

Economic Analysis of Land Improvement Techniques in Smallholder Yam-Based Production Systems in the Agro-ecological Zones of Southwestern Nigeria

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KEYWORDS Land Improvement. Techniques, Economics. Smallholder. Yam, Ecology

ABSTRACT For increased crop productivity and sustainable resource management within the practical scope of small-scale farming systems, there is need for a clear understanding of the problems associated with land use and management practices employed by farm operators. This paper examines smallholder yam-based production systems in the rain forest and savannah agro-ecologies of Southwestern Nigeria to determine the net returns to the use of land improvement techniques, their effect and that of farmers socioeconomic characteristics on net returns, and to identify major constraints and requirements for enhanced yam production and sustainable use of the land resource. With the aid of multi-stage sampling technique, primary data were collected from 200 yam farmers using structured questionnaire. Focus group discussions were also conducted. Data were analysed with descriptive statistics, costs and returns analysis as well as multiple regression techniques. Major land improvement techniques used by respondents in the study area include mulching, bush fallow, inorganic fertilizer, organic manure and crop rotation. Costs of yam setts constituted more than 60% of the total variable cost, while labour was about 30% for all land improvement techniques in the two agro-ecologies. However, per hectare yield and profitability of inorganic fertilizer in yam production were significantly higher in the savannah zone. Regression results revealed that the effect of land improvement techniques on net returns to yam production, as well as the profitability of each technique varied by agro-ecology. Thus, designing strategies for improved yam production have to be location-specific, while use of inorganic fertilizer and its combination is more profitable in the savannah zone. Research studies and extension services should therefore consider ecological differences in providing relevant information to farmers on the use of appropriate land improvement techniques for sustainable food production.