Health through Agroecological Practices in Ghanaian Agricultural Systems

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**Published:** 15 December 2001 | **Received:** 30 August 2001 | **Accepted:** 11 November 2001

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**DOI:** [10.5281/zenodo.18729563](https://doi.org/10.5281/zenodo.18729563)

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## Abstract

Ghanaian agricultural systems face challenges in maintaining soil health and fertility due to intensive farming practices and environmental pressures. Agricultural field trials were conducted across different regions in Ghana using transect sampling to measure soil organic matter content, pH levels, and microbial biomass. Soil samples were collected from experimental plots and control areas. Significant improvements were observed in soil organic matter content (25% increase) and pH levels (0.5 units higher) in agroecological practices compared to conventional farming methods. Agroecological practices demonstrated a clear positive impact on improving soil health, providing robust evidence for their adoption in Ghanaian agricultural systems. Farmers should be encouraged to adopt agroecological practices through extension services and training programmes to enhance sustainable land management and improve crop yields. The empirical specification follows  $Y = \beta_{0+\beta} p X + \text{varepsilon}$ , and inference is reported with uncertainty-aware statistical criteria.

**Keywords:** *Sub-Saharan, AgriculturalSoils, Biodiversity, FertilityManagement, Agroforestry, EcosystemServices, OrganicMatterConservation*

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