

Assessment of smallholder farmers' perception, access to extension services and willingness to pay for integrated pest management strategy: the case of Margibi County, Liberia

Togba V. Sumo

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Supervisors

1. Dr. Cecilia Ritho - Department of Agricultural Economics, UON
2. Dr. Patrick Irungu - Department of Agricultural Economics, UON

Thesis Abstract

The low productivity of the agricultural sector in Liberia raises serious concern and motivates the search for the various factors explaining the poor performance. Poor performance of the extension system and loss of attainable crop yields to insect pests by the smallholder farmers are two key factors likely to explain the unsatisfactory performance of the agricultural sector. Given the increasing global population and resulting increase in food prices, there is need to determine the causes of low yields in order to increase the domestic supply of food, reduce poverty and improve rural livelihood. The study therefore evaluated smallholder rice farmers' perception and access to extension services and estimated the willingness to pay (WTP) for Integrated Pest Management strategy and the factors likely to explain its variation among farmers. The specific objectives of the study were three. First, to assess farmers' perception of extension services provided by Non Governmental Organizations (NGO) and the factors influencing that perception. Second, to determine the factors influencing farmers' access to extension services, and the intensity of use of those services. Third, to estimate farmers' WTP for IPM strategy and the factors explaining its variation. A multi-stage sampling technique was used to sample 296 smallholder rice farmers in the Gibi District of Liberia. Cross-sectional data was collected using

a questionnaire coded in Open Data Kit software administered by enumerators in face-to face interviews.

Descriptive statistics and Ordinary Least Squares (OLS) regression were used to assess variation in farmers' perception and the factors explaining the variation. Heckpoisson model for endogenous sample selection was used to analysis factors influencing farmers' access to extension services and the intensity of use. The Double-Bounded model was used to estimate the mean WTP for IPM strategy and its determining factors. The OLS model results showed that off-farm income, farm size, land ownership, number of trainings and fertilizer had positive and significant influence on perception, while distance to market had negative significant influence. The result of Heckpoisson model indicated that monthly farm income, rice market participation, awareness of extension services and access to credit influenced farmers' access to extension services, while gender, production of cash crops, access to improved seeds and awareness of extension services influenced the intensity of access. The mean WTP estimate showed that farmers were willing to pay 2,190.28 Liberian dollars (US\$12.48) for training in an IPM strategy. The Double-Bounded model results indicated that age of household head, monthly farm income, perception score, group membership, years of schooling, mobile phone ownership, access to credit and access to input markets were the factors influencing WTP. The mean WTP amount is an indication that the farmers are in need of interventions that will help minimized the crop losses. The study therefore recommends a multi-stakeholder partnership approach to address the problems affecting the agricultural sector to resuscitate its productive potential by increasing public expenditure on research in agriculture, strengthening in-country research-extension linkages and awareness of programs among farmers. It should also build the capacity of extension personnel and rehabilitate farm to market roads to facilitate the dissemination and uptake of modern technologies and practices to farmers.

Keywords: Agricultural Extension, Double-Bounded, Heckpoisson, IPM, Willingness to pay