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Adoption and Profitability of Agroforestry-Based Soil Fertility Management Technologies

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Abstract

In southern Africa, the poor soil fertility status and shortening natural fallow period constitute major challenge in meeting the food needs of the people. In response to this challenge, improved fallow was developed as a sustainable option. Farmers have been testing the technology and a number of empirical studies have been undertaken over the years to identify the factors influencing farmers' decision to adopt the technology. This paper presents the financial analysis of AF-based soil fertility technologies with conventional practices of continuous farming with and without inorganic fertilizer. It also synthesis the results of adoption studies and highlights generic issues on the adoption of improved fallows. Financial analysis of the technologies in the South Africa region shows that AF technologies give higher financial returns than continuous (maize) production without fertilizer. The synthesis indicates that farmers' adoption decision is not influenced by technological characteristics exclusively, but by a matrix of several hierarchies of different factors including household characteristics, community level factors, socio-economic constraints and incentives that farmers face, access to information, local institutional arrangements and macro policies on agriculture. Adoption of AF-based technologies is not strictly a binary choice problem but a continuous process in which farmers occupy a position along a continuum in the adoption path. Further, adoption of improved fallows may not take place in a policy vacuum but needs to be facilitated by appropriate and conducive policy and institutional framework. The paper concludes by identifying emerging issues and questions for further analysis in the efforts to improve our understanding of the processes underlying the adoption of sustainable soil fertility technologies.

Keywords: Adoption, natural resource management, soil fertility, Southern Africa, sustainable agriculture

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