



# Adoption Dynamics of Climate Smart Agriculture Practices in Northern Ethiopian Highlands: A Longitudinal Perspective

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## Abstract

Climate change poses significant challenges to agricultural productivity in Sub-Saharan Africa, particularly in regions like the Northern Ethiopian Highlands where rainfall patterns are becoming more unpredictable. A mixed-methods approach combining quantitative surveys with qualitative interviews was employed to gather data from 120 randomly selected farmers across six districts in the Northern Ethiopian Highlands. The survey revealed that CSA practices were adopted by approximately 45% of surveyed farmers, with significant variations observed between different socio-economic groups and seasons. Farmers who received training had a higher adoption rate compared to those without such interventions (60% vs. 35%). CSA practices are being increasingly adopted in the Northern Ethiopian Highlands but face challenges related to resource availability and farmer awareness. Investment in training programmes, extension services, and community-based CSA initiatives is recommended to enhance adoption rates and resilience against climate change impacts. Climate Smart Agriculture, Smallholder Farmers, Northern Ethiopia, Adoption Dynamics

**Keywords:** *African geography, climate change impacts, sustainable agriculture, farm management practices, rural development, participatory approaches, longitudinal studies*

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