



Market Penetration and Financial Benefits of Precision Agriculture Technologies Among Kenyan Maize Producers: Dynamics of Adoption

Wambugu Waiyega^{1,2}, Chepkoech Kiprotich^{3,4}, Odhiambo Okoth^{1,2}

¹ International Centre of Insect Physiology and Ecology (ICIPE), Nairobi

² Maseno University

³ Department of Interdisciplinary Studies, Maseno University

⁴ Department of Advanced Studies, Kenyatta University

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Correspondence: wwaiyega@aol.com

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Author notes

Wambugu Waiyega is affiliated with International Centre of Insect Physiology and Ecology (ICIPE), Nairobi and focuses on African Studies research in Africa.

Chepkoech Kiprotich is affiliated with Department of Interdisciplinary Studies, Maseno University and focuses on African Studies research in Africa.

Odhiambo Okoth is affiliated with International Centre of Insect Physiology and Ecology (ICIPE), Nairobi and focuses on African Studies research in Africa.

Abstract

Precision agriculture technologies are increasingly being adopted by farmers in Kenya to enhance crop yields and reduce costs. A mixed-methods approach was employed, including surveys and interviews with farmers to gather data on technology use and economic outcomes. Market penetration of precision agriculture technologies reached 35% among surveyed farmers in the study area. Farmers reported an average 20% increase in maize yields and a 15% reduction in input costs. The adoption of precision agriculture technologies is associated with significant economic benefits for Kenyan maize producers, warranting further policy support to facilitate wider uptake. Government policies should prioritise research on precision agriculture technologies and provide financial incentives to encourage their use by smallholder farmers.

Keywords: *Geographic, Sub-Saharan, Precision Agriculture, Adoption Studies, Integrated Farming Systems, Participatory Rural Appraisal, Cost-Benefit Analysis*

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