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Soil Fertility and Crop Yields Enhancement Through Sustainable Agriculture Practices Among Ugandan Dryland Smallholder Farmers: A Yearly Assessment

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Abstract

Ugandan dryland smallholder farmers face challenges in maintaining soil fertility and achieving stable crop yields due to environmental stressors such as drought and nutrient depletion. A mixed-methods approach was employed, including farmer interviews, field observations, and yield assessments. Data collection occurred throughout one growing season to capture seasonal variations. The implementation of conservation agriculture practices led to an average increase of 15% in soil organic matter content compared to the baseline year. This resulted in a 20% improvement in maize yields across all study sites. Sustainable agricultural interventions can significantly enhance soil fertility and crop productivity among Ugandan dryland farmers, contributing positively to food security and livelihoods. Local extension services should promote the adoption of conservation agriculture practices through demonstration plots and training workshops. Government support for research on climate-resilient crops is also recommended.

Keywords: *African Soil Fertility, Agroecology, Farmer Field Schools, Organic Amendments, Participatory Monitoring, Sustainable Intensification, Terracing Techniques*

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