JHER, Vol 32(1) September 2025, pp. 17 - 28

Strategies for Promoting Sack Farming Practices among Urban Dwellers in Enugu State, Nigeria

[1]Bassey, Njorkun N; [2]Eya, Chiamaka C; [3]Ani, Mary O; [4]Adesanya, Emmanuel O.
[1,2,3]Department of Agricultural Education,
University of Nigeria, Nsukka
[4]Department of Science Education (Agricultural Education Unit),
University of Ilorin, Nigeria

Corresponding Author:oluwatoyin.ani@unn.edu.ng

Abstract

The study examined strategies for promoting sack farming practices among urban dwellers in Enugu State, Nigeria. Specifically, the study determined benefits of sack farming to urban dwellers; operations required for successful sack farming; challenges of sacking farming; and strategies for enhancing sack farming among urban dwellers in Enugu State. The study adopted a survey research design. Population consisted of 717,293 urban dwellers and 60 agricultural extension agents from the three local government areas (LGAs) in urban areas of Enugu State. Questionnaire was used for data collection. Data were analysed using mean, standard deviation and t-test. Findings include 10 benefits of sack farming to urban dwellers. These include among others, increases food security ($\bar{X}$=3.54), reduces food expenses/cost ($\bar{X}$=3.11). Other findings are 13 operations required for successful sack farming,including; harvest crops at optimal maturity period ($\bar{X}$=3.50), control pests and diseases using organic methods($\bar{X}$=3.38), and others. Further findings are 13 challenges of sack farming. These include among others, limited access to credit facilities ($\bar{X}$=3.43), lack of technical know-how about sack farming ($\bar{X}$=3.15). More findings are eight strategies for enhancing sack farming practices. These include; establish demonstration farms for practical learning ($\bar{X}$=3.51), organize regular trainings on sack farming techniques ($\bar{X}$=3.50), among others.

Keywords: Sack, Farming, Urban, Dwellers, Promoting, Agriculture, Strategies, Practices

In recent years, urbanization has been on the rise all over the world, including Nigeria. As a result, there has been a significant increase in the population of urban dwellers in cities like Enugu. The increasing population and rapid urbanization pose significant challenges to food security and sustainability (Food and Agriculture Organization (FAO, 2020). Nigeria currently faces challenges of food insecurity, with over 60 percent of households experiencing moderate to severe food insecurity (Nigeria Bureau of Statistics (NBS), 2020). Urban dwellers often face limited access to fresh and healthy food due to such factors as lack of

space for traditional farming methods and high costs of purchasing food from markets. To address these challenges, alternative means of food production, such as sack farming practices remains a vital solution.

Sack farming, also known as sack gardening or urban agriculture involves growing crops in sacks or containers filled with soil or other growing media. It involves growing crops in sacks or containers, utilizing minimal space and resources (Altieri et al., 2019). This method allows individuals to grow food crops in small spaces, such as balconies, rooftops, or small yards, making it particularly suitable for urban environments where land for traditional farming is scarce. According to Mbilinyi and Lilaki (2020), sack farming has gained popularity in urban areas as a way of maximizing space and increasing food production. By growing crops in sacks, urban dwellers can utilize available space such as rooftops, balconies, or small yards to grow fresh produce.

Sacks can be used to grow different varieties of crops, although, not all crops can be grown with sack. Some of the crops commonly grown in sack according to Olorunnisola et al. (2019) include maize (*Zea mays*), tomato (*Lycopersicum esculentus*), pepper (*Capsicum annuum*), okra (*Abelmoschus esculentus*), cucumber (*Cucumis sativus*), carrot (*Daucus carota*), eggplant (*Solanum melongena*), lettuce (*Lactuca sativa*), green beans (*Phaseolus vulgaris*) just to mention but a few. For instance, Pepper which is a popular crop in Nigeria can be grown successfully in sacks (Ojo et al. (2020). According to the authors, cultivating pepper in a sack has been found to help increase the yield of pepper. Okra being a heat-loving crop can do well in sack farming in Nigeria. According to Akanbi (2017), sack farming can provide the necessary conditions for optimal okra growth. Also, carrot being a root vegetable crop, can be grown successfully in sacks in Nigeria. Afolabi (2018) stated that sack farming can help prevent soil-borne diseases that often affect carrot crops.

Sack farming is very vital for urban dwellers in the area of food crop production. Adewumi et al. (2019) stated that sack farming can significantly increase the availability of fresh produce for urban households, thereby improving their diet and overall nutrition. Similarly, Nzegbule et al. (2020) emphasized the potential of sack farming to enhance food security and reduce poverty among urban residents in Nigeria. In addition to its impact on food security, sack farming cultivation has also been shown to have environmental benefits. Oduro et al. (2021) noted that sack farming can reduce the carbon footprint associated with food production and transportation, as it allows for the cultivation of food closer to where it will be consumed. This can help to mitigate the environmental impact of traditional agricultural practices and contribute to sustainable development in urban areas. Furthermore, sack farming cultivation has the potential to generate income for urban dwellers through the sale of surplus produce. According to Olaoye (2018), sack farming has become a source of livelihood for many people in Nigerian cities, providing them with an additional source of income and helping to reduce poverty. Asante-Dartey et al. (2021) noted that sack farming allows for easy crop rotation and diversification, which is important for

maintaining soil health and preventing diseases.

Sack farming is gradually gaining attention in urban areas of Enugu just like other urban areas of Nigeria, as a viable means of food production. This method is particularly beneficial in urban settings where space is limited and soil quality may be poor. The practice involves the use of sacks filled with a mixture of soil and organic matter to cultivate various crops. The urban dwellers in Enugu typically use jute or other durable sacks and fill them with a nutrient-rich soil mix, often comprising garden soil, compost, and organic fertilizers (Nwobodo & Emmanuela, 2022). Commonly cultivated crops in sack farming in Enugu urban include vegetables such as tomatoes (*Solanum lycopersicum*), peppers (*Capsicum spp.*), spinach (*Amaranthus spp.*), and carrots (*Daucus carota*), tomatoes *Lycopersicon escumlata* (Okeyo et al., 2021). Some farmers also cultivate herbs like basil (*Ocimum basilicum*) and mint (*Mentha spp.*) Studies have shown that sack farming in urban areas including Enugu State helps promoting food security and increases accessibility to fresh produce (Okeyo et al., 2021).

Despite its potential to provide a sustainable source of food and income, urban agriculture, including sack farming is often not given the required attention in urban areas of Enugu State. This could be as a result of the challenges facing sack farming practices. In spite of the challenges, sack farming remains a potential means of enhancing food production among urban dwellers. However, even with the growing interest in urban agriculture, there is a lack of research specifically focusing on the strategies for promoting sack farming practices in urban areas in Enugu State.

Objectives of the Study

The general objective of this study was to evolve strategies for promoting sack farming practices among urban dwellers in Enugu State, Nigeria. Specifically, it determined:

1. benefits of sack farming among urban dwellers in Enugu State;
2. operations required for successful sack farming in urban areas of Enugu State
3. challenges of sack farming among urban dwellers in Enugu State;
4. ways of enhancing sack farming among urban dwellers in Enugu State.

Research Questions

The following research questions guided the study:

1. What are benefits of sack farming practices among urban dwellers in Enugu State?
2. What are operations required for successful sack farming in urban areas of Enugu

State?

3. What are challenges of sack farming practices among urban dwellers in Enugu State?
4. What are ways for enhancing sack farming among urban dwellers in Enugu State?

Hypotheses (HOs)

The following research null hypotheses were formulated and tested at 0.05 level of significance:

There is no significance difference in the mean responses of urban dwellers and extension agents on:

HO_1 benefits of sack farming practices among urban dwellers in Enugu State.
HO_2 operations required for successful sack farming practices in urban areas of Enugu State.
HO_3 challenges of sack farming among urban dwellers in Enugu State.
HO_4 ways for enhancing sack farming among urban dwellers in Enugu State.

Research Methodology

***Design of the Study*:** This research utilized a descriptive survey design.

***Area of Study*:** The research was carried out within Enugu urban, which encompasses three local government areas. These LGAs together form the central metropolitan region of Enugu State and are characterized by high population density and robust economic engagements. The climatic features of the area, with an average temperature around 26.7°C, support the cultivation of crops such as cassava, yam, maize, rice, banana, pineapple, and palm (Anugwa & Nwobodo, 2020).

***Population for Study*:** The study population comprised 717,293 residents of Enugu urban and 60 agricultural extension agents working across the three LGAs. While urban population figures were sourced from the National Population Commission Office (2024), data regarding the extension officers were obtained on March 10, 2024, from the office of the Programme Manager at Enugu State Agricultural Development Programme (ENADEP).

***Sample for the Study*:** A total of 384 respondents were selected for the study. This sample included 324 urban residents selected using a simple random sampling technique, and all 60 extension agents were included due to their relatively small number. The sample size was determined using Cochran's formula to ensure statistical validity.

***Instrument for Data Collection*:** The tool used for gathering data was a structured questionnaire comprising 47 items, organized along a four-point Likert scale: Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1). The questionnaire was validated for face validity by a panel of three experts—two knowledgeable urban residents and one experienced agricultural extension officer. To determine reliability, the instrument was pilot-tested using 18 respondents outside the main study area. The reliability analysis using the Cronbach Alpha technique yielded a coefficient of 0.81, confirming the tool's internal consistency and dependability.

Data Collection Methods: A total of 384 questionnaires were administered to 324 Enugu urban dwellers and 60 agricultural extension agents. Only 360 copies were retrieved, 311 copies from Enugu urban dwellers and 49 copies from extension agents.

Data Analysis Techniques: The data were analysed using mean, standard deviation and t-test at 0.05 level of significance. A decision rule was set using a mean cut-off point of 2.50, where values equal to or above indicated agreement with the item statement.

Results

Table 1: Mean Ratings, Standard Deviation and t-test Analysis on the Benefits of Sack Farming to Urban Dwellers in Enugu State

S/N	Benefits of Sack Farming Practices	$\bar{X}_1$	SD_1	$\bar{X}_2$	SD_2	$\bar{X}_g$	t	Rmks	
	Sack farming								
1.	increases food security	3.50	0.77	3.58	0.55	3.54	0.09	A	NS
2.	provided income generation to urban dwellers	3.00	0.88	3.02	0.87	3.01	0.81	A	NS
3.	reduces food expenses/cost	3.11	0.76	3.11	0.77	3.11	0.07	A	NS
4.	provides employment opportunities	3.30	0.98	3.34	0.88	3.32	0.12	A	NS
5.	increases consumption of fresh fruits and vegetables	3.20	0.77	3.18	0.76	3.19	0.23	A	NS
6.	beautifies urban areas with sack gardens	2.75	0.87	2.79	0.98	2.77	0.06	A	NS
7.	utilizes household waste as compost	2.60	0.98	2.70	0.56	2.65	0.33	A	NS
8.	improves water conservation	3.00	0.99	2.96	0.66	2.98	0.07	A	NS
9.	provides opportunities for agricultural entrepreneurship	3.02	0.86	2.98	0.80	3.00	0.06	A	NS
10.	improves standard of living of urban dwellers	2.75	0.64	2.85	0.76	2.80	0.66	A	NS
	Overall	3.02	0.85	3.05	0.75	3.03	0.25	A	NS

N1 = Number of urban dwellers = 311; N2 = Number of extension agents = 49; $\bar{X}_1$ = Mean score of urban dwellers; SD_1; = Standard deviation of urban dwellers; $\bar{X}_2$= Mean score of extension agents; SD_2 = Standard of deviation of extension agents; $\bar{X}_g$= Grand mean.; Df (Degree of freedom) = 358; t = t-test results; Rmks = Remarks (A = Agreed, NS = Non-significant).

Table 1 indicates that the 10 items had means ($\bar{X}$) ranging from 2.65 to 3.54, with urban dwellers obtaining overall mean ($\bar{X}_1$) of 3.02 and extension agents overall mean ($\bar{X}_2$) of 3.05 and the overall grand mean ($\bar{X}_g$) of 3.03 was obtained. These are benefits of sack farming to urban dwellers. Table 1 also revealed that each and all the items had their standard deviation ranging from 0.55 to 0.99; thus respondents were not far from the mean and from one another in their responses. Furthermore, the t-test analysis in Table 1 indicated that all the 10 items had its p-value greater than 0.05 with over-all probability value of 0.25 ($P > 0.05$). This indicated that there was no significant difference in the mean ratings of urban dwellers and extension agents on the benefits of sack farming among urban dwellers in Enugu State. Hence, the null hypothesis is accepted.

Table 2: Mean ratings, Standard Deviation and t-test Statistics on the Operations Required for Successful Sack Farming in Urban Areas of Enugu State

S/N	Operations Required for Successful Sack Farming Practices are:	$\bar{X}_1$	SD_1	$\bar{X}_2$	SD_2	$\bar{X}_g$	t	Rmks	
1.	Choose suitable locations for sack farming	3.09	1.00	3.10	0.98	3.11	0.01	A	S
2.	Select material (sacks, soil, river sands, manure) for sack farming	3.10	0.67	3.14	0.65	3.12	0.27	A	NS
3.	Prepare the growth medium by mixing the components at ratio 3:2:1 (topsoil, manure and river sand)	3.52	0.77	3.48	0.88	3.50	0.10	A	NS
4.	Choose suitable crop varieties for sack farming (vegetables, spicy etc)	3.20	0.68	3.00	0.77	3.10	0.07	A	NS
5.	Plant seeds or seedlings in sacks at appropriate spacing	3.03	0.90	2.97	0.79	3.00	0.06	A	NS
6.	Watering of plants regularly, considering soil moisture	3.40	0.69	3.30	0.77	3.35	0.15	A	NS
7.	Apply mulch to retain moisture and suppress weeds	3.00	0.88	2.98	0.89	2.99	0.11	A	NS
8.	Control pests and diseases using organic methods	3.40	0.88	3.36	0.79	3.38	0.09	A	NS
9.	Carry out weeding operations at appropriate period	3.11	0.98	3.11	0.99	3.11	0.08	A	NS
10.	Prune and train vines of plants for optimal growth	3.12	0.69	3.10	0.77	3.11	0.44	A	NS
11.	Apply fertilizers as needed by plants	2.61	0.87	2.57	0.89	2.59	0.11	A	NS
12.	Monitor crops for maturity	2.87	0.76	2.87	0.88	2.87	0.03	A	S
13.	Harvest crops at optimal maturity period	3.45	0.77	3.55	0.87	3.50	0.22	A	NS
	Overall	3.14	0.81	3.11	0.84	3.13	0.13	A	NS

N1 = Number of urban dwellers = 311; N2 = Number of extension agents = 49; $\bar{X}_1$ = Mean score of urban dwellers; SD_1; = Standard deviation of urban dwellers; $\bar{X}_2$= Mean score of extension agents; SD_2 = Standard of deviation of extension agents; $\bar{X}_g$= Grand mean.; Df (Degree of freedom) = 358; t = t-test results; Rmks = Remarks (A = Agreed, S = Significant, N.S = Non-significant).

Table 2 shows that all the items obtained means ($\bar{X}$) ranging from 2.59 to 3.50; while urban dwellers had overall mean ($\bar{X}_1$) of 3.14 and extension agents got overall mean ($\bar{X}_2$) of 3.11 whereas the overall grand mean ($\bar{X}_g$) of 3.13 was obtained. These are 13 operations required for successful sack farming in urban areas of Enugu State. Also, all the items had a standard deviation which ranges from 0.65 to 1.00, showing that the respondents are not far from the mean and were close to one another in their response. Again, the t-test analysis in Table 2 got probability value of 0.13 which is greater than 0.05 ($P > 0.05$). This indicated that there was no significant difference in the mean ratings of urban dwellers and extension agents on the operations required for successful sack farming cultivation in urban areas. Therefore, the null hypothesis is accepted.

Table 3: Mean Ratings, Standard Deviation and t-test Analysis of the Challenges of Sack Farming Among Urban Dwellers in Enugu State

S/N	Challenges of Sack Farming Practices in Urban Areas are:	$\bar{X}_1$	SD_1	$\bar{X}_2$	SD_2	$\bar{X}_g$	t	Rmks	
1.	Insufficient land for large-scale sack farming	3.11	0.72	3.13	0.68	3.12	0.19	A	NS
2.	Inadequate water supply for irrigation	3.00	0.60	3.10	0.69	3.05	0.08	A	NS
3.	Unpredictable weather patterns affecting crop yields	2.61	0.69	2.69	0.71	2.65	0.19	A	NS
4.	Expensive seeds, fertilizers, and equipment	3.00	0.87	3.00	0.85	3.00	0.14	A	NS
5.	Limited access to credit facilities	3.40	0.74	3.46	0.77	3.43	0.06	A	NS
6.	Limited knowledge about sack farming benefits	3.08	0.72	3.12	0.76	3.10	0.08	A	NS
7.	Lack of technical know-how about sack farming	3.10	0.89	3.20	0.88	3.15	0.13	A	NS
8.	Negative views about urban farming	2.68	0.70	2.64	0.73	2.66	0.11	A	NS
9.	Difficulty in controlling pests and diseases	2.90	0.71	2.86	0.72	2.88	0.12	A	NS
10.	Inadequate processing and storage facilities	2.41	0.56	2.39	0.56	2.40	0.07	D	NS
11.	Security concerns like crop thefts	2.77	0.89	2.83	0.88	2.80	0.07	A	NS
12.	Waste management issues	2.40	0.75	2.44	0.75	2.42	0.06	D	NS
13.	High labour costs especially in filling the sacks	2.91	0.69	2.89	0.68	2.90	0.77	A	NS
14	Limited access to extension services	2.88	0.69	3.00	0.70	2.89	0.06	A	NS
	Overall	2.87	0.73	2.92	0.74	2.88	0.15		NS

N1 = Number of urban dwellers = 311; N2 = Number of extension agents = 49; $\bar{X}_1$ = Mean score of urban dwellers; SD_1; = Standard deviation of urban dwellers; $\bar{X}_2$= Mean score of extension agents; SD_2 = Standard of deviation of extension agents; $\bar{X}_g$= Grand mean.; Df (Degree of freedom) = 385; t = t-test results; Rmks = Remarks (A = Agreed; D = Disagreed, N.S = Non-significant).

Table 3 reveals that 12 items (item 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 13 and 14) among the 14 items obtained means ($\bar{X}$) values above the cut off mark of 2.50; it also showed that urban dwellers got overall mean ($\bar{X}_1$) value of 2.87, extension agents got overall mean ($\bar{X}_2$) value of 2.92 while the overall grand mean ($\bar{X}_g$) of 2.88 was obtained. These are 12 challenges militating against sack farming in urban areas of Enugu State. Furthermore, all the items had a standard deviation which ranges from 0.56 to 0.89, showing that the respondents are not far from the mean. Furthermore, the t-test analysis showed that p-value of 0.15 which is greater than 0.05 (P > 0.05) was obtained. This indicated that there was no significant difference in the mean ratings of urban dwellers and extension agents on the challenges militating against sack farming cultivation in urban areas of Enugu State. The null hypothesis is therefore upheld.

Table 4: Mean Ratings, Standard Deviation and t-test Analysis on the Strategies for Enhancing Sack Farming Practices to Urban Dwellers in Enugu State

S/N	Benefits of Sack Farming Practices are:	$\bar{X}_1$	SD_1	$\bar{X}_2$	SD_2	$\bar{X}_g$	t	Rmks	
1.	Organize regular trainings on sack farming techniques	3.45	0.80	3.65	0.85	3.50	0.09	A	NS
2.	Provide regular access to agricultural extension services	3.20	0.67	3.22	0.66	3.21	0.01	A	S
3.	Establish demonstration farms for practical learning	3.56	0.85	3.60	0.88	3.51	0.07	A	NS
4.	Install efficient irrigation systems in strategic locations	2..34	0.89	2.30	1.00	2.32	0.12	D	NS
5.	Encourage crop diversification	2.99	0.53	2.95	0.51	2.97	0.23	A	NS
6.	Ensure availability of high-quality seeds, fertilizers	3.00	0.75	3.10	0.72	3.05	0.06	A	NS
7.	Provide subsidies for inputs to reduce costs	3.19	0.88	3.15	0.87	3.17	0.33	A	NS
8.	Conduct market research to identify demand	2.40	0.77	2.42	0.75	2.41	0.04	D	S
9.	Provide incentives, grants, and loans for urban farmers	3.19	0.68	3.19	0.65	3.19	0.06	A	NS
10.	Encourage youth participation in urban sack farming	3.15	0.87	3.19	0.87	3.17	0.66	A	NS
	Overall	**3.03**	**0.76**	**3.07**	**0.77**	**3.05**	**0.16**	**A**	**NS**

N1 = Number of urban dwellers = 311; N2 = Number of extension agents = 49; $\bar{X}_1$ = Mean score of urban dwellers; SD_1; = Standard deviation of urban dwellers; $\bar{X}_2$= Mean score of extension agents; SD_2 = Standard of deviation of extension agents; $\bar{X}_g$= Grand mean.; Df (Degree of freedom) = 358; t = t-test results; Rmks = Remarks (A = Agreed, D = Disagreed, NS = Non-significant, S = Significant).

Table 4 reveals that eight items (item 1, 2, 3, 5, 6, 7, 9, and 10) out of the 10 items had mean ($\bar{X}$) values above the cut off mark of 2.50; it also was recorded that urban dwellers obtained overall mean ($\bar{X}_1$) value of 3.03, extension agents obtained overall mean ($\bar{X}_2$) value of 3.07 while the overall grand mean ($\bar{X}_g$) of 3.05 was obtained. These are eight strategies for enhancing sack farming practices in urban areas of Enugu State. Also, the standard deviation indicated that the overall standard deviation for both urban dwellers and extension agents are 0.76 and 0.77 respectively, indicating that the respondents are not far from the mean. In addition, the t-test analysis recorded overall p-value of 0.16 which is greater than 0.05 (P > 0.05). This showed that there was no significant difference in the mean ratings of urban dwellers and extension agents on the strategies for enhancing sack farming practices in urban areas of Enugu State. The null hypothesis is therefore upheld.

Discussion of Findings

The result in Table 1 found ten (10) benefits of sack farming practices among urban dwellers in Enugu State. The result obtained overall mean ($\bar{X}_1$) value of urban dwellers of 3.02, overall mean ($\bar{X}_2$) value of

extension agents of 3.05, and the overall grand mean ($\overline{X}g$) of 3.03.The benefits identified include sack farming increases food security, income generation to urban dwellers, reduces food expenses/cost, provides employment opportunities, increases consumption of fresh fruits and vegetables, beautifies urban areas with sack gardens, utilizes organic waste as compost among others. The result also indicated that there was no significant difference in the mean ratings of urban dwellers and extension ($P > 0.05$) on the benefits of sack farming among urban dwellers in Enugu State. The findings are in support of Adewumi et al. (2019) who stated that sack farming can significantly increase the availability of fresh produce for urban households, thereby improving their diet and overall nutrition. This is because, sack farming is mainly carried out at home which makes it much easier for the farmer to harvest and consume fresh farm produces. Similarly, the finding is in line with Nzegbule et al. (2020) who noted that sack farming can enhance food security and reduce poverty among urban residents. Furthermore, the finding is also in line with Oduro et al. (2021) who observed that sack farming can reduce the carbon footprint associated with food production and transportation, as it allows for the cultivation of food closer to where it will be consumed. This proves that sack farming is environmentally friendly.

The result in Table 2 revealed thirteen (13) operations required for successful sack farming cultivation in urban areas of Enugu State. The result recorded overall mean ($\overline{X}_1$) value of urban dwellers of 3.14 and extension agents overall mean ($\overline{X}_2$) value of 3.11 and overall grand mean ($\overline{X}_g$) of 3.13.The operations found by the study include choose suitable locations for sack farming, select material (sacks, soil, river sands, manure etc.) for sack preparations, prepare the growth medium by mixing the soil, manure and river sands at appropriate ratio, choose suitable crop varieties for sack farming, plant seeds or seedlings in sacks at appropriate spacing, watering of plants regularly among others. The finding further indicated that there was no significant difference in the mean ratings of urban dwellers and extension ($P > 0.05$) on the operations required for successful sack farming among urban dwellers in Enugu State.The finding is in support of Kumar et al. (2020) who emphasize the importance of site selection for sack farming in urban areas. Kumar et al. (2020) buttressed that the site to choose should be in a good location for sack farming, considering sunlight, water accessibility, and security. The finding also aligns with Mougeot (2018) who recommended that the crop seeds or seedling to be selected for sack farming should be climate-resilient crop varieties. Selecting suitable crop varieties for urban sack farming is very crucial for successful sack farming operations in urban areas. The outcome of this study aligns with Afolabi et al. (2020) who found that organic fertilizers improved yield of crops grown in sacks.

The findings in Table 3 obtained twelve (12) challenges militating against sack farming practices in urban areas of Enugu State. The finding also obtained overall mean ($\overline{X}_1$) value for urban dwellers of 2.87 and overall mean ($\overline{X}_2$) value for extension agents of 2.92 and overall grand mean ($\overline{X}_g$) of 2.88.The challenges found are insufficient land for large-scale sack farming, inadequate water supply for

irrigation, unpredictable weather patterns affecting crop yields, expensive seeds, fertilizers, and equipment, limited access to credit facilities, limited knowledge about sack farming benefits, lack of technical know-how about sack farming, difficulty in controlling pests and diseases, security concerns like crop thefts, among others. In addition, the finding showed that there was no significant difference in the mean ratings of urban dwellers and extension ($P > 0.05$) on the challenges militating against successful sack farming among urban dwellers in Enugu State. The findings are in consonance with Kamara and Kargbo (2020) who opined that urban dwellers often face challenges in accessing quality seeds and fertilizers which lowers their productivity and profitability using sack techniques. This may be due to high prices of farm inputs and their availability as at time they are needed. The finding is also in accordance with Niringiye and Mwaseba (2019) who stated that unpredictable weather patterns can lead to crop failures and reduced yields, ultimately affecting the livelihoods of sack farmers especially those living in urban areas. In addition, the finding support Aboagye et al. (2020) who stated that that many sack farmers in Enugu State lack the necessary training and extension services which hinders them from adopting the best practices in sack farming.

The result in Table 4 found eight (8) strategies for enhancing sack farming among urban dwellers in Enugu State. It also showed the overall mean ($\bar{X}_1$) value for urban dwellers of 3.03, overall mean ($\bar{X}_2$) value of 3.07 for extension agents and overall grand mean ($\bar{X}_g$) of 3.05. The strategies are: organize regular trainings on sack farming techniques, provide regular access to agricultural extension services, establish demonstration farms for practical learning, encourage crop diversification, ensure availability of high-quality seeds, fertilizers, provide subsidies for inputs to reduce costs, among others. Also, the finding showed that there was no significant difference in the mean ratings of urban dwellers and extension ($P > 0.05$) on the strategies for enhancing successful sack farming among urban dwellers in Enugu State. The finding aligns with Kumar et al. (2020) who buttressed that training and capacity building are essential for improving the productivity and sustainability of sack farming among urban dwellers. Provision of regular training and workshops on sack farming techniques can help to enhance the knowledge and skills of urban dwellers on sack farming practices. The finding further aligns with Maxwell et al. (2020) who noted that sack farmers should engage in crop diversification to reduce reliance on single crop in case of crop failure.

Conclusion

The promotion of sack farming among urban dwellers in Enugu State presents a viable solution to urban food insecurity, environmental degradation, and the growing need for sustainable agricultural practices in densely populated areas. Effective strategies have emerged, emphasizing collaborative efforts between extension agents and urban farmers to foster a culture of innovation, knowledge sharing, and resource optimization. By implementing these strategies, urban residents can harness the benefits of sack farming, achieving greater food sovereignty, improved nutrition, and enhanced livelihoods. The study therefore

concluded that by promoting sack farming practices among urban dwellers in Enugu State can contribute to food security, improve livelihood and lead to sustainable urban agricultural practices.

Recommendations

Based on the findings, the study recommended the following:

1. Extension agents need to regularly organize workshops focused on sack farming techniques, covering soil management, crop selection, pest control, and harvesting methods tailored for urban environments.
2. Extension agents through the assistance of Enugu State Government should establish demonstration farms in urban areas where residents can observe and participate in sack farming.
3. Enugu urban dwellers should engage actively in workshops and training provided by extension agents to learn about the best practices in sack farming.
4. Enugu urban dwellers should share knowledge and experiences with others about sack farming and crop production at large, promoting community engagement and social support networks.

References

Aboagye, L., Asare, B., Sagoe, C., & Twumasi, P. (2020). Challenges of smallholder farmers in expanding Sack farming in the northern region of Ghana. *JRAS, 8*(27), 18-24.

Adenaike, A. O., Ogbari, M. E., Soyebo, K. O., & Adenaike, C. M. (2020). Enabling environment and urban agriculture in Lagos state, Nigeria: An assessment of small-scale urban food production. *Journal of Environmental Management and Safety, 11*(1), 38-51.

Adewumi, M. A., Akinyele, J. O., Olowokere, E. I., & Gbadegesin, A. S. (2019). Empirical investigation of the adaptability of sack gardening as a sustainable livelihood option among urban farmers in selected local government areas in Lagos state, Nigeria. *IOSR Journal of Humanities and Social Science, 24*(6), 63-70.

Afolabi, C. O., Oyewole, O. B., & Adegoke, G. O. (2020). Effects of organic amendments on soil fertility and crop yield in urban agriculture. *Journal of Sustainable Agriculture, 44*(1), 1-12. doi: 10.5958/0975-8949.2020.00001.1

Afolabi, F., et al. (2018). Sack farming for sustainable carrot production in Nigeria. *Journal of Agriculture and Environment, 7*(2), 125-135.

Akanbi, A. A. (2017). Enhancing okra yield through sack farming in Nigeria. *Sustainable Agriculture Research, 6*(1), 45-52.

Altieri, M. A., Nicholls, C. I., & Funes-Monzote, F. (2019). Agroecology and sustainable agriculture: A review. *Agronomy, 9*(11), 671. doi: 10.1007/s10460-019-10034-5

Anugwa, I. Q., & Nwobodo, O. B. (2020). Assessment of crop farmer's use of organic farming practices in Enugu State, *Nigeria. Journal of Applied Sciences, 20*(3), 83-90. DOI: 10.3923/jas.2020.83.90

Asante-Dartey, J., Boke-Odoom, S., & Darkoh, A. (2021). Effects of container planting on crop yield and soil characteristics. *Journal of Plant Nutrition, 44*(3), 503-514.

Food and Agriculture Organization (FAO) (2020). *The State of sustainable agriculture in the world.* FAO.

Okeyo, A. O., Oti, M. F., & Abimbola, A. S. (2021). Evaluation of yield performance of selected vegetable crops grown in sacks in urban Enugu, Nigeria. *Journal of Urban Agriculture & Regional Food Systems, 6*(1), 27-35. https://doi.org/10.1017/jua.2021.5

Kamara, A. B., & Kargbo, S. J. (2020). Smallholder farmers' access to seeds and

farm inputs in Sierra Leone: The case of Koinadugu District. *Journal of Agricultural Studies, 8*(2), 89-104.

Kumar, P., Kumar, V., & Sharma, D. (2020). Urban agriculture: A sustainable livelihood option for urban poor. *Journal of Environmental Science, Computer Science and Engineering & Technology, 8*(2), 154-163. doi: 10.9790/6213-0802015463

Maxwell, D., Levin, C., & Amarakoon, A. (2020). Urban agriculture and food security: A systematic review. *Food Policy, 90,* 101933. doi: 10.1016/j.foodpol. 2020.01.003

Mbilinyi, R. S., & Lilaki, J. L. (2020). Urban agriculture and food security: A review of opportunities and challenges in Tanzania. *African Journal of Food, Agriculture, Nutrition, and Development, 20*(2), 15718-15735.

Mougeot, L. J. A. (2018). Urban agriculture: A global review. *Cities, 77*, 13-23. doi: 10.1016/j.cities.2017.12.007

National Bureau of Statistics (NBS) (2020). *Nigeria Living Standards Survey 2019 survey.* NBS.

National Population Commission Office (2024). *Nigeria population index.* Office of National Population Commission Office, Enugu State.

Niringiye, C., & Mwaseba, D. (2019). Climate change adaptation among smallholder farmers in Tanzania. *Journal of Agriculture and Environment for International Development, 113*(2), 475-488.

Nwobodo, E. I., & Emmanuela, O. P. (2022). Effects of sack farming on urban agriculture in Nigeria: A case study of Enugu State. *International Journal of Agricultural Research, Innovation and Technology,12*(1), 33-40. https://doi.org/10.3329/ijarit.v12i1.61233

Nzegbule, E. C., Nweke, O. V., & Nduka, C. C. (2020). Assessing the role of sack gardening in enhancing household food security in Enugu State, Nigeria. *Journal of Agricultural Extension, 24*(2), 24-36.

Oduro, S. O., Awika, J. M., & Duodu, K. G. (2021). Vertical farming: A sustainable approach to agriculture in urban areas. *Comprehensive Reviews in Food Science and Food Safety, 20*(1), 616-638.

Ojo, T. O., et al. (2020). Sustainable urban agriculture practices for food security: a case study of crop rotation in Nigeria. *Journal of Urban Agriculture and Regional Food Systems, 18*(1), 98-107.

Olaoye, J. O. (2018). Urban agriculture as a strategy for food security and poverty alleviation in Nigeria. *Journal of Development and Agricultural Economics, 10*(6), 206-215.

Olorunnisola, A. O., et al. (2019). Sack farming for improved cassava production in Nigeria. *Journal of Agricultural Science, 10*(3), 74-81.