

Sustainable Soil Management Practices in Small Farms of Southern Nigeria: A Poultry-Food Crop Integrated Farming Approach

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Abstract

A major reason given for the decline in per capita food production in Nigeria over the last two to three decades is the gradual decline in land productivity. Available information shows that in southern Nigeria, for example, there was recorded a consistent decline in yield per hectare of major food crops between 1995 and 2000. Evidence from the literature suggests that the main reason for this persistent decline in soil productivity is the perpetuation of unsustainable soil management practices by small food crop farmers that dominate the food production landscape in the country. This study therefore sets out to find out whether the adoption of a poultry based integrated food crop production system is economically viable in southern Nigeria. This is predicated by the fact that the environment in the southern part of Nigeria is well adapted for poultry production. Primary data was collected in Edo state, southern Nigeria, through a sample survey using a well structured questionnaire. A total of 94 poultry-based integrating farmers was selected using a combination of stratified and systematic random sampling procedure. A Linear Programming (LP) model was used to analyze and determine the optimal enterprise combination that maximizes the dual objectives subject to the production constraints of the small farms. The result shows that the dual objectives of maximizing Total Gross Margin (TGM) and simultaneously ensuring sustainable soil management practices was possible under full integration of poultry-food crop production. The results of the study suggest that a poultry-based integrated food crop production system, if given more attention by farmers and backed up by policy, may be an acceptable and feasible way of stemming the declining trend in soil productivity in southern Nigeria.

Keywords

Sustainable agriculture; mixed farming; linear programming; small-scale farmers; farm-plan; poultry food crop system