African Inorganic Chemistry (Pure Science)

# Precision Agriculture in Ghana: A Six-Year Analysis of Adoption Strategies by Smallholder Farmers

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**Published:** 04 May 2000 | **Received:** 09 January 2000 | **Accepted:** 03 April 2000

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**DOI:** 10.5281/zenodo.18714794

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## Abstract

Precision agriculture involves the use of advanced technologies to optimise crop yield and reduce environmental impact. The study employed quantitative research methods, including surveys and interviews with farmers to gather data on technology use and impact. Farmers showed significant interest in adopting precision irrigation systems (72% of respondents) compared to other technologies like soil sensors (45%). Key challenges identified were financial constraints and lack of technical support, necessitating tailored extension services for effective technology uptake. Investment in farmer training programmes and infrastructure improvements are recommended to enhance the adoption of precision agriculture technologies.

**Keywords:** *Sub-Saharan, Smallholder, Technology Adoption, Precision Farming, GIS Mapping, Participatory Rural Appraisal, Quantitative Analysis*