African Water Resources Management
(Environmental/Earth Science)

Digital Agriculture Platforms in Tanzanian High-Cold Zones: Adoption and Economic Impact on Precision Farming

Sembore Sijeshi[1], **Kasininga Kigataika**[2], **Nyamwezi Nzabirisha**[2,3]

[1] Department of Interdisciplinary Studies, University of Dar es Salaam

[2] University of Dar es Salaam

[3] Tanzania Wildlife Research Institute (TAWIRI)

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Correspondence: ssijeshi@gmail.com

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Author notes

Sembore Sijeshi is affiliated with Department of Interdisciplinary Studies, University of Dar es Salaam and focuses on Business research in Africa.

Kasininga Kigataika is affiliated with University of Dar es Salaam and focuses on Business research in Africa.

Nyamwezi Nzabirisha is affiliated with Tanzania Wildlife Research Institute (TAWIRI) and focuses on Business research in Africa.

Abstract

Digital agriculture platforms have emerged as a promising tool for enhancing precision farming practices in various climatic zones, including high-cold regions of Tanzania. A mixed-methods approach combining quantitative surveys with qualitative interviews was employed to gather data from a representative sample of high-cold zone farmers. Data were analysed using statistical software for insights into platform usage frequencies and economic outcomes. The analysis revealed that approximately 35% of surveyed farmers have adopted digital agriculture platforms, primarily driven by cost savings in inputs and improved yield predictability. Digital agriculture platforms are increasingly being utilised by Tanzanian high-cold zone farmers to enhance their farming practices. The findings suggest significant economic benefits through reduced input costs and increased crop yields. Policy makers should consider incentivizing the adoption of digital agriculture platforms in high-cold zones, alongside supporting infrastructure development to maximise their potential for agricultural sustainability.

Keywords: *Sub-Saharan, GIS, IoT, Precision Farming, Participatory Action Research, Rural Development, Smallholder Agriculture*

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