



Conservation Tillage Techniques in Senegalese Agricultural Communities: A Comparative Analysis in Ethiopia's Rangelands and Croplands, 2010s

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Abstract

Conservation tillage techniques are recognised for their potential to enhance soil health and water conservation in agricultural settings. A mixed-methods approach combining quantitative data from surveys and qualitative insights through interviews was employed to gather information on farmers' perceptions and actual practices. The survey revealed that the adoption of conservation tillage techniques varied significantly across different landscapes, with cropland areas showing higher rates compared to rangelands. This difference was attributed to environmental conditions and local agricultural policies. Findings suggest that while conservation tillage is viable in all types of Ethiopian agro-ecosystems, its adoption is more pronounced in cultivated lands due to better resource management opportunities. Strategies aimed at improving soil health should be tailored to specific landscapes and supported by local agricultural extension services. Conservation Tillage, Senegal, Ethiopia, Agriculture, Adoption Rates The empirical specification follows $Y = \beta_{0+\beta} p X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African savannas, conservation agriculture, soil fertility, tillage practices, precision farming, agroecology, participatory research*

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