



Digital Agriculture Platforms in Ethiopian Highlands: Adoption Rates and ROI Analysis Over Two Years

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Abstract

Digital agriculture platforms are increasingly being implemented to improve crop yields in developing countries, including Ethiopia's highlands where climate and soil conditions favour agricultural productivity. A mixed-methods approach combining qualitative interviews with quantitative data collection from farmer surveys was employed. Data were analysed using regression analysis and thematic content analysis. Adoption rates varied significantly, ranging from 20% to 45%, with factors such as technological literacy and internet connectivity influencing uptake. ROI showed an average increase of 18% in crop yields for participating farms compared to non-participants. Digital agriculture platforms have the potential to enhance efficiency and profitability among smallholder farmers in Ethiopia's highlands, though barriers to adoption must be addressed. Investment in digital literacy programmes and infrastructure improvements is recommended alongside targeted subsidies to increase platform accessibility for rural communities. Return on Investment (ROI), Digital Agriculture Platforms, Smallholder Farmers, Ethiopian Highlands

Keywords: *African Geography, Digital Agriculture, Adoption Rates, Return On Investment (ROI), Quantitative Methods, Geographic Information Systems (GIS)*

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