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"Solidarity in a competing world — fair use of resources"

Understanding System Innovation Adoption: Analysis of Integrated Soil Fertility Management Uptake in Ghana and Kenya

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Abstract

Sustainable intensification for improved productivity in African farming systems has been high on the agenda of research and development programs for decades. System innovations such as integrated soil fertility management and conservation agriculture have been proposed to tackle the complex challenges farmers face. In this study, we assess how different factors at the plot and farm level influence the adoption of integrated soil fertility management. We employed a stratified sampling approach to randomly select 285 and 300 farmers in Tamale, northern Ghana, and Kakamega County, western Kenya, respectively. These two sites were selected to understand the underlying reasons for their divergent adoption levels. Ordinal regression models were used to estimate adoption. In Tamale 5 % and in Kakamega 36 % of the farmers adopted improved seed and fertiliser whereas 3 % and 8 % of the respective farmers adopted improved seed, fertiliser, and the application of organic soil amendments. Lastly, improved seed, fertiliser, organic amendments, and local adaptation were adopted by 3 % of Tamale and 36 % of Kakamega farmers. Plot level variables such as soil carbon, clay content and pH had a significant effect on adoption at both sites. Among farm and household characteristics, number of adults, off-farm occupation, education, age of household head and livestock ownership significantly affected integrated soil fertility management adoption. The analysis infers that partial adoption predominates in Tamale, whereas Kakamega farmers opted for complete adoption of innovation packages. Key policy recommendations include improved access to credit for both sites as well as enhanced access to improved seeds in Tamale.

Keywords: Complete adoption, Integrated Soil Fertility Management (ISFM), partial adoption, system innovations

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