Deutscher Tropentag, October 9-11, 2002, Witzenhausen

"Challenges to Organic Farming and Sustainable Land Use in the Tropics and Subtropics"

Determinants of Manure Use in Crop Production in Northern Guinea Savannah Zone of Nigeria

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Abstract

Soil nutrient depletion in very high in the Northern Guinea Savanna (NGS) agro-ecological zone of Nigeria due to intensive farming and inappropriate application of fertilizers causing negative balance in soil nutrients. The inappropriate management of soil fertility is a serious problem that threatens the sustainability of agriculture in zone. While the use of organic soil amendments in combination with inorganic fertilizers have been identified to be more sustainable, it is still not widespread among farmers in the NGS. Promoting the adoption of organic soil amendment methods requires knowledge about farmers' characteristics and the factors affecting farming. A survey of 400 farmers selected in Kaduna State, in northern Nigeria using a stratified random sampling technique was undertaken to assess the factors that influence the adoption of manure use in crop production. The Tobit regression analysis was used to model the factors. From the sample, 61 % did not adopt the use of manure while 39 % did. Among the adopters, 86.9 % practiced mixed farming, while 26.9 % belonged to farmers' cooperative societies. Also, 72.7 % of the respondent had easy access to the fertilizer market.

The Tobit regression analysis showed that membership of cooperative society, livestock ownership, practice of mixed farming, and inaccessibility to inorganic fertilizer significantly influenced the adoption and use intensity of manure. The elasticity estimates showed that 56 % of the total change in manure use intensity would come from marginal changes in the characteristics of adopters, farming method, as well as, membership in a cooperative society. Easy access to and, the low cost of inorganic fertilizer, militate against the adoption of manure use in crop production by farmers. The use of manure by farmers will improve significantly, especially through increasing farmers' awareness of the beneficial effects of manure, better on-farm manure management and inclusion of livestock in farm enterprises.

Keywords: Adoption, elasticity, inorganic fertilizer, manure, Nigeria, use intensity Tobit

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