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“Can agroecological farming feed the world?
Farmers’ and academia’s views”

Willing to adopt precision agriculture technologies by farmers in Ghana

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Abstract

Agriculture in developing nations like Ghana faces many challenges, and experts advocate various management strategies based on existing and proven technologies to improve agriculture. Reduced productivity per unit area, dwindling and degrading natural resources, the growing threat of global warming and climate change, and stagnant farm revenue are major obstacles to agricultural success. Hence, meeting future challenges in an ever-changing world will require novel technology-based responses may be required. Precision farming is a concept that combines a variety of technologies such as GPS technology, variable rate remote sensing, yield mapping, and other tools to improve profitability, sustainability, and environmental impact for site-specific crop management. As a result, the focus of the study was on farmers in Ghana. The study looked at the Factors influencing awareness and willingness to adopt precision agriculture technology, namely variable rate remote sensing and yield mapping in Ghana. A cross-sectional survey was conducted among 122 farmers selected using multi-stage sampling in Ghana’s two farming regions, Bono East and Bono, from March to May 2022. Descriptive analysis and binary logistic regression were used to determine the factors influencing the willingness to adopt precision agriculture technology in Ghana. The descriptive analyses show that farmers in Bono (63%) were willing to adopt precision agriculture as against the Bono East region (37%), (85%) of male farmers were willing to adopt than female farmers (15%). The regression results show that years in farming, landownership type, and source of funds positively affect willingness to adopt precision agriculture technology ($p < 0.001$, $p < 0.01$, $p < 0.1$, respectively), and age negatively affect willingness to adopt precision agriculture technology ($p < 0.1$). Based on our findings, the study recommended, among others, the need to create awareness among farmers and other major stakeholders of the potential benefits of precision agriculture technologies in Ghana.

Keywords: Adoption, precision agriculture, technology, willingness