



## Benefits of Home Garden Farming Practices among Urban Households in Kogi State, Nigeria

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### Abstract

This study investigates the benefits of home garden farming among urban households in Kogi state, Nigeria. The objectives of the study are to (i) determine the crops produced by the households; (ii) assess the perceived benefits of home gardens to households; determine the knowledge level of households on home gardens among others. A total of 149 urban dwellers were selected as respondents. A structured questionnaire was used to collect primary data. Data collected were analysed with frequency, percentage, mean, and Pearson's Product Moment Correlation (PPMC) statistics. Findings showed that 50.3% of the respondents had tertiary education. Tomatoes (53%) and pepper (50%) were the main crops cultivated in their garden. 53.5% grew the crops at the back of their houses and 69.4% planted their crops on bare land. Topmost benefits of home garden farming indicated were contribution to income generation (mean=4.79), promotion of agri-entrepreneurship development (mean=4.74), and improvement of household food nutrition (mean=4.68). The main constraint to home garden farming was an inadequate supply of seeds and planting materials (mean=2.38). PPMC analysis shows that increased household size ( $r = 0.17$ ,  $p < 0.05$ ) supports home garden farming while the increase in years of age ( $r = -0.22$ ,  $p < 0.01$ ) negates home garden farming. This study concludes that home garden farming has contributed to income generation, promotion of agri-entrepreneurship development and improved household food nutrition of urban households in Kogi State. Extension policies and programs are needed to promote home garden farming towards an adequate supply of seeds and planting material for urban dwellers in Kogi State.

**Keywords:** Home garden; tomatoes; pepper; income generation; household food nutrition.

### 1. Introduction

Rice A home garden refers to a piece of land cultivated by individuals or households who have access to land in their homes or walking distance from their homes (Kortnight and Wakefield, 2011). A home garden can be described as a mixed cropping system that encompasses vegetables, arable fruits, plantation crops, spices, herbs, ornamental and medicinal plants as well as livestock. It can serve as a supplementary source of food and income. The specific size of home

garden varies from household to household and their average size is less than arable land owned by the household. However, this may not be true for families without agricultural land and those without land.

Home gardens are usually located by the side, front, back, rooftops, balconies, and courtyard. Vegetables and staples can be grown in earth-filled sacks, and tubs made from old tires and pots. A well-developed home garden contributes significantly to daily food needs. It can supply households with nearly all non-staple foods that are needed such as fruits, legumes, vegetables, nuts, root crops, and herbs; for sales, medicine

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and ornamental purposes. According to Torimiro *et al.* (2016), the type of vegetables that are majorly grown in the garden is spinach (*Spinacia oleracea*), onion (*Allium cepa* L), Bell pepper (*Capsicum annuum*), and Tomato (*Solanum Lycopersicum* L.).

Since the population is increasing, food demand is projected to also increase. It is projected that the currently available cropland and levels of production will not be able to match food demand globally. This will result in an increase in food demand and rising rates of urban poverty. Similarly, this threatens the availability of food to the poor urban dwellers.

Colson-Fearon and Versey (2022) found that urban agricultural practices help build social capital, inform and educate community members about healthy eating behaviors, and facilitate the distribution of affordable food. Therefore, home gardening contributes to food security by assuring the availability of food in fresh form to satisfy the calories and nutrients needed by the household (Ojo, 2009). According to Zimpita (2015), home gardens aim at ensuring that individual households are self-sufficient in fresh vegetables which can also be sold to their neighbors or through wet markets found in front of retail supermarkets and can be sold for a lower price than the price of the same product. Globally, home gardening has been recorded as an important source of supplement to food, nutritional security, and livelihood. Home gardens have contributed directly to household food security by increasing food availability, accessibility, and utilization of food products (Galhena and Freed, 2013).

Farming practices are collections of principles to apply to farm production processes to get better agricultural products. It is also a required set of procedures that needs to be followed to ensure yields of high-quality products. Farming practices include soil preparation, sowing, manure/fertilizer application, irrigation, weeding, pest control, harvesting, and storage. Environmentally sustainable farming practices

will not only increase the income of farmers but will also breed healthier crops for consumers and their families. Application of animal manure and other organic residues has been one of the practices in supplying nutrients to the crops grown in home gardens as a way, of increasing the productivity and fertility of these gardens (Galhena *et al.*, 2012).

Good agricultural practices are however necessary to improve the profitability and sustainability of small farms. Sustainable crop production intensification in the home garden can be achieved through good farming practices that follow ecosystem-based approaches designed to improve the sustainability of production systems. Good farming practices have also been initiated to meet consumer needs for products that are of high quality, safe, and produced in an environmentally and socially responsible way. The main objective of this study is to assess the benefits of home garden farming practices among urban households in Lokoja, Kogi State, Nigeria. The objectives of the study are to: (i) determine the types of home gardening practiced by the households; (ii) identify the crops produced (iii) assess the benefits of home garden to households (iv) determine the knowledge of household on home garden practices and (v) identify the constraints to practice of home gardening.

## 2. Methodology

This study was conducted in Lokoja. It is a size medium-sized town located in North central Nigeria. It is the capital of Kogi State and it is located on the confluence of River Niger and River Benue. It lies between latitude 7°30'N and Longitude 6°42'E of the equator (Department of Land Survey Kogi State, 2010). The state has a population of 3,595,789 and occupies a total landmass of about 30, 354.74 sq.km<sup>2</sup> (NPC, 2006). It is about 165km southwest of Abuja as the crow flies and 390km northeast of Lagos by the same measure.

The population for the study comprises all households practicing home gardening in Lokoja, Kogi State, Nigeria. A three-stage sampling technique was employed to select samples for the study. In the first stage, 3 wards out of the ten wards constituting Lokoja Local Government were purposively selected. The wards are ward are: Lokoja A, Lokoja E, and Oworo based on

their prominence in the practice of home gardening. In the second stage, one community was purposively selected from each ward. The communities are Phase II, Sarkin Noma, and Felele. In the third stage, 50 percent of the households practicing home gardening were randomly selected from the communities to make a total of 149 respondents.

**Table 1.** Sampling Procedure and Sample Size

Wards	community	Households	50 % of household	Total
Lokoja A	Phase II	81	41	
Lokoja E	SarikiNoma	120	60	
Oworo	Felele	96	48	149

*Source: Field Survey, 2022*

A structured interview schedule was used to elicit information from the targeted respondents. Validity of the instruments for data collection was done using both Face and Content Validity. The test and Retest method was used to determine how reliable the instrument for data collection is. The questionnaire was administered to 20 respondents from the study population who will not be part of the selected sample for the study. The process was repeated within two weeks. The first and the second responses were correlated using Pearson's Product Moment Correlation (PPMC) Analysis. A correlation coefficient of 0.7 was obtained hence the instrument was adjudged reliable.

The data collected was scored and coded to enhance the process of data analysis. Descriptive statistics such as frequency, percentages, and rankings were used to analyze the socio-economic characteristics of the households, types

of home gardening practiced by the households, crops produced in the home garden, and knowledge level of households on home garden production practices. A Likert-type scale was used to analyze the contributions of home gardens to urban households and the constraints to the practice of home gardening households. Inferential statistics; Pearson's Product Moment Correlation (PPMC) was used to test the hypothesis of the study.

### 3. Results and discussion

#### 3.1. Educational Status of Respondents

The result in Table 2 revealed that (50.3%) had tertiary education. This implies that the owners of the home garden are considerably educated, hence they could understand improved farming practices that can help them to achieve high yield and sustain the environment.

**Table 2.** Educational status of respondents (n= 149)

Literacy level	Frequency	Percentage
Non- formal	5	3.2
Primary	27	17.2
Secondary	38	24.2
Tertiary	79	50.3

*Source: Field survey (2022)*

Education is assumed to have a positive influence on farmers' decisions on farm production practices. This can be supported by the report of Mignouna *et al.* (2011) that education is an important socio-economic

characteristic that is assumed to have a positive influence on farmers' decisions. This finding is in agreement with Mohammad Lawal (2009) who opined that farmers' level of education is expected to influence their decisions in various aspects of farming.

### 3.2. Types of Home Gardening Practiced

The finding reveals that the majority (53.5%) of the respondents grow their crops at the back of their houses and the majority (69.4%) planted their crops on bare land. This implies that a home garden located at the back could be more convenient, accessible and secure. The backyard could hide the crop in the garden from animals and theft. Furthermore, the respondent's choice of bare land as material for growing crops could mean that bare land doesn't add extra cost to production like other materials such as tire tubes, pots, buckets, and sacks might not be readily available for growing their crops. This is in agreement with the findings of Taylor and Lovel, (2012) who opined that the location and materials for gardening are for convenience, accessibility, and security.

**Table 3.** Distribution of the respondents by the location and materials of the garden

	Frequency	Percentage	Mean(SD)
Location of garden			
Front	26	16.6	2.18(1.09)
Back	84	53.5	
Side	36	21.7	
Balconies	3	1.9	
Materials used			
Bare land	109	69.4	
Sacks	16	10.2	
Tyre Tubes	5	3.2	
Pot	3	1.9	
Bucket	16	10.2	

Source: Field Survey, 2022

### 3.3. Crops Produced in the Garden

The result in Table 4 shows that the majority of the respondents produced tomatoes (53%) followed by the production of pepper (50%). This implies that most of the respondents practice home gardening to ensure the availability and accessibility of fresh fruits and vegetables. These findings are in agreement with Masset *et al.* (2012) who opined that home gardens have become a popular intervention among different development actors to promote increased household production of fruits and vegetables.

### 3.4. Benefits of Home Garden to Households

Result in Table 5 shows the perceived benefit of home garden to the households. Most of the respondents believed that one of the most

important benefit derived from practicing home garden is the fact that it contributes to income generation ( $x=4.79$ ). Furthermore, the responses of the majority of the respondents shows that home garden promotes entrepreneurship development ( $x=4.74$ ) and improves food nutrition (4.68). This implies that the respondents practice home garden because it helps to generate income and ensure their families eat nutritious food. This finding is in agreement with Garhena and Freed, (2013) who opined that home garden is an important supplement to food nutritional security and livelihood. Moreover, Akter *et al.* (2021) found that women involved in homestead gardening increased household food production and income which helped them to contribute in decision making.

**Table 4.** Distribution of respondent by the crop produced in the garden

Crop produced	Frequency	Percentage
Tomatoes	84	53.1
Pepper	79	50.30
Maize	61	38.9
Spinach	52	33.1
Yam	50	31.8
Okra	35	22.3
Potatoes	34	21.70
Melon	31	19.7
Cowpea	29	18.5
Cassava	28	17.8
Medicinal plant	24	15.3
Ornamental	10	6.4
Bitter Leaf	20	1.7
Water melon	6	3.8
Jute Leaf	4	2.5
Sugar cane	3	1.9

Source: Field Survey, 2022

**Table 5.** Distribution of respondents by benefit of home garden to household

Benefits	Mean	Rank
Contributes to income generation	4.79	1 <sup>st</sup>
Promotes entrepreneurship development	4.74	2 <sup>nd</sup>
Improves household food nutrition	4.68	3 <sup>rd</sup>
Improves livelihood	4.67	4 <sup>th</sup>
Reduces soil erosion and enhance soil conservation	4.66	5 <sup>th</sup>
Improves family health and human capacity	4.66	5 <sup>th</sup>
Conserves Biodiversity and Natural Resources	4.63	7 <sup>th</sup>
Transfer of knowledge and skill of home garden from one generation to the other.	4.57	8 <sup>th</sup>
Creates and reinforce social status and ties between communities	4.56	9 <sup>th</sup>
Serves as valuable repository for preserving and transferring indigenous crops	4.56	10 <sup>th</sup>
Beatification of the environment	4.44	11 <sup>th</sup>
Empowers Women	4.24	12 <sup>th</sup>
Enable nutrient cycling	2.85	13 <sup>th</sup>
Recreation	2.65	14 <sup>th</sup>

Scale: Strongly disagree=1, disagree=2, undecided=3, agree=4, strongly agree=5

### 3.5. Knowledge of household on-home garden production practices

The results in Table 6 show that the respondents were knowledgeable on home garden production practices varying from land clearing, planting, weeding, seed selection, harvesting, and marketing, among others. This may be because some of the gardeners were migrants from rural areas while some were urban dwellers who had

spent a lot of years on home gardening practices. Moreover, the result of Table 7 on knowledge shows that 73.20% of the respondents have high knowledge of home garden production practices. This implies that food and family nutrition can be enhanced through the involvement of urban dwellers in home garden practices.

**Table 6.** Knowledge of household on home garden farming practices

Home garden production practices	I knowf(%)	I don't knowf(%)
Loose, fertile, moist, sandy loam soils are the best	141(89.8)	6(3.8)
Clearing:	146(93)	3 (1.9)
Levelling:	144(91.7)	5(3.2)
Tillage:	110(70.1)	39(24.8)
Erosion control	137(87.3)	12(7.6)
Terracing:	121(77.1)	28(17.8)
Cover crop:	128(87.9)	11(7.0)
Broadcasting:	141(89.8)	8(5.1)
Seed drilling	147(93.6)	2(1.3)
Transplanting:	148(94.3)	1(0.6)
Thinning	147(93.6)	2(1.30)
Mulching	135(86)	14(8.9)
Watering	148(94.3)	1(0.6)
Application of fertilizer	139(85.5)	10(6.4)
Use of organic manure	148(94.3)	1(0.6)
Weeding	147(93.6)	1(0.6)
Use of herbicides for weed control.	129(82.2)	20(12.7)
Planting of high quality, disease-free seed	121(77.1)	28(17.8)
Use of disease-resistant varieties best suited to climate	93(59.2)	54(34.4)
Use of vegetables best suited to climate and soil	104(66.2)	4(28.7)
Use of pesticide for pest control	135(86)	45(28.7)
Harvesting On	135(86)	14(8.9)
Fruit and seed vegetables may be harvested over a while by picking, topping, digging	127(80.9)	22(14.0)
Preservation of perishable fruits and vegetables.	136(86.6)	13(8.3)
Processing of garden crops	142(90.4)	76(4.5)
Storage of garden produce.	137(87.3)	12(7.6)
Marketing of garden produce.	142(90.4)	7(4.5)
Transportation and handling	144(91.7)	4(2.5)

Source: Field Survey, 2022

**Table 7.** Knowledge index of household on home garden production practices

Category	Knowledge Index	Frequency(f)	Percentage (%)
Low	1-49	0	0
Moderate	50-74	37	25.3
High	75-100	109	73.2

Source: Field Survey, 2022

### 3.6. Constraints to the practice of home garden

From Table 8, the result shows that the most severe constraint is an inadequate supply of seeds and planting materials followed by poor soil fertility, followed by insecurity and theft, and followed by shortage of land. This finding conforms with Toriimiro *et al.* (2016) who opined that agricultural productivity is constrained by problems such as unavailability of major farm inputs, shortage of land, insecurity, disease and pest infestation, and poor post-harvest technology.

### 3.7. Relationship between selected socio economic characteristics of the respondents and knowledge level on home garden production practices

Results of correlation analysis of some selected socio-economic characteristics of the respondents and their knowledge level on home garden production practices revealed that there was a negative relationship between age and knowledge level – the older the respondents, the lower their level of knowledge. This implies that older people have a lower knowledge level of home

garden production practices while young people have a high knowledge level. This contradicts the finding of Taylor and Lovell (2014) who considered old farmers as people filled with knowledge because of their many years of farming experience. This may be because young

people have a high level of education, and therefore have access to information on good production practices. Furthermore, young people are agile and more active and can easily source information on home garden production practices than older respondents.

**Table 8.** Constraints to the practice of home gardening

Constraints	Mean	Rank
Inadequate supply of seeds and planting material	2.38	1 <sup>st</sup>
Poor soil fertility and soil erosion	2.34	2 <sup>nd</sup>
Shortage of land	2.08	3 <sup>rd</sup>
Destruction by animals	2.19	4 <sup>th</sup>
Inadequate finance	1.54	5 <sup>th</sup>
Social and cultural barriers	1.32	6 <sup>th</sup>
Conflict with neighbours	1.82	7 <sup>th</sup>
Insecurity and theft	2.32	8 <sup>th</sup>
Inadequate source of water	1.28	9 <sup>th</sup>
Inadequate labor of home gardening	1.21	10 <sup>th</sup>
Inadequate information on the benefits	1.07	11 <sup>th</sup>
Pest and diseases	1.06	12 <sup>th</sup>
Insufficient knowledge of home gardening	1.06	13 <sup>th</sup>
Inadequate transportation	1.06	14 <sup>th</sup>
access to market	1.05	15 <sup>th</sup>
High temperatures	1.04	16 <sup>th</sup>

Scale: Not severe=1, Severe=2, Very severe=3

**Table 9.** Result of PPMC showing the relationship between selected socio economic characteristics of the respondents and knowledge of home garden production practices

Benefits	r- value	p-value	Decision
Age	-0.22	0.008	Significant
Years of education	0.14	0.86	Not significant
Household size	0.17	0.04	Significant

#### 4. Conclusion and Recommendations

Based on the findings and statistical analysis of the study, urban dwellers in the area have a very high knowledge level of home garden production practices. The study shows that younger people are more knowledgeable in the practices of home gardens than old people. However, the study shows that the major challenges to the practice of home gardens include inadequate supply of seeds and planting materials, poor soil fertility, and destruction by animals. Based on the conclusion of the findings, the following recommendations were suggested.

1. Government and private organizations should design programs for the home garden owners to educate them and also ensure that

extension agents effectively disseminate the agricultural message.

2. The government should develop effective input procurement and distribution channels that will ensure timely delivery of adequate quantity and quality to gardeners.

#### Authors' Contributions

All authors are contributed equally

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#### Institutional Review Board Statement

The study was conducted according to the guidelines of the Department of Agricultural Extension and Rural Development, University of Ilorin, Nigeria and approved by the Head of Department.

#### Data Availability Statement

The authors confirm that the data supporting the findings of this study are available within the article.

**Ethics Approval and Consent to Participate**

*Informed consent was obtained from all participants involved in the study.*

**Consent for Publication**

*The authors agree to publish this study.*

**Conflicts of Interest**

*The authors declare no conflict of interest*

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