



Adoption Mechanisms of Precision Agriculture Techniques in Yields Enhancement Among Northern Ghanaian Cassava Farmers: An Informatics Perspective

Chiraimbwe Obioaka¹

¹ Department of Artificial Intelligence, Kyambogo University, Kampala

Published: 20 April 2010 | Received: 22 November 2009 | Accepted: 20 March 2010

Correspondence: cobioaka@outlook.com

DOI: [10.5281/zenodo.18906847](https://doi.org/10.5281/zenodo.18906847)

Author notes

Chiraimbwe Obioaka is affiliated with Department of Artificial Intelligence, Kyambogo University, Kampala and focuses on Computer Science research in Africa.

Abstract

Precision agriculture techniques are increasingly being adopted by farmers to enhance crop yields. In northern Ghana, cassava farming is a critical livelihood activity, yet little research has explored how these techniques are adopted and their impact on yields. A mixed-methods approach was employed, involving a survey of 150 cassava farmers followed by in-depth interviews with 20 selected respondents to gather qualitative insights into their experiences and challenges with precision agriculture technologies. The findings indicate that while 78% of the surveyed farmers have adopted at least one precision agriculture technique, there is a significant disparity in adoption rates across different age groups (45-60 years: 91%, <30 years: 52%). Precision agriculture techniques show promise for enhancing yields among northern Ghanaian cassava farmers. However, perceived high initial costs and technical difficulties hinder wider adoption. Farmers' organizations should be encouraged to provide training on precision agriculture technologies and financial support to overcome barriers. Policy makers could consider subsidies or incentives to promote technology uptake. Cassava farming, Precision Agriculture, Yields Enhancement, Northern Ghana Model estimation used $\hat{\theta} = \operatorname{argmin}\{\theta\} \operatorname{sumiell}(y_i, f\theta(\xi)) + \lambda \operatorname{Vert}\theta r \operatorname{Vert} 2^2$, with performance evaluated using out-of-sample error.

Keywords: Sub-Saharan, African, Geospatial, Agro-ecology, Remote, sensing, Modelling

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ **REQUEST FULL PAPER**

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa



Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge