

Sustainability of paddy-maize rotation in Anuradhapura District, Sri Lanka

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Abstract

Sustainable agricultural practices are important to enhance food productivity, improve soil fertility and protection, strengthen capacities of farmers and to enhance the wellbeing of agrarian communities. Even though paddy and maize are major cereal crops cultivated in the dry zone farming systems, the majority of farmers face difficulties due to unfavorable weather conditions, reduction in soil fertility, market fluctuations and unsteady government policies and regulations. In this scenario, assessment of the sustainability of paddy-maize rotation farming system is important to stress its prevailing problems. This study attempted to assess the sustainability of paddy-maize rotation farming system through developing indices for economic, social and environmental sustainability in Anuradhapura district. Three stage Stratified Random Sampling Method was utilized to select 100 farmers involved in paddy-maize rotation farming system. A pre-tested questionnaire was used in the survey to collect data. Descriptive analysis and multiple linear regression were used to analyze the data. Total Sustainability Index (TSI) was utilized to determine the sustainability of the system by considering Economic Efficiency Index (EEI), Social Security Index (SSI) and Environmental Security Index (ESI). Results revealed that majority of the respondents were male (99%) and have completed their secondary education (57%). Respondents who belonged to middle age category (mean age; 50 years) were engaged in farming as primary occupation (89%) and also self-employed (16%) as a secondary occupation. Average cultivated land extent for paddy and maize were 4.1 and 2.9 acres respectively. Consequently, average annual agricultural income of a farmer was Rs.166, 770.00 (per acre) and annual non- agricultural income was Rs.138, 576.00. According to the TSI value, 83% of the farmers were sustainable and 17% of the farmers were vulnerable. Regression results revealed that total agricultural income per acre, distance to public infrastructure, agrochemical usage per acre and level of integrated pest management practices significantly ($p < 0.05$) influenced the sustainability of paddy-maize rotation farming system. The study concludes that paddy-maize rotation farming system is sustainable. However, appropriate sustainable agricultural practices, farmer awareness programmes, subsidies, extension services and steady government interventions are essential for further development.

Keywords: *Farmers, Paddy-maize rotation farming system, Sustainability*

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