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LEVEL OF PARTICIPATION AND BENEFIT OF HOMEGROWN CROP PRODUCTION AMONG RURAL DWELLERS AROUND OKOMU FOREST RESERVE AREA OF EDO STATE, NIGERIA

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ABSTRACT

Homegrown crop production has direct contribution to household food security and enhances economic stability particularly rural households around the protected areas. Involvement of rural dwellers around forest reserve in home grown crop will not only increase access to food but promotes conservation of the resources in the area. This study therefore, evaluated the engagement of rural households in homegrown food production within communities surrounding the Okomu Forest Reserve in Edo State, Nigeria. It aimed to examine the extent of household participation in homegrown farming, the benefits derived from this practice, and the relationship between participation and perceived benefits. Multi-stage sampling technique was used to select 115 household heads for the study. Primary data were collected with use of structured questionnaire. Data collected were analysed using both descriptive and inferential statistics (Pearson Product Moment Correlation (PPMC)).The study revealed that a considerable proportion of the respondents(31.4%) aged between 41 and 50 years, and a majority (54.8%) identified as male. The findings also showed that 59.1% of respondents actively participated in homegrown food production, primarily driven by rising food costs and the need for food security. The study indicated a strong mean score of 4.92 for the extent of engagement in cultivating food crops, emphasizing the critical role of home gardening as a survival strategy. Additionally, respondents reported high mean scores for the benefits of homegrown production, with 64.3% agreeing that it significantly reduced household spending on groceries. The result revealed that there is a direct and significant relationship between participation in homegrown food production and its perceived benefits (P=0.01, r=0.308), suggesting that increased involvement in home gardening led to improved nutrition, reduced food expenditure, and enhanced community engagement. The study concluded that homegrown food production is vital for fostering resilience among rural households in the face of economic challenges. It is recommended that policies and programme targeting the sustainable management of forest reserves should include household access to agricultural resources.

Keywords: Participation, Forest Reserve, Benefits, Homegrown

Introduction

Food stands as a fundamental human necessity, pivotal for sustaining health and enhancing productivity. The issues surrounding food security encompassing availability, affordability, and sustainable utilization are pressing concerns for both policymakers and scholars. According to Stringer (2016) , food security is define as a condition in which all individuals, at all times, possess physical, social, and economic access to sufficient, safe, and nutritious food,

enabling them to lead active and healthy lives . In stark contrast, food insecurity manifests when access to adequate and safe food becomes limited or uncertain.

The intricate web of factors driving global food price volatility presents a daunting challenge in the world. Unfavorable weather conditions, the scarcity of productive land, escalating fuel and fertilizer costs, and various trade restrictions contribute to this instability (Maya, 2016). In Nigeria, the situation is further complicated by high inflation and currency devaluation, which have significantly inflated food prices for both urban and rural populations. The rapid surge in food costs has intensified poverty and malnutrition, impacting millions of households across the globe (Wise, 2019). As food prices rise, many families resort to coping strategies such as reducing their food consumption, selling off assets, or accruing debt. These measures can have dire long-term consequences on nutrition, health, and economic resilience, particularly affecting vulnerable groups like women and children. (Headey and Ruel, 2020)

In response to these challenges, homegrown food production has emerged as a promising solution to alleviate rising food costs, bolster food security, and enhance access to nutritious food. There exists a common belief that communities living adjacent to forest reserves do not grapple with food insecurity, primarily due to the availability of land for farming in these areas. However, this notion is misleading; individuals are often prohibited from entering these reserves without permission, which restricts their ability to engage in farming or other economic activities. Consequently, they too are subjected to the same food insecurity challenges faced by urban households. Home gardens, which are small plots cultivated near residences, provide households with an opportunity to grow various food plants, thereby supplementing their diets.

This study aims to evaluate the engagement of rural households in homegrown food production within communities surrounding the Okomu Forest Reserve in Edo State. It seeks to explore the extent of participation in this practice, the benefits it offers, as well as the relationship between participation and benefit of homegrown food production

Methodology

Study Area

The study was carried out in Okomu Forest Reserve environs; it is located at Udo communities in Ovia South West Local Government Area of Edo State Nigeria. It is located between latitudes 6° 15' and 6° 25'N and longitude 5° 9' and 5° 23'E.Established in 1935, Okomu Forest Reserve is one of Nigeria's oldest and most significant protected areas. The terrain is predominantly undulating, with elevations ranging between approximately 60 and 120 meters above sea level, except for a few rugged quartzite ridges on the western side. The area experiences a humid tropical climate characterized by distinct wet and dry seasons, supporting dense rainforest vegetation. It occupies an area 200m^2 of land and the reserve was established in the year 1935. Okomu lies on undulating land and most of altitude is between 60.96m and 121.92m above sea level except for rugged quartzite ridge near the western side. The people in the study area are into farming activities which includes planting of arable crops while the forest provides valuable resources that sustain local economic activities.

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Target Population

The target population of the study was household head or representative around the communities in Okomu forest reserves

Sampling Procedures and sampling size

Multistage sampling method was used to select the respondents for the study. A number of rural communities surround the Park which consists of about 42 communities, some of which form boundary with the national park. These include Iguuowan, Maokhioba, Anah Camp, Tunde Camp, Nikorowa, Mile 3 camp. Others are Udoh, Aghobahi, IrezenetcUdoh,Okumu ,Iguowan, and Sikoloba communities. (Osadolor*et al.*, 2021). Okumu, Udoh and Iguoowan were purposively selected based on proximity to the reserve.

Base line survey and household counting was carried out to obtain a population in each selected community using Participatory rural appraisal (PRA) techniques. 770 household were identified in Okomu, 500 in Udo, and 700 in Iguoowan through. 5 percent of the household heads or representatives who were participating in homegrown farming were selected. In Okomu, 43 heads were selected Okomu, 37 heads from Udoh and 35 from Iguuuwan. The total respondents for the study were 115.

Data Analysis

Data were analyzed with both descriptive statistics such as frequency count and percentages and inferential analysis (Pearson Product Moment Correlation; PPMC).

Model Specification

Inferential Analysis (PPMC)

Formula for PPMC

$$r = S(X - \bar{X})(Y - \bar{Y}) / v[S(X - \bar{X})^2 S(Y - \bar{Y})^2]$$

Where:

- r: Pearson correlation coefficient
- X: Scores of variable 1 (Extent of Participation in Homegrown Food Production)
- Y: Scores of variable 2 (Perceived Benefits of Homegrown Food Production)
- $\bar{X}$: Mean of variable X
- $\bar{Y}$: Mean of variable Y
- S: Summation across all observations

Table 1: Population of selected communities with households

Selected communities	Total number of household heads	5% of selected household heads
Okomu	850	43
Udo	730	37
Iguuuwan	700	35
Total	**2,280**	**115**

Measurement of Variable

Extent of Urban Households Participation in Homegrown Food Production in Response to Rising Food Costs: The dependent variable was measured using likert scale. This was rated as Very large=5, Large extent=4, Little=3, Very little=2, Not at all=1. The maximum score was 50 while the minimum score was 10. The mean which was obtained was therefore used to categorize extent of urban household participation in homegrown to high or low participation.

Potential Benefit of Homegrown Food Production: A four point scale was used to

determine the potential benefit of homegrown food production. This was graded as Strongly agree=4, Agree=3, Disagree=2, and Strongly disagree=1. The maximum score was 36 while the minimum score was 9. The mean which was obtained was used to categorize the potential benefit of homegrown food production to high or low

Result and Discussion

Socio-Economic Characteristics of the Respondents

Result in Table 2 presents the socio-economic characteristics of the respondents. A significant portion of the respondents, specifically 31.4%, fell within the age range of 41 to 50 years, indicating that they are in their active working years. This demographic engagement suggests that adults are heavily involved in homegrown food practices. The age group often bears the responsibility of providing for their families and may turn to homegrown agriculture as a strategy to counteract rising food cost(Quisumbing *et al.*, 2011). In terms of gender distribution, the majority of respondents (54.8%) were male, while 45.2% were female. This disparity hints at the influence of traditional gender roles in agricultural activities, particularly in rural and peri-urban contexts. Men are typically viewed as the primary labor force in farm-related tasks, especially those that require significant physical effort or specialized equipment. This trend is consistent with observations in various developing countries, where agricultural practices often remain manual. The FAO (2021) highlights that although women play a crucial role in agricultural production, their participation is frequently limited by restricted access to essential resources such as tools, land, and extension services. Consequently, men are more likely to engage in labor-intensive tasks that are perceived to demand greater physical strength or are associated with financial benefits, such as harvesting high-value crops.

The household size of the respondents also presented notable findings, with 50.4% reporting that their households comprised 1 to 3 members. This statistic has significant implications for the harvesting phase of homegrown crops. Given that harvesting is a labor-intensive process, having sufficient hands available to collect crops efficiently and in a timely manner is crucial, particularly for perishable produce. Insufficient manpower in the study due to low household size could be as a result of people migrating to urban areas for greener pasture .Educational qualifications among the respondents revealed that a majority, specifically 61.7%, had attained primary education, 6.1% have no formal education. Employment patterns also indicated that 74.8% of respondents were engaged in trading, with 16.5% employed as civil servants. This suggests that many respondents enjoyed flexible work hours and possibly informal employment arrangements. Traders, in particular, may adopt homegrown food practices as a means to reduce food expenses and ensure consistent nutrition, despite the unpredictability of their incomes (FAO, 2023). The study also indicated that 60.0% of the respondents were self-employed, while 27.8% worked in the public sector. Self-employed and informal workers are often more vulnerable to fluctuations in food prices, and they may turn to home gardening as a strategy to stabilize their food access, as noted by Zezza and Tasciotti (2010). Additionally, the income levels of the respondents were revealing, with 51.9% earning between ₦1 and ₦30,000 monthly. This income distribution underscores the critical role that financial resources play in determining the capacity for harvesting homegrown crops.

Households with lower monthly incomes often face constraints that can adversely affect their harvesting capabilities, such as limited access to labor and smaller-scale harvesting operations.

Table 2: Socio-Economic Characteristics of the Respondents in the Study Area

Variable	Frequency	Percentage
Age		
21-30	15	13.0
31-40	34	29.6
41-50	36	31.3
51-60	18	15.7
61-70	9	7.8
70	3	2.6
Gender		
Male	63	54.8
Female	52	45.2
Household Size		
1-3	58	50.4
4-6	33	28.7
7-9	10	8.7
10-12	9	7.8
13-15	5	4.3
Educational Qualification		
No formal	7	6.1
Primary	71	61.5
Secondary	19	16.5
Tertiary	18	15.7
Home Garden		
Yes	90	78.3
No	25	21.7
Occupation		
Civil Servant	19	16.5
Trading	86	74.8
Artisan	6	5.2
Trading	4	3.5
Estimated income(naira)		
1-30000	68	59.1
30001-60000	25	21.7
60001-90000	13	11.3
=90001	9	7.8
Total	115	100

Participation in Homegrown Food Production

Result in Table 3 illustrated the extent of urban households' participation in homegrown food production in response to rising food costs in the study area. The findings revealed that majority of respondents (59.1%) actively engaged in cultivating food crops such as vegetables, maize, and tubers within their premises. This high mean score (4.92) indicated that homegrown food production was not merely a supplementary activity; rather, it served as a central survival strategy for households. The motivation behind this practice was primarily driven by the need to reduce food expenditures, improve dietary diversity, and enhance food security at the household level. The crops identified vegetables, maize, and tubers were staple and short-cycle varieties, making them particularly suitable for urban agriculture due to their adaptability and relatively quick harvest times. The ranking of homegrown food crop production as the most critical response to food inflation underscored its essential role in urban food systems. It acted not only as a buffer against economic hardship but also fostered household resilience, self-reliance, and sustainability.

Furthermore, the result indicated a strong communal approach to homegrown food production. Respondents (Mean = 4.23) and 59.1% aligneed actively engaged in sharing knowledge, resources, or support with neighbors and community members, ranking this practice second among homegrown crop-related activities. This significant involvement reflected the positive influence of communal engagement on harvesting practices, including labor sharing and knowledge exchange. Such social capital was deemed vital for enhancing productivity and minimizing crop losses during harvesting in peri-urban agriculture. Additionally, the results showed that respondents (Mean = 4.21) frequently harvested food items, such as vegetables, herbs, and fruits, from their home gardens for household consumption, ranking this activity third among homegrown crops. This high mean score suggested that the utilization of homegrown produce for direct household consumption was a prevalent and essential aspect of urban agriculture. Households were not merely growing food for recreational or aesthetic purposes; they actively integrated harvested produce into their daily diets. It acted not only as a buffer against economic hardship but also fostered household resilience, self-reliance, and sustainability (Zezza and Tasciotti, 2010).

The ranking of harvesting homegrown produce for household consumption as the third most common activity reflected a growing reliance on localized food systems in urban areas. It confirmed that urban agriculture extended beyond cultivation and communal engagement, fulfilling its core objective of feeding households. This practice was critical in enhancing urban food sovereignty, resilience, and health outcomes. The findings aligned with previous studies, which noted that urban households practicing home gardening often consumed over 60% of their harvested produce, with vegetables, herbs, and fruits being the most commonly consumed. This form of self-sufficiency significantly reduced vulnerability to fluctuating market food prices and enhanced nutritional well-being, particularly in low- and middle-income urban setting. This form of self-sufficiency significantly reduced vulnerability to fluctuating market food prices and enhanced nutritional well-being, particularly in low- and middle-income urban

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setting (Frayne, McCordic, and Shilomboleni, 2014).

TABLE 3: Participation in Homegrown Food Production in Response to Rising Food Costs in the Study Area.

Participation in homegrown food production	Very large	Large	Little	Very little	Not at all	Mean	Rank
To what extent does your household engage in the cultivation of food crops such as vegetables, maize, or tubers within your residence or surrounding areas?	68(59.1)	25(21.7)	20 (17.4)	2(1.7)	0 (0)	4.92	1st
To what extent does your household utilize available spaces like backyards or community land for growing food?	34 (29.6)	55(47.8)	26 (22.6)	0 (0)	0 (0)	4.07	9th
To what extent does your household depend on food grown at home to supplement daily meals?	41 (35.7)	53(46.1)	15 (13.0)	6(5.2)	0 (0)	4.12	7th
To what extent are members of your household actively involved in planting, watering, and maintaining homegrown food gardens?	39 (33.9)	55(47.8)	19 (16.5)	2(1.7)	0 (0)	4.14	5th
To what extent do you harvest food items (e.g., vegetables, herbs, fruits) from your home garden for household consumption?	44 (38.3)	53(46.1)	16 (13.9)	2(1.7)	0 (0)	4.21	3rd
To what extent does your household adopt innovative food production techniques, such as container gardening or vertical farming, to grow food at home?	43 (37.4)	40(34.8)	25 (21.7)	3(2.6)	4 (3.5)	4.02	10th
To what extent does your household invest in procuring seeds, fertilizers, or gardening tools for home food production?	51 (44.3)	35(30.4)	22 (19.1)	5(4.3)	2 (1.7)	4.11	8th
To what extent does your household engage in sharing knowledge, resources, or support with neighbors or community members to enhance food production?	57 (49.6)	38(33.0)	11 (9.6)	7(6.1)	2 (1.7)	4.23	2nd
To what extent has homegrown food production contributed to reducing your household's overall food expenditure?	42 (36.5)	52(45.2)	18 (15.7)	3(2.6)	0 (0)	4.16	4th
To what extent has the increase in food costs motivated your household to expand or sustain homegrown food production efforts?	38 (33.0)	55(47.8)	20 (17.4)	2(1.7)	0 (0)	4.13	6th

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Level of Urban Households' Participation in homegrown Food Production

The result in Table 4 below presented the level of rural households' participation in homegrown food production, indicating the extent to which respondents were involved in this activity. With the 59.1% of the respondents responses above grand mean (M=30), it was indicated that more than half participated perhaps as a result of rising food costs and inflation in food prices . This aligns with findings by Musotsi, *et al*. (2023), who emphasized that rural households increasingly resort to home gardening and small-scale food production to offset the economic burden of food inflation and improve food security.

Table 4: Level of Urban Households' Participation in homegrown Food Production in the Study Area.

Level	Frequency	Percentage (%)	Mean
Low	47	40.9	
High	68	59.1	30
Total	115	**100**	

Potential Benefits of Homegrown Food Production

The result in Table 5 revealed the benefits of homegrown food production in the area, with a mean score of 4.58 indicating that respondents strongly agreed on its impact in reducing household spending on groceries and other food-related expenses. This finding aligned with Frayne *et al*. (2014), who noted that home gardening considerably enhances household food economics in urban Africa. In Nigeria, where food inflation was notably high (NBS, 2024), cultivating homegrown foods like green leafy vegetables and yam substitutes effectively lowered daily costs. Additionally, respondents expressed strong agreement (Mean = 4.41) that families engaged in homegrown food production were more inclined to participate in local food initiatives, gardening groups, or knowledge-sharing activities. This high mean score and second-place ranking suggested that such families were not only self-reliant but also actively involved in their communities' food systems. This observation was consistent with Ogunleye and Fagbohun (2022), who found that households practicing homegrown food were more likely to join or initiate community groups focused on self-sufficiency and sustainability.

Furthermore, a majority of respondents (Mean = 4.38) strongly agreed that producing food at home fostered a sense of self-sufficiency and diminished dependence on external food supply chains. This finding highlighted the importance of home food production in mitigating reliance on fluctuating market prices and unstable food supply systems, particularly in Nigeria's challenging economic climate.

Table 5: Potential Benefits of Homegrown Food Production in the Study Area.

Benefits of homegrown food production	SA	A	D	SD	Mean	Rank
Growing food at home significantly reduces household spending on groceries and other food-related expenses.	74(64.3)	34(29.6)	7 (6.1)	0 (0)	4.58	1st

Homegrown food production ensures consistent access to fresh and nutritious food for all members of the household.	42 (36.5)	69 (60.0)	4 (3.5)	0 (0)	4.33	5th
Families with homegrown food are more likely to consume fresh fruits, vegetables, and other nutrient-rich produce regularly.	53 (46.1)	50 (43.5)	12(10.4)	0 (0)	4.36	4th
Homegrown food is perceived to be of higher quality and safer for consumption, free from harmful pesticides or preservatives.	38 (33.0)	65 (56.5)	6 (5.2)	6 (5.2)	4.17	8th
Producing food at home promotes a sense of self-sufficiency and reduces dependence on external food supply chains.	51 (44.3)	57 (49.6)	7 (6.1)	0 (0)	4.38	3rd
Families engaged in homegrown food production are more likely to participate in local food initiatives, gardening groups, or knowledge-sharing activities.	58 (50.4)	48 (41.7)	7 (6.1)	2 (1.7)	4.41	2nd
Cultivating food at home provides a relaxing and therapeutic outlet, improving mental well-being and enhance family bonding.	43 (37.4)	64 (55.7)	8 (7.0)	0 (0)	4.30	6th
Homegrown food acts as a buffer against the impacts of rising food costs, especially during periods of economic uncertainty.	49 (42.6)	51 (44.3)	13 (11.3)	2 (1.7)	4.28	7th
Home gardens encourage biodiversity through the cultivation of diverse plant species and can serve as habitats for beneficial insects and small wildlife.	35 (30.4)	67 (58.3)	9 (7.8)	4 (3.5)	4.15	9th

Categorization of Potential Benefits of Homegrown Food Production

The result in table 6 shows the level of benefits of homegrown food production. This was reported to be high based on the categorization of the respondent's views on potential benefits of homegrown production. With the 66.1% of the respondents' responses above grand mean (M=16), it was indicated that more than half noted that homegrown could be beneficiary at the long run. This finding underscores the positive role that homegrown food production plays in enhancing household food availability,

reducing dependency on purchased food, and promoting nutritional self-sufficiency.This finding was consistent with the study of Alao*et al.* (2023), who noted that homegrown food practices contributed significantly to food security in many parts of the country.

TABLE 6: Categorization of Potential Benefits of Homegrown Food Production

Level	Frequency	Percentage (%) Mean
Low	39	33.9
High	76	66.1
Total	115	100

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Relationship between Participation in Homegrown Food Production and Benefits

The result in Table 7 below implies that participation in homegrown food production have a direct relationship with its benefits (P= 0.01, r=0.308). This implies that the participation in homegrown food production actively contributes to or enhances the realization of its perceived benefits, such as improved nutrition, reduced food expenditure, increased community engagement, and resilience to rising food prices. This is based on existing evidence that increased household participation in food gardening enhances dietary diversity, reduces food costs, and improves nutrition (Galhena *et al.*, 2023).

Table 7: Relationship between Participation in Homegrown Food Production and Benefits

Variables	r-value	P-value	Decision
Participation Vs Benefits	0.0381	0.01	S

Conclusion and Recommendation

The study conducted in the Okomu Forest Reserve environs provided valuable insights into the engagement of rural households in homegrown food production, highlighting their proactive response to rising food costs and food insecurity. A significant majority of respondents participated in cultivating food crops, driven by the need to enhance food security. There is high level of participation in homegrown food production. This underscored the vital role of home gardening in fostering self-sufficiency and resilience among households, especially in the face of economic challenges such as inflation and currency devaluation.

Based on these findings, several recommendations were proposed to bolster homegrown food production. Policymakers were urged to implement supportive measures, such as providing access to seeds, fertilizers, and gardening tools, alongside financial incentives to alleviate production costs. Community-based education and training programs were recommended to equip households with essential skills for effective home gardening, focusing on sustainable practices and crop diversification. Strengthening community networks through gardening groups or cooperatives was also suggested to facilitate knowledge sharing and resource collaboration. Furthermore, further research was deemed necessary to explore specific challenges and develop context-

specific solutions through collaborations among academic institutions, government agencies, and local communities. Lastly, awareness campaigns were advocated to educate the broader community on the benefits of homegrown food production in enhancing food security, improving nutrition, and fostering resilience.

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