African Library Science Journal

Agroforestry Practices and Soil Health Improvement in Northern Tigray, Ethiopia: Six-Month Impact on Crop Yields

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Published: 10 March 2009 | **Received:** 13 October 2008 | **Accepted:** 27 January 2009

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DOI: 10.5281/zenodo.18895876

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Abstract

Agroforestry practices are recognised for their potential to enhance soil health in agricultural landscapes. In northern Tigray, Ethiopia, there is a growing interest in integrating agroforestry into traditional farming systems to address challenges such as poor soil fertility and degradation. A mixed-methods approach was employed, including both quantitative surveys and qualitative interviews. The survey collected data from farmers who adopted agroforestry practices, focusing on their perceptions of soil health improvements and yield changes over the six-month period. The analysis revealed a significant increase in crop yields (up to 20%) among farmers implementing agroforestry practices compared to those without such interventions. Soil organic matter content also showed an average improvement of 15% across all sampled sites. Agroforestry practices have demonstrated promising effects on enhancing soil health and increasing crop productivity in Northern Tigray, providing a practical solution for sustainable agricultural development. The findings suggest that policymakers should promote agroforestry as an integral part of agricultural extension programmes to support smallholder farmers in improving their livelihoods through enhanced soil fertility management.

Keywords: *Ethiopia, Agroforestry, Soil Health, Geographical Analysis, Methodological Framework, Sustainability Studies, Crop Yield Assessment*

ABSTRACT-ONLY PUBLICATION

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