

Socio-Economic Factors Influencing Urban Households' Engagement in Sack Farming Practices in Umuahia North Local Government Area of Abia State, Nigeria

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Abstract

Urban households in Nigeria are faced with challenges of land availability leading to low production of crops. Hence, this study was undertaken to analyze determinants of urban households' engagement in sack farming in Umuahia North Local Government Area of Abia State, Nigeria. This research specifically, described socio-economic characteristics of urban households; ascertained level(s) of urban households' engagement and examined constraints to engaging in sack farming in the study area. Multistage random sampling procedure was used to select sixty (60) urban households. Structured questionnaire was used to elicit information from respondents and results analyzed using both descriptive statistics (frequency counts, mean scores and percentages); inferential statistics (multiple regression analysis). Socio-economic characteristics result revealed that they had a mean age of 45.86 years, means household size of 5 persons, mean farming experience of 15 years, grew crops in mean sack bags of 63 with mean monthly extension contact of 1.5 visits. Urban households had high engagement ($\bar{x}=3.1$) and high constraint ($\bar{x}=2.0$) in sack farming practices. Multiple regression analysis results showed that coefficients for age (-0.0245), household size (0.6645), farming experience (0.0234), number of sack bags (0.0225) and extension contact (0.5853) influenced urban household engagement in sack farming practices. The study therefore recommended need to strengthen agricultural extension and training programmes, access to essential inputs such as sack bags and improved seeds in order to facilitate urban households' engagement in sack farming practices in the study area.

Key words: socio-economic, determinants, sack, farming, urban households

Introduction: Urbanization experienced due to high population growth in developing countries has affected food availability and caused food insecurity, especially in urban and peri-urban areas where the demand for food is increasing while the capacity to produce it diminishes (Nyong et al (2022); Atanda et al., (2024). As reported by Agbaji, (2024), the World population continues to grow; problems of hunger, malnutrition and climate change need urgent attention. The strategy that tends to bridge this gap is sack farming. Sack farming is a unique urban agricultural practice that uses sacks to grow crops in spaces where traditional land-based farming is not viable. This method offers an alternative to conventional farming, which is increasingly constrained in cities like in the study area, where land scarcity, and urban pressures pose significant barriers to food production. According to Nwaekpe, (2014), Noba Africa (2024), people who reside in urban areas live in own building or rented houses are subjected to undertake sack farming. They can grow vegetables in sacks or containers on verandahs, either for household consumption or for marketing to enable them earn extra income. The engagement of sack farming practices would help increase food security of urban households, where people can grow crops in their surroundings with bags or containers filled

with fertile soil. As urbanization continues to expand in Nigeria, traditional farming methods cannot meet the food needs of the populace due to limited space and available resources (Nyong et al (2022); (Akinmoladun et al., (2020), Zezza and Tasciotti, (2010). The potential of sack farming to combat urban food insecurity, enhance food production, and promote urban and homestead farming are avenues to encourage residents to practice it (Gbadamosi et al., (2023). In the same vein, Gbenga, (2021) defined sack farming as the growing of crops usually vegetables in soil-filled sacks or polythene bags, containers or plastics and is the best practice because it reduces the limitations and risk encountered by climatic factors, pest and diseases. Additionally sack farming requires less water and fewer pesticides compared to traditional farming methods, making it more sustainable, cost-effective and environmentally friendly. More so, sack farming can also address the challenges of urban employment, by providing opportunities for income generation, through small-scale agriculture, individuals can improve their livelihoods and contribute to local economy. As urbanization continues to expand in Nigeria, traditional farming methods are becoming increasingly challenging due to limited space and resources. However, a growing trend known as sack farming is

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emerging as a viable solution to urban agriculture. Individuals can embark on the innovative method, contributing to food security, sustainability and income generation with urban environments. Based on the perception that sack farming techniques is not cost effective, this has reduced the number of urban households who intend to engage in the practices to make crops readily available for home consumption and as a small scale business (Izuka, 2024).

The increasing number of commercial and industrial activities in urban areas limits the quantity of lands available for crop production even when the demands for food products for consumption and industrial use are far higher in the urban areas. These non-agricultural operations taking place on urban lands leads to land degradation, leaching, and so on, rendering the little available land useless for crop production. This poses challenge to urban farming, limiting those who has the skill and willingness to make a living through urban farming Urban farming is the growing of crops and rearing of animals within the urban and semi urban areas Nyong *et al* (2022); (Noba Africa 2024),. However, urban households is of the belief that sack farming practice is effectively imagined while others are of the view that it not sufficient to provide suitable condition required for their vegetable production due to poor availability resources. Meanwhile urban households in the study area seemed to be faced with the challenge of poor fertile land, space and poor knowledge of the application of recommended practices leading to their low engagement in sack farming which serve as a reliable alternative to traditional farming. The urban and semi urban farmers in the study area seem to experience poor extension education thereby negatively affecting their understanding of the impact and activities involved in the production of crops using sack farming Yakubu *et al.*, (2023).

Despite the proven benefits and contribution of urban farming practices in other parts of the world, the potential of sack farming in Nigeria and Umuahia North Local Government Area remains largely unexplored. It seems their levels of engagement in sack farming practices are yet to be ascertained, hence the need for this study was undertaken to analyze engagement in sack farming among urban households in Umuahia North Local Government Area of Abia State, southeast Nigeria. Describe socio-economic characteristics of urban households; Ascertain level(s) of urban households engagement in sack farming activities; and Examine constraints to engaging in sack farming practices among urban households in the study area. **Hypothesis of the Study** { H_{01} : Socioeconomic characteristics of urban households (gender, age, marital status, household size, education, farming experience, farm size, farm income, occupational status, farm income, non-farm income, access to credit and cooperative membership) do not influence their engagement in sack farming.

Methodology: Study Area and Description: The study was conducted in Umuahia North Local Government Areas. Umuahia North is a Local Government Area of Abia State,

Nigeria. Its headquarters are in the city of Umuahia. The Local Government Area is made up of Umuahia- Ibeku, Umukabia, Umuawa Alaocha, Umuagu, Umuda Isngwu and Ohuhu. The villages in Umuahia North Local Government: Umuahia, Umukabia, Umuawa Alaocha, Amaogwugwu, Umuagu, Umuekwule, Ofeme, Amafo Isingwu, Umuda Isingwu, Umuoriehi, Isingwu Okpuala Amafo Ihungwu, Umuokoro Umuoka Umuda Okorocha and Nkwoegwu. The urban areas of the Local Government Area are; Afaraukwu, Amuzukwu, Ndume, Isieke, Ugba, Nkata, Ossah, Isingwu and Umuagu Abia State Sub-Division, (2024), Chinedu (2014). According to the Federal Republic of Nigeria, the projected population growth of Abia State at 2.6% from 2006 population figure is 10,3157 people National Population Commission (NPC), (2020). The Local Government Area lies between Latitude $5^{\circ}31'29.68''$ N of the Equator and Longitude $7^{\circ}29'40.60''$ E of the Greenwich Meridian. The temperature typically varies from 18.9°C to 30.5°C and is rarely before 15°C above 32.2°C . The climate is classified as tropical. During most months of the year, there is significant rainfall and typically receives about 273,49 mm of precipitation and has 263.53 rainy days (72.2 percent of the time) annually, with Relative Humidity of 75.46 percent. Most of the people in Umuahia North Local Government Area are especially the rural dwellers are engaged mainly in subsistence farming. The major farm crops grown include yam, cassava, cocoyam, rice, maize, plantain, vegetables okra and melon (Umuahia North Local Government Area 2024).

Sampling procedure and Sample Size: Purposively six (6) communities were selected out of the nine (9) urban communities that make up the Local Government Area of the State. Simple random sampling procedure was employed in the selection of ten (10) households to give a total of sixty (60) urban households that were used for the study. Objectives I was realized with descriptive statistics such as; frequency counts, mean scores and percentages, ii and iii were realized using while objective iii was achieved with Likert rating scale

Levels of engagement of urban households in sack farming practices: The levels of engagement of respondents in sack farming practices were measured and rated using a 4-point type rating scale namely; Always=3, Occasionally = 4, Rarely =2 and never = 1. Based on the fourteen (14) sack farming practices available to the farmers, the scores were computed for each engagement strategy by adding the weights of $4+3+2+1 = 10/4=2.5$.

The following decision rules were obtained thus: Mean scores between; 1.00- 1.99 (low), 2.00- 2.49 (moderate), 2.5 and above (high).

Constraints to engagement of urban households in sack farming practices: This objective was measured and rated on a 3- point Likert rating scale of; Severe = 3, mild = 2 and not severe =1. A midpoint was obtained thus; $3+2+1 = 6/3 =2.0$. The following decision rules were adopted. Mean scores between; 1.0 -1.49 = low constraint, 1.50 -1.99 = moderate constraint, 2.0 and above = high constraint

Model Specification: Hypothesis: Socioeconomic characteristics of urban households (gender, age, marital status, household size, education, farming experience, farm size, farm income, occupational status, farm income, non-farm income, access to credit and cooperative membership) do not influence their engagement in sack farming practices in the study area

The hypothesis was tested with multiple regression analysis at 95% confidence level. The four functional forms of regression model viz: linear, semi-log, exponential and Cobb-Douglas were tried. The best fit was chosen as the lead equation based on its conformity with econometric and statistical criteria such as the magnitude of R^2 , F-ratio and number of significant variables.

The four functional forms are expressed as follows:

i. **Linear Function**

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \beta_{12} X_{12} + e_i$$

..... (eq. 1)

ii. **Semi – log function**

$$Y = L_n \beta_0 + \beta_1 L_n X_1 + \beta_2 L_n X_2 + \beta_3 L_n X_3 + \beta_4 L_n X_4 + \beta_5 L_n X_5 + \beta_6 L_n X_6 + \beta_7 L_n X_7 + \beta_8 L_n X_8 + \beta_9 L_n X_9 + \beta_{10} L_n X_{10} + \beta_{11} L_n X_{11} + \beta_{12} L_n X_{12} + e_i$$

..... (eq. 2)

iii. **Exponential function**

$$L_n Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \beta_{12} X_{12} + e_i$$

..... (eq.3)

iv. **Cobb Douglas Function**

$$L_n Y = L_n \beta_0 + \beta_1 L_n X_1 + \beta_2 L_n X_2 + \beta_3 L_n X_3 + \beta_4 L_n X_4 + \beta_5 L_n X_5 + \beta_6 L_n X_6 + \beta_7 L_n X_7 + \beta_8 L_n X_8 + \beta_9 L_n X_9 + \beta_{10} L_n X_{10} + \beta_{11} L_n X_{11} + \beta_{12} L_n X_{12} + e_i$$

..... (eq.4)

Where;

Y = Urban households' engagement in sack farming practices (mean scores)

X_1 = gender (male – 1, female=0)

X_2 =age of respondents (years)

X_3 = marital status (married =1, otherwise = 0)

X_4 = household size (number of people in household)

X_5 = education level (years spent in school)

X_6 = farming experience (years)

X_7 = number of sacks

X_8 = occupational status (farming= 1, otherwise = 0)

X_9 = farm income (₦)

X_{10} = non – farm income (₦)

X_{11} = membership of social organizations (numbers)

X_{12} = extension contact (numbers)

e_i = error term

Results and Discussions: Socio-economic Characteristics of Urban Households: The frequency distribution of urban households according to their socio-economic characteristics is shown in Table 1. Result indicates that the mean age of the respondents was 46 years. Result implied that the respondents were capable of undertaking activities involved in sack farming production activities. The result is in consistent with the finding of Adegoroye *et al.*, (2023) where they observed that farmers' age influences participation and adoption of innovations disseminated by agricultural development agencies. However, the mean household size of farmers was 5 persons. Household size has shown to be a supplier of farm labour in any farming activity. This result is in tandem with the findings of Nyong *et al* (2022); Okoronkwo *et al.*, (2020) as they found that household size determines the farm labour availability in any agricultural operation, thereby reducing cost of hiring labour in any farming activity such as sack farming. The mean farming experience of the respondents was 15 years. The result suggest that farmers were experienced enough to undertake and overcome the risk and uncertainties involved in sack farming, since the technology

is barely new in the study area . Experience gained by farmers in agricultural production activities helps them to bear the risk and uncertainty in cocoa production activities. The result indicate that urban households are well vested in sack farming activities and also suggest positive implication for increased profitability and sustainability because of the number of years spent in sack farming business Olaniyan, and Olayanju (2021). The mean sack used by the respondents was 65 bags. This result agrees with the findings of Yusuf, (2020), reported that the number and size of any farm is a determinant of farm output to be realized from the business. The mean monthly extension contact with cocoa farmers was 1.3 visits. The result suggests that extension of sack farming technology in the study area was not encouraging. Nwaobiala *et al.*, (2023), Nyong *et al* (2022), noted that effective agricultural extension service encompasses the provision of timely information to farmers on any farming technology.

Levels of Engagement of Urban Households in Sack Farming Practices: The distribution of respondents according to their levels of engagement in sack farming

practices is shown in Table 2. The result revealed that respondents had high engagement in sack farming practices in selecting the type of soil used, Manure incorporation, watering with mean ratings of 3.5, sack selection and picking of weeds with mean scores of 3.4 respectively, Crop selection and staking with mean scores of 3.3, crop selection and pruning with mean ratings of 3.2 respectively. However they affirmed that they were highly engaged in time of planting and harvesting with mean scores of 3.1 respectively, mulching and application of pesticides with mean scores of 2.9 respectively, Sterilization of soil ($\bar{x}=2.5$) and a moderate engagement in application of herbicides ($\bar{x}=2.2$). The grand mean engagement score of 3.1 indicate that respondents had high engagement in sack farming practices in the study area. The result corroborates with the findings of [15], as he reported obtained a similar result was reported among household engagement in sack farming practices in developing countries.

Constraints to Engagement of Urban Households in Sack Farming Practices: The distribution of respondents according to their constraints to engagement in sack farming practices is shown in Table 3. Result revealed that the respondents were highly constrained by poor extension service ($\bar{x}=2.4$), low technical know-how ($\bar{x}=2.3$) and limited access to resources (seeds, fertilizers etc.) ($\bar{x}=2.2$). They also averred that they were moderately constrained by climate change effects and limited access to water with mean scores of 1.9 respectively, high cost of materials ($\bar{x}=1.8$), pest and diseases infestation ($\bar{x}=1.7$). The grand mean constraint score of 2.0 showed that the respondents were highly constrained in engagement in sack farming practices in the study area. This result is in tandem with the findings of Osabohien *et al.*, (2022) as they affirmed that these identified constraints affected household engagement in sack farming practices infestation ($\bar{x}=1.7$). The grand mean constraint score of 2.0 showed that the respondents were highly constrained in engagement in sack farming practices in the study area. **Socioeconomic Characteristics of Urban Households (gender, age, marital status, household size, education, farming experience, farm size, farm income, occupational status, farm income, non-farm income, access to credit and cooperative membership) do not influence their engagement in sack farming practices:** The results in Table 4 shows the Ordinary Least Square regression estimates of factors influencing engagement in sack farming practices among the urban households in the study area. The study shows that among the four functional forms estimated, the linear form is chosen as the lead equation based on a high R^2 value, number of significant factors and agreement with a priori expectations. The F-value was highly significant at 1.0% level indicating a regression of best fit. The R^2 value of 0.4815 showed that 48.15% of the variation in the level of engagement in sack farming is explained by the included independent variables. The coefficient for age (-0.0245) is significant at 5.0% level of probability and negatively related with engagement in sack farming activities among the urban households in the study area. This indicates that as age increases, engagement

in sack farming decreases. It also suggests that younger urban household heads are more likely to engage in sack farming than older individuals, potentially due to higher energy levels, greater openness to innovation, or economic necessity. The finding is in consistent with the results of Izuka *et al.*, (2024) as the reported that that young, uneducated and married highly adopted sack farming technology. The coefficient for household size (0.6645) was significantly related with engagement in sack farming activities among the urban households in the study area and positive at 5.0% level of probability. This means that larger households are more likely to be engaged in sack farming due to more available labor or the need to supplement food needs through urban agriculture, thereby reducing household food expenses. However, larger households typically have more household labor that can be deployed for labor-intensive activities like preparing, planting, watering, and managing sack farms. This makes it easier for such households to engage in home-based agricultural practices without the need to hire external labor. According to Nyong *et al* (2022)[Lwasa *et al.*, (2014), urban agriculture often thrives where family labor is available, as it reduces production costs and enhances efficiency, particularly in informal or subsistence-level urban farming systems. Additionally, larger families have greater food consumption needs, which make them more motivated to participate in urban farming to reduce household food expenditure and increase access to fresh produce. McDermott *et al.*, (2016) found that food-insecure urban households with more dependents are more inclined to adopt urban farming methods to mitigate rising food prices and nutritional challenges. Similarly, Food and Agriculture Organization (FAO) (2021) also noted that urban households with larger sizes increasingly turned to backyard and container-based farming methods, such as sack farming, to meet subsistence needs. The coefficient for farming experience (0.0234) is also positive and significant at 1.0% level of probability. This implies that individuals with more farming experience are more inclined to engage in sack farming than their counter of less experience. Experience likely increases familiarity with agricultural practices and boosts confidence in using alternative methods like sack farming. In corroboration with the study, Ayanlade *et al.*, (2022) in their study on adaptation strategies in sub-Saharan Africa found that more experienced farmers were better able to adopt climate-smart practices, including water-efficient and vertical farming methods such as sack farming. More so, Nyong *et al* (2022), Akinbile *et al*, (2021) reported that among urban farmers in Ibadan, Nigeria, those with more years in agriculture were more likely to adopt sack and container farming, largely due to their ability to manage limited space and soil issues more effectively. The coefficient for number of sack bags (0.0225) is positive and significant at 5.0% level, indicating that access to more sack bags increases the level of engagement. This is intuitive as more sacks mean more capacity to grow crops, hence higher participation levels. The outcome is intuitive, as a higher number of available sacks directly translate to greater production capacity, enabling farmers to cultivate more crops within limited spaces. The availability of inputs such

as sacks serves as both a motivation and an enabler for scaling up this form of urban and peri-urban agriculture. Similarly, Urban Agriculture Network UAN (2019) noted that the accessibility of farming tools and inputs plays a critical role in determining the scale and success of climate-smart and resource-efficient agricultural practices. The coefficient for extension contact (0.5853) is highly positive at 1.0% level of probability and significantly related with engagement in sack farming activities among the urban households in the study area. This is showing that households with access to more extension services are more likely to engage in sack farming. Extension services may provide technical support, information, and motivation for urban farming, making them a key driver in promoting sack farming among city dwellers. Nwaobiala *et al.*, (2024) found that there are various extension teaching methods used as tools by the extension worker to effect desirable changes in the behaviour of farmers which include sack farming. The hypothesis which Socioeconomic characteristics of urban households (gender, age, marital status, household size, education, farming experience, farm size, farm income, occupational status, farm income, non-farm income, access to credit and cooperative membership) do not influence their engagement in sack farming practices states that is hereby rejected.

Conclusion and Recommendations : The study concluded that urban households had high engagement and high constraint in sack farming practices. Socio-economic characteristics such as age, household size, farming experience, number of sack bags and extension contact were determinants of urban household engagement in sack farming practices. The study therefore recommended that agricultural extension should be strengthened and access to resources such as sack bags, organic manure and improved seeds were advocated for urban households' engagement in sack farming practices in the study area.

References

- Abia State Sub-Division, (2024). www.citypopulation.de. Retrieved 2024-02-05.
- Adegoroye, A., Olubunmi-Ajayi, T.S., Akinbola, A.E. and Oguntuase, D.T. (2023). Socioeconomic and performance of agripreneurs: A case study of dried melon value chain in Owo local government of Ondo State, Nigeria. *International Journal of Management & Entrepreneurship Research*, 5(12): 851-862.
- Agbaji, C. (2024). How to invest in sack farming agribusiness venture in Nigeria. independent Newspaper 21 June. www.independent.ng. Pp. 2.
- Akinbile, L.A., Salami, A. O. and Ogunniyi, L.T. (2021). Adoption of sack and container farming techniques among urban farmers in Southwest Nigeria. *Nigerian Journal of Agricultural Extension*, 25(2): 45-57.
- Akinmoladun, F. O., Olayanju, A. O. and Adedeji, A. O. (2020). Urban agriculture as a tool for promoting food security in Nigeria. *Journal of Agriculture and Sustainability*, 12(2): 20-32.
- Atanda, T.A. and Sanni, L. (2024). Spatial Analysis of knowledge, awareness and practices of sack farming in Ibadan, Nigeria: Unlocking urban entrepreneurial opportunities. *FUTA Journal of Logistics and Innovation Technology*, 3(1):228-249.
- Ayanlade, A., Radeny, M. and Morton, J. F. (2022). Climate change adaptation strategies by smallholder farmers in sub-Saharan Africa: A meta-analysis. *Climate and Development*, 14(1): 1–15.
- Chinedu, P. (2014). [List of towns and villages in Umuahia North Local Government Area](http://www.nigeriazipcodes.com)". *Nigeria Zip Codes*. Retrieved 2023-08-05.
- Food and Agriculture Organization (FAO) (2021). *Urban agriculture: A sustainable solution to combat food insecurity*. Rome: Food and Agriculture Organization of the United Nations.
- Gbadamosi, K. T and Akanmu, A. A. (2023). Food security and population growth in Nigeria: The urban agriculture perspective. In Olorunfemi Oriola, E. O. and Raheem, U. A. (eds.). *Nigeria perspective to population dynamics and sustainable development*. A festschrift in honour of Professor Olorunfemi Jacob Funsho. Pp. 30-45, Department of Geography, University of Ilorin, Nigeria.
- Gbenga A. (2021). Sack farming technique as elixir for food security. Retrieved on 9/8/2021 from <https://guardian.ng/features/sack-farming-technique-as-elixir-for-food-security/>
- Izuka, C. E; Ibe, V.S.O, Okorie, V.C, Orusha, J.O. and Eje, E. A. (2024). Extension mechanisms for mobilizing urban farmers to adopt sack farming technique for tomato Production in Abia State, Nigeria. *Journal of Advanced Academic and Educational Research*, 14(11): 40 – 50
- Lwasa, S., Mugagga, F., Wahab, B., Simon, D., Connors, J. and Griffith, C. (2014). Urban and peri-urban agriculture and forestry: Transcending poverty alleviation to climate change mitigation and adaptation. *Urban Climate*, 7, 92–106.
- McDermott, M. H., Heltberg, R. and Sabates-Wheeler, R. (2016). The role of urban agriculture in promoting sustainable development. *World development*, 79, 178-191.
- National Population Commission (NPC), (2020), The estimated population census figures for Nigeria and the Thirty-six states. Federal capital territory Abuja, Nigeria.
- Noba Africa (2024). Enhancing the food system in Africa. Sack farming: a cost effective solution to urban agriculture in Nigeria. <https://nobafrica.com>. Published August 19, 2024
- Nwaekpe, J. O., Anyaegbunam, H. N., Asumugha, G. N., Ekwe, K. C. and Okoye, B. C. (2014), Challenges to the effectiveness of extension methods adopted by national root crops research institute for agricultural technology dissemination in southeast Nigeria. Proceedings of the 48th annual conference of the agricultural society of Nigeria, "Abuja" 2014 Pp.93 – 97.
- Nwaobiala, C.U., Ahamefule, B.A. and Onwukwe F.O. (2024) Assessment of knowledge of post-harvest management practices among Farmers In Rice Producing Areas Of Abia State, Nigeria. Proceedings of the Maiden Research and Innovation Fair and Conference held at Michael Okpara University of Agriculture, Umudike Abia State, Nigeria between April, 24th –28th Pp. 335-341.
- Nwaobiala, C. U., Uzochukwu, M. C. and Chukwu, J. (2023). Socio-economic determinants of cassava farmers' participation in USAID/MARKETS II programme development in Akwa Ibom State, Nigeria. *Journal of Agripreneurship and Sustainable Development*, 6(1):202 – 212.
- Nyong Eteyen, Chukwumati, J. A and Matthew Ekaette (2022) "Economic Analysis of Rice Production in Ini Local Government of Akwa Ibom State, Nigeria", *Journal of Nigerian Environmental Society (JNES)*SSSN: 2602-28491, Vol.9, No5, June, 2022, P123-128.
- Okoronkwo, P.C., Onyeze, C.N. and Ezike, K. (2022). The effect of advanced agricultural technology on members and non-members of cassava producer cooperatives in Imo State, Nigeria. *IAA Journal of Social Science*, 8(1):103-124.

Olaniyan, O. A. and Olayanju, A. O. (2021). Urban agriculture in Nigerian cities: Opportunities and constraints. *Urban agriculture and regional development*, 15(4): 233-250.

Osabohien, R., Okorie, U., and Nwosu, E. O. (2022). Climate-smart agriculture and resource access among smallholder farmers in Africa. *Agriculture and Food Security*, 11(1): 1-12.

Umuahia North Local Government Area (2024). Description of the area. Retrieved February, 2024. *Wikipedia* <https://en.m.wikipedia.org>

Urban Agriculture Network UAN (2019). Urban farming. Retrieved 12/2/23 from <https://www.cityfarmer.org/TUAN.html>.

Yakubu, D. H., Ali, M. B., Mohammed, F. A., Oduehie, T. C., Muhammad, M. B., Usman, Z. A. and Luka, M. (2023). Gender access to agricultural land among groundnut farmers in Agwara Local

Government Area of Niger State, Nigeria. Contemporary Sociological contexts of the Nigerian food system Proceedings of the 32nd Annual National Congress of the Rural Sociological Association of Nigeria (RUSAN) held at Usmanu Danfodiyo University, Sokoto (UDUS) Between 30th October and 3rd November 2023. Pp. 148 – 151

Yusuf, M. (2020). Sack farming technique: *Alternative to traditional farming techniques Miner; Mageji Ltd.*

Zeza, A. and Tasciotti, L. (2010). Urban agriculture, poverty, and food security: Empirical evidence from a sample of developing countries. *Food Policy*, 35(4): 265-273.



Photo 1: Showing crops grown in sack bags around urban household surroundings in the study area

Table 1: Socio-economic characteristics of urban households in the study area

Variables	Frequency (n=60)	Percentage (%)	Mean ($\bar{x}$)
Age (years)			
15 – 25	5	8.33	46
26 – 35	6	10.00	
36 – 45	17	28.33	
46 – 55	22	36.67	
56 – 65	10	16.67	
Household size (numbers)			
1 – 3	11	18.33	5.0
4 – 6	36	60.00	
7 – 9	13	21.57	
Farming experience (years)			
1-10	28	46.67	15
11-20	21	35.00	
21-30	7	11.66	
31 – 40	8	5	
40 – 50	1	1.67	
Number of sack bags			

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1-50	36	60.00	63
51-100	8	13.33	
101-150	9	15.00	
151-200	7	11.67	
Extension contact (number of visits)			
Weekly	4	6.67	1.3
Fortnightly	12	20.00	
Monthly	11	18.33	
No contact	33	55.00	

Source: Field Survey, 2025

Table 2: Distribution of respondents according to their levels of engagement in sack farming practices

Sack Farming Practices	Always	Occasionally	Rarely	Never	Total	Mean	Decision
Sack selection	29(116)	27(81)	2(4)	1(1)	202	3.4	High
Type of soil	37(148)	17(51)	5(10)	1(1)	210	3.5	High
Sterilization of soil	10(40)	18(54)	27(54)	3(3)	151	2.5	High
Crop selection	31(124)	18(54)	6(12)	5(5)	195	3.3	High
Manure incorporation	40(160)	14(42)	2(4)	4(4)	210	3.5	High
Time of planting	25(100)	24(72)	6(12)	4(4)	188	3.1	High
Watering	35(140)	22(66)	2(4)	0(0)	210	3.5	High
Hand picking of weeds	33(132)	20(60)	5(10)	1(1)	203	3.4	High
Mulching	21(84)	22(66)	10(20)	7(7)	177	2.9	High
Application of herbicides	8(32)	8(27)	28(56)	14(14)	129	2.2	Moderate
Application of pesticides	7(29)	34(102)	13(26)	16(16)	172	2.9	High
Pruning	22(88)	30(90)	7(14)	2(2)	194	3.2	High
Staking	32(128)	22(66)	1(1)	4(4)	199	3.3	High
Time of harvesting	28(112)	18(54)	9(18)	4(4)	188	3.1	High
Total Mean ($\bar{X}$)						43.76	
Grand Mean ($\bar{X}$)						3.1	High

Source: Field Survey, 2025

Table 3: Distribution of respondents according to their constraints to engagement in sack farming practices

Constraints	Very Serious	Serious	Not Serious	Total	Mean	Decision
Low technical know-how	27(81)	24(48)	9(9)	138	2.3	High
Poor extension service	30(90)	22(44)	8(8)	142	2.4	High
Climate change effects	17(51)	20(40)	23(23)	114	1.9	Moderate
Pest and diseases infestation	8(24)	27(54)	225(25)	103	1.7	Moderate
Limited access to water	16(48)	27(54)	16(16)	118	1.9	Moderate
Lack of funds	27(81)	15(30)	18(18)	129	2.1	High
High cost of materials	16(48)	19(38)	25(25)	111	1.8	Moderate
Limited access to resources (Seeds, bags, fertilizers etc.)	25(75)	21(44)	14(14)	131	2.2	High
Total Mean ($\bar{X}$)					16.3	
Grand Mean ($\bar{X}$)					2.0	High

Source: Field Survey, 2025

Table 4: Multiple regression estimates of socioeconomic factors Influencing engagement in sack farming practices among urban households in the study area

Variables	Parameters	Linear+	Semi-log	Double log	Exponential
Sex	β_1	0.1619 (0.09)	0.0093 (0.21)	0.0018 (0.04)	-0.1509 (-0.08)
Age	β_2	-0.0245 (-2.99)**	-0.0004 (-0.17)	0.0129 (0.14)	0.0883 (0.02)
Marital status	β_3	0.2288 (0.74)	0.0055 (2.11)*	0.0063 (3.61)**	0.2614 (2.24)*
Household size	β_4	0.6645 (2.88)**	0.0154 (0.02)	0.0495 (3.86)***	2.1154 (3.52)**

23 Socio-Economic Factors Influencing Urban Households' Engagement in Sack Farming Pracyices in Umuahia North Local Government Area of Abia State, Nigeria

Education	β_5	-0.0855 (-0.19)	-0.0019 (-0.18)	-0.0229 (-0.16)	-0.9404 (-0.16)
Farming experience	β_6	0.0234 (3.96)***	0.0007 (0.29)	-0.0045 (-0.16)	-0.1735 (-0.15)
Occupation	β_7	0.8930 (0.55)	0.0208 (0.52)	0.0157 (0.38)	0.6452 (0.39)
Number of sack bag	β_8	0.0225 (2.73)**	-0.0005 (-1.74)*	-0.0362 (-1.77)*	-0.1491 (-1.79)*
Annual farm income	β_9	-3.72e-06 (-0.51)	-8.30e-08 (-2.77)**	-0.0022 (-0.45)	-0.1017 (-0.51)
Non-annual farm income	β_{10}	2.28e-06 (0.30)	4.87e-08 (0.26)	0.00039 (0.10)	0.0186 (0.12)
Extension contact	β_{11}	0.5853 (3.77)***	0.0120 (4.13)***	0.4460 (2.23)*	2.0288 (1.99)*
Years of social organization	β_{12}	-0.0600 (-0.44)	-0.0009 (-0.28)	-0.0008 (-0.23)	-0.0524 (-0.38)
Constant	β_0	42.6907 (5.16)***	3.7284 (-0.28)	3.8303 (-0.23)	48.0431 (2.36)
F value		5.59	4.52	4.45	4.48
R-squared		0.4815	0.4280	0.4021	0.4098
Adjusted R-squared		0.3906	0.3472	0.3072	0.3275

Source: *Field survey, 2025*

STATA 13 Results

* $p \leq 0.10$, ** $p \leq 0.05$ and *** $p \leq 0.01$

+ = lead equation