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Prospects of Organic Farming among Yam Farmers in Ebonyi State Nigeria

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Abstract

This study meticulously examined the interest in organic agriculture in yam cultivation within Ebonyi State, a region heavily reliant on agriculture in Nigeria. The research delineated the organic farming practices used by yam cultivators, evaluated their understanding of organic farming principles, and gauged their willingness to embrace organic methodologies. A randomized sampling technique was employed to select and interview ninety yam farmers from three local government areas, each representing one of the three agricultural zones within the State. A well-structured questionnaire was utilized to obtain data regarding the socioeconomic characteristics of the farmers, their farm attributes, and their knowledge of organic farming systems. Descriptive statistics were applied to elucidate the farmers' practices, their understanding of organic farming, and the associated attributes, alongside the challenges they encounter. A logistic regression model was employed to analyze the factors influencing the use of organic farming among yam farmers. The logistic regression analysis revealed that the gender of the farmer, their awareness of organic farming, participation in agricultural training initiatives, and the practice of renting land for cultivation significantly enhance the likelihood of accepting to use organic farming practices. The findings from the descriptive analysis indicated that the predominant obstacles to organic farming include insufficient governmental support, exorbitant costs of organic inputs, limited access to essential resources, modest farm income, lack of knowledge, inadequate farm size, and the scarcity of livestock. Consequently, the study advocates for enhanced support from local government bodies to promote organic farming practices; strategic encouragement for women and youth to engage in agricultural innovations by facilitating their access to training and low-capital-intensive systems; and the establishment of community-level government initiatives aimed at optimizing the use of all arable land while providing affordable land options for agricultural endeavours.

Keywords: Organic farming; Land use; Willingness to accept; Farming systems

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Introduction

Organic agriculture is increasingly regarded as a sustainable alternative to conventional farming in Nigeria, particularly for staple crops such as yam. The reliance of conventional yam cultivation on synthetic fertilizers and pesticides has precipitated environmental degradation and posed significant health risks, whereas organic practices present promising opportunities for enhanced sustainability (Idowu et al., 2024; Oyinloye et al., 2021). Organic agriculture presents a compelling avenue towards sustainability; however, its widespread adoption is impeded by challenges pertaining to productivity, farmer education, and access to resources (Oyetunde-Usman et al., 2020). Despite the potential advantages of organic agriculture, a substantial knowledge and awareness deficit persists among yam farmers concerning sustainable farming practices (Adebiyi & Olabisi, 2022). Inadequate access to extension services, agricultural training, and technical support significantly impedes farmers' ability to adopt and implement organic farming methodologies (Oyetunde-Usman et al., 2020). Moreover, prevalent misconceptions and skepticism regarding the efficacy and profitability of organic agriculture may dissuade farmers from pursuing alternative farming strategies (Adebiyi & Olabisi, 2022). Understanding this knowledge deficiency and

enhancing awareness of the benefits of organic yam farming are imperative for facilitating the transition towards sustainable agriculture in Ebonyi State. Therefore, this research is aimed at assessing the prospective use of organic farming practice by yam farmers in Ebonyi State Nigeria.

Methodology

The study was done in Ebonyi State. It is one of the States in the southeastern region of Nigeria located within the geographical coordinates between latitudes 5°40′N and 6°54′N and longitudes 7°30′E and 8°30′E (Onuoha et al., 2020). Majority of individuals within the working age in the state are involved in some form of agricultural activity such as rice, yam, cassava, sweet potato, groundnut, maize or vegetables cropping. A multi-stage sampling procedure which involved the use of purposive and random sampling methods, was used to eventually select 90 yam farmers from three local government areas across of the three agricultural zones of the state. Data was collected using well-structured questionnaires supported with farmer interviews. Data obtained were analysed using descriptive statistics and logistic regression model.

Results and Discussions

Practice of Organic Farming

The yam farmers were assessed for their practice of organic farming by adapting questions on plant production from the Revised Organic Agriculture Standard in Nigeria. The results as shown on Figure 1, revealed that only about 11% of the yam farmers in the study area practiced organic farming system.

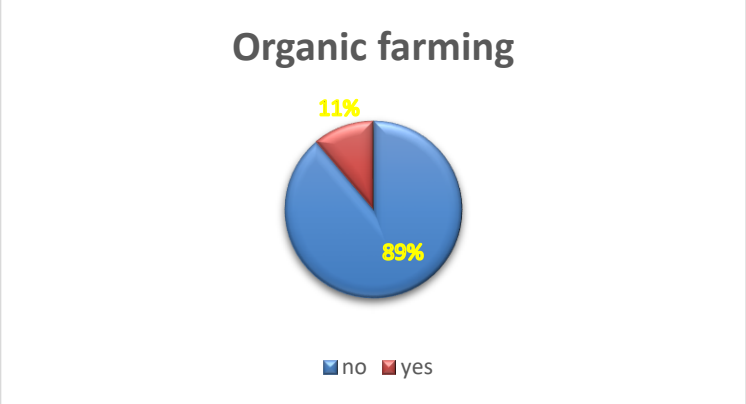

Figure 1. Distribution of Farmers Practicing Organic farming in the Study Area

This finding indicates the low-level application of organic farming often reported for the region despite the perceived environmental benefits. This could be related to gap in yield and productivity often between conventional and organic farming, considering the lower intensity of land use in adopting organic farming, and the difficulties of transition from conventional to organic (Alvarez, 2021).

Farmer Knowledge of Organic Farming

Table 1 shows a cross-tabulation of yam farmer awareness of organic farming techniques and their access to training on organic farming. The table showed that 34% of the farmers had access to training on organic farming, and expectedly a larger proportion of farmers (85%) who had no knowledge of organic farming also had no training on organic farming. These results tend to emphasize the link between access to training and knowledge of organic farming. Studies indicate that farmers who engage in organic farming training programs are markedly more inclined to adopt organic practices, as these initiatives enhance their comprehension of the associated benefits and furnish the requisite skills for effective implementation (Sapbamrer & Thammachai, 2021; Swenson et al., 2021). It reveals that the pathway towards creating a positive change in the farmer use of organic farming system is through creating awareness and training to improve their knowledge.

Table 1: Farmer knowledge and training on organic farming

	Training on Organic farming		
Aware of Organic farming	yes	no	**Total**

Yes	29 (38%)	48 (62%)	**77 (100%)**
No	2 (15%)	11 (85%)	**13 (100%)**
Total	**31 (34%)**	**59 (66%)**	**90 (100%)**

Source: Authors computation from survey data

Factors Influencing the Willingness to Accept Organic Farming

The willingness to accept organic farming for the yam farmers was computed via a set of questions concerning what incentives (financial support, training programs, access to organic inputs, organization of markets for organic products and government policies on organic products) will motivate the farmers to accept the organic farming system in their yam farm production activities. The analysis showed that, 46% of the yam farmers in the study area are willing to accept the organic farming system. The less than 50% acceptance may be related to various issues including the access to organic inputs, organic fertilizers and bio-pesticides due to costs, quality and limited availability in developing regions (Manikandan et al., 2025). Thus, the importance of a confirmatory analysis to better understand the peculiar driving factors for the willingness to accept organic farming by the yam farmers in Ebonyi State.

The factors influencing the willingness to accept organic farming were examined using the logistic regression method, and the results are presented in Table 2. The log-likelihood of -35.16, the pseudo R-square of 0.4332 and the likelihood ratio chi square statistic of 53.74 (significant at 1% level), implies that the overall model is fit and the explanatory variables used in the model were collectively able to explain the yam farmers willingness to accept organic farming in Ebonyi State.

Table 2**:** Logit estimates of the factors influencing the willingness to accept organic farming

Variables	**Coefficient**	**Z-value**	**Marginal effect**
Gender (male=1)	1.723132*	1.80	0.2165491
Rented land	2.499394***	3.23	0.3141033
Participation in agricultural training	2.090649***	2..69	0.2627356
Main source of livelihood			
- Farming	-0.0797008	-0.03	-0.0099752
- Government employee	0.5344457	0.19	0.0685885
Ownership of tricycle	-3.558801**	-2.54	-0.447241
Borrowed funds	-2.053383**	-2.55	-0.2580524
Aware of organic farming	2.605664**	2.10	0.3274585
Compost manure use			
- 2years ago	-0.4091078	-0.51	-0.0569741
- 3years ago	-2.343091	-1.58	-0.2821415
- Not used	2.401846	1.11	0.3116245
log yearly yam revenue	-0.6557566*	-1.84	-0.0824101
log monthly food expenditure	-0.0371152	-0.09	-0.0046643
Constant	3.870127	0.58	
LR Chi^2 (13)	53.74		
Number of observations	90		
Prob > chi2	0.0000		
Log likelihood	-35.156656		
Pseudo R^2	0.4332		

Note: ***Significant at 1% level; **Significant at 5% level; *Significant at 10% level

Source: Authors computation from survey data

Based on the marginal effects value, Table 2 elucidates that the presence of a male yam farmer enhanced the probability of embracing organic farming by 21.6% in comparison to a female yam farmer. A one Naira increment in annual revenue derived from yam farming diminished the farmer's willingness to accept organic farming practices by 8.24%. Furthermore, an increase of one hectare in rented land within the study area can be attributed to a 31% increase in the willingness to accept organic farming among yam farmers as opposed to non-renters. Additionally, a rise in the number of farmers cognizant of organic farming amplified the likelihood of acceptance by 26% among yam farmers. Participation in agricultural training similarly increased the willingness of yam farmers to accept organic farming practice by 31%. Conversely, the results presented in Table 2 indicated that yam farmers who owned a tricycle were approximately 45% less likely

to embrace organic farming. Likewise, an increase in the amount borrowed for yam farming was related to an approximate 25% reduction in the farmers' willingness to accept organic farming. These socioeconomic and farm-related factors are important determinants which can either encourage or discourage yam farmer willingness to accept organic farming and are consistent with (Sapbamrer & Thammachai, 2021; Ume et al., 2023).

Conclusion and Outlook

The practice of organic farming among yam farmers in the study area, a key agrarian State in Nigeria, is shaped by a complex interplay of gender, income, land tenure, knowledge, training, and asset ownership. Bridging the knowledge and awareness gap through improved information systems, targeted trainings, and supportive policies which removes financial constraints is essential for increasing the practice of organic yam farming systems.

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