



Technology Adoption by Nigerian Smallholder Farmers in Combatting Drought Using Soil Moisture Sensors: An Ethnographic Study

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Abstract

Nigerian smallholder farmers are increasingly adopting soil moisture sensors to combat drought, a critical issue in agricultural productivity. The study employed qualitative research methods including participant observation, semi-structured interviews, and document analysis to understand farmer practices and perceptions regarding soil moisture sensor adoption. Farmers in southwestern Nigeria reported a significant improvement (40%) in crop yields when using soil moisture sensors compared to traditional farming methods. Farmers also identified clear benefits such as improved water efficiency and reduced labour costs. The ethnographic findings underscore the transformative potential of technology adoption for smallholder farmers, particularly in addressing climate-related challenges like drought. Policy makers should support further research on soil moisture sensor efficacy and distribution strategies to enhance agricultural resilience among Nigerian smallholders.

Keywords: *African Geography, Soil Moisture Sensors, Technological Adoption, Smallholder Farmers, Rural Development, Quantitative Research, Case Study*

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