



## Contribution of Home Gardening to Household Food Security: A Case Study of Home Gardeners in Igabi Local Government Area of Kaduna State, Nigeria

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### *Authors' contributions*

*This work was carried out in collaboration among all authors. Authors ONO, UUE and JTA designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors BFI and TAA managed the analyses of the study, proof read the article and co-type the manuscript. Author OO managed the literature searches. All authors read and approved the final manuscript.*

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### **ABSTRACT**

**Aims:** This study examined the contribution of home gardening to household food security in Igabi Local Government Area of Kaduna State, Nigeria.

**Study Design:** The study was designed to collect data from 120 home gardeners using well structured questionnaire and personal interview of the gardeners by the researchers.

**Place and Duration of Study:** The study was carried out in Igabi Local Government Area of Kaduna State, Nigeria between June to July, 2019.

**Methodology:** Multi-stage, purposive and simple random sampling techniques were used to select 120 respondents. The data collected were analyzed using descriptive statistics such as means, frequency distribution, table, percentage and Likert – scale.

**Results:** The results showed male (65.83%) in their active age (87.50% are within the age range of 21-50 years) and highly educated (92.50%) with good number of years of experience in home

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gardening, (80% had over 5years of experience) dominated the practice of home gardening in the study area. The study also revealed that they produced many types of crops, about 32. The most popular crops cultivated were; tomato 91.67%),cowpea(87.50%),groundnut(82.50%),okra(75.00%), pumpkin (70.83%), spinach (70.83%) maize(56.67%),millet(56.67%),sorghum(51.67%), pepper (50.00%) and sweet potato (50.00%).The Likert--scale result showed that all the home gardeners household were food secure and the study established that home gardening does not only contribute to their house hold food supply but also their income. However the home gardening in the study area is faced with problems such as pests attack and diseases infestation (80.00%) and lack of farm inputs such as seeds, fertilizers, pesticides and farm tools(75.00 %).

**Conclusion:** The study revealed that home gardening contributed significantly to the household food security. It is therefore important to integrate home gardening into our farming system been a good tool for achieving food security among households and people should also be sensitized to utilize empty plots of land around their homestead for home gardens.

*Keywords: Contribution; home gardening; household; food security; igabi; Kaduna; Nigeria.*

## 1. INTRODUCTION

Households are said to be food secure when they possess the ability and enablement to access an affordable, quality and the right quantity of food items needed for their livelihoods. Food insecurity is synonymous with abject poverty and that is the reason why governments all over the world are concerned about the food security of their citizens of which Nigeria government is inclusive. Otunaiya AO, Ibadunni OS [1], asserts that poverty is a condition of unsustainable livelihood. It is the denial of choices and opportunities for living a tolerable life [2]. The fundamental challenge the world faces today is ensuring that millions of households living in poverty have access to enough food and sustainable livelihood to maintain a healthy life. Food security at household level is a subset of the national level and it requires that all individuals and households have access to sufficient food either by producing it themselves or by generating sufficient income to purchase it [3]. Food security has been defined in various ways by different researchers and organizations. According to Maxwell S [4], most common definitions of food security begin with individual entitlement, though recognizing the complex inter-linkages between the individual, the household, the community, the nation and the international community. Gurkan AA [5], defined food security as a state of affairs where all people at all times have access to safe and nutritious food to maintain a healthy and active life. The 1996 Rome Declaration on World Food Security as reported by [6], defined food security as a situation where food is made available at all times, to all persons that needed it and the food is nutritionally adequate in terms of quantity, quality and variety, and is acceptable

within the given culture. FAO [7], adopting the definition of World Food Summit in 1996 broadly defined food security as a situation when all people at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. This definition incorporates food stability, access to food, availability of nutritionally adequate food and the biological utilization of food together. The elements of food security are availability, accessibility, utilization, affordability and stability of food.

Home gardening refers to the cultivation of a small portion of land which may be around the household or within walking distance from the family home and they are a time-tested local strategy that are widely adopted and practiced in various circumstances by local communities with limited resources and institutional support [8]. It is a garden not far from the home that is owned and maintained by the household and kept mainly for household food supply [8]. Home gardening are considered as part of the agriculture and food production systems in many developing countries and serves as a tool for alleviating hunger and malnutrition in the face of a global food crisis [9]. Globally, home gardening has been documented as an important supplemental source contributing to food and nutritional security and livelihoods. The most fundamental social benefit of home gardening stems from their direct contributions to household food security by increasing availability, accessibility, and utilization of food products [8]. Home gardening contributes to nutrition and household food security by providing quick and direct access to different foods that can be harvested, prepared and eaten by family

members on daily basis. Zerihun, K et al.[10], stated that home gardening provides a diversity of fresh foods that improve the quantity and quality of nutrients available to the family. Household with gardens obtain more than half of their supply of vegetables and fruits including secondary staples such as plantain, cassava, cocoyam, sweet potato, yam, medicinal plants, herbs and rearing of animals for their animal protein. Often times marketing of garden produce and animals are often the only sources of independent income for women. Home gardening is just however only one of the possible ways of ensuring food security for the poor and it should be considered in the context of a broader national food security strategy [10]. Aworinde DO *et al*, [11] asserts the place of home gardening in Nigeria as a tool to combat food security, medicinal uses and income generation.

The need to promote home gardening as an instrument of coping with food insecurity especially with the high level of food insecurity in the country and the threat to life as a result of banditry, kidnapping and land grabbing that is occurring around the study area which reduces farmers accessibility to their farm lands outside the vicinity of their homes is imperative. This study therefore examined the contribution of home gardening to the household food security in Igabi Local Government Area of Kaduna State, Nigeria.

## 2. METHODOLOGY

### 2.1 Study Area

The study was conducted in Igabi Local Government Area of Kaduna state. Igabi is one of the four local government area which constitute Kaduna metropolitan city, an important commercial and administrative centre in Northern Nigeria and comprises of different sets of people with diversified socio-cultural characteristics. Igabi local government is located in guinea savannah of Nigeria on latitude  $10^{\circ} 47' 0''$  N and longitude  $7^{\circ} 46' 0''$  E. The headquarter of Igabi Local Government Area is Turunku. The population of Igabi local government area according to 2006 population census was estimated at 430,753 people and projected population of 581,500 people by 2016 [12]. Annual rainfall is between 250mm-1000mm and usually begins early May and ends in October and the dry season is between October-April. The major crops produced in the area are

cowpea, yam, cassava, maize, millet, guinea corn, sugarcane and cocoyam. Livestock/animals that are reared in the Local Government Area are poultry, cattle, goat and sheep.

### 2.2 Reconnaissance Survey

A reconnaissance survey was carried out in the proposed study area to identify where reasonable number of households is involved in home garden activity for adequate data collection for this research work. The survey result revealed that villages namely Amaza, Garda,Igabi and Turunku in Igabi district area; Birnin Yero, Jaji, Morarraban Jos and Rigachikun in Rigachikun district area and Afaka, Ifire,Kudandan and Rigasa in Rigasa district area were identified to have high concentration of home gardeners and they were chosen for the study because of the high incidence of home gardening activities in these villages.

### 2.3 Sampling Techniques and Frame

All home gardeners in the study area constituted the sampling population/frame for the study. Multi stage sampling technique was employed to select the 120 home gardeners used for this study. The first stage was the selection of the Igabi Local Government Area because the researchers reside in this local government area. The second stage is the selection of four villages each from the three main districts which are Igabi district (Amaza, Garda, Igabi, and Turunku), Rigachikun district (Birnin Yero, Jaji, Morarraban Jos and Rigachikun). Rigasa district (Afaka, Ifire, Kudandan and Rigasa) and the twelve villages were selected purposively for the study due to high concentration of home gardeners identified in these villages during a reconnaissance survey carried out by the researchers before the study was carried out. Random sampling was then employed in the third stage to select ten (10) home gardeners each from the twelve villages giving a total of 120 home gardeners that were used for this study.

### 2.4 Method of Data Collection

Both primary and secondary data were used to achieve the objective of the study. The primary data was collected with the aid of a well structured questionnaire/personal interview from the respondents in the selected households. Data were collected on the following variables; socio - economic characteristics of respondents, years of home gardening experience, types of

crops grown, contribution of home gardens family food security, income and constraints of home gardening operation. Secondary data were also used from literature, such as journals, articles, conference proceeding, text books, internet and other print media.

## 2.5 Method of Data Analysis

The data collected from this study were subjected to descriptive statistical analysis. Descriptive statistics such as frequency distribution table, averages, percentages and Likert- scale were used to analysed the data collected. Likert- scale used to describe household food status and the contribution of home garden to food security and livelihood of the gardeners household. Three points Likert-scale was used to evaluate the households food security status. The three point were specified as Food insecure with hunger =1, Food insecure with no hunger = 2 and Food secure = 3 while four point Likert – scale was used to describe the contribution of home gardens to food security of the gardeners family. The four point were specified as Highly Agreed (HA) = 4, Agreed (A) = 3, Disagreed(D) = 2, Highly Disagreed(HD) = 1. The Likert scaling type measuring instrument is represented by the formula:

$$X = \sum Fx / N$$

Where X = mean score

$\sum$  = summation sign F = frequency

N = no of respondents.

x = no of nominal value of each response category  $3 + 2 + 1 / 3 = 2$  for rate/level of household food security status and  $4+3+2+1/4 = 2.5$  for rate/level of contribution of home gardens to food security of the gardeners family. Therefore, 2 is the weighted mean of the scaling statement for rate/level of household food security status and 2.5 is also the weighted mean of the scaling for the rate/level of contribution of home gardens to food security of the gardeners family in the study area.

Decision Rule: (i) Any mean value greater or equal 2 is positive (households are food secure) while mean value less than 2 are negative (households are food insecure).

(ii) Any mean value greater or equal to 2.5 is positive (agreed) while mean value less than 2.5 are negative (disagreed).

The grand total mean score and household food security index were computed from the Likert

scale analysis. The grand total mean score is obtained by adding all the mean scores in the column and divided by number of mean score in the column. Household food security index is calculated by dividing the grand total mean score by the number score allotted to food security.

## 3. RESULTS AND DISCUSSION

### 3.1 Socio - Economic Characteristics of the Respondents in the Study Area

#### 3.1.1 Gender of the home gardeners

Table 1 shows that men constituted majority (65.83%) of the respondents in home garden compared to women with 34.17 % of the total respondents. The dominant of men in home garden could be due to traditional belief of the people in the area which prohibits women from going out freely to engage in economic activities. This current finding was in support of the work of [13], which reported that male were the majority among the home gardeners in Delta North Agricultural Zone, Delta state, Nigeria.

#### 3.1.2 Age of the home gardeners

Table 1 shows that majority of the respondents (65%) were between the age bracket of 31-40 years, while 12.50% were between the age range of 41-50 years, 10% were within the age bracket of 21 – 30 years, 7.50% fell between the age range of 51 years above and 5% were less than 20 years of age. This shows that majority (95%) of the home gardeners were in their working age group and still possess the strength and energy needed to carry out all agronomical activities of home garden. The result was in conformity with the work of [11], who reported that 100 % home gardeners in Odeda area of Ogun state, Nigeria were above 21 years of age.

#### 3.1.3 Educational level of the home gardeners

Table 1 shows that majority (50.00%) of the respondents possessed secondary school educational background, while this is closely followed by respondent who have attended tertiary education level accounting for (40.00%) of the respondents. 7.50% of the home garden owners have no formal education and 2.50% of them had primary education. This implies that majority (90%) of the home gardeners in the study area had post primary education and can read and write. This will help them in adoption of new technologies and innovation. This finding is

contrary to the submission of [11], in which majority of home gardener investigated had primary school leaving certificate.

### 3.1.4 Marital status of home the gardeners

Table 1 on marital status indicated that majorities (75.83%) of the respondents were married, Single accounted for (16.67%), and widows were (5%) of the total respondents and 2.50% were divorcees. This means that half of the home gardeners in the study area were married. Uzokwe UN et al. [13] reported similar result for home gardeners in his study with the majority been married (65.50%) and single (14.40%) but the divorcee (12.60%) were slightly above the widow/widowers (7.50%) whereas in the present study the widows/ widowers (5.00%) were slightly above the divorcee (2.50%).

### 3.1.5 Household size of the home gardeners

Table 1 revealed that 40.00% of sampled home gardeners had 6 – 10 people in the family, 25.00% have about 1 – 5 people as household size, 20.00 % of the respondents have between 11- 15 persons as a family while only 15.00% of the gardeners have 16 and above people as their family size. This implies that about 75.00% of the home gardeners have about 6 people and above in their family which is an indication that most of the labour requirements can be sourced from the family thereby leading to reduction in cost of production and more income generation to the gardeners. This result negates the finding of [13] in which 65.00 % of the home gardeners have between 2- 5 family members.

**Table 1. Socio – economic characteristics of the home gardeners in the study area**

Socio-economic variables	Frequency (n = 120)	Percentage (%)
<b>Gender</b>		
Male	79	65.83
Female	41	34.17
Total	120	100
<b>Age (years)</b>		
Less than 21	6	5.00
21 – 30	12	10.00
31 – 40	78	65.00
41- 50	15	12.50
51 – Above	9	7.50
Total	120	100
<b>Educational level</b>		
No – formal	9	7.50
Primary	3	2.50
Secondary	60	50.00
Tertiary	48	40.00
Total	120	100
<b>Marital status</b>		
Single	20	16.67
Married	91	75.83
Widow	6	5.00
Divorcee	3	2.50
Total	120	100
<b>Household size</b>		
1 – 5	30	25.00
6- 10	48	40.00
11 – 15	24	20.00
Above 16	18	15.00
Total	120	100

### 3.2 Types of Crop Grown Under Home Gardening Practices

The result in Table 2a and 2b showed that thirty two different types of crops are produced by the practice of home gardening in the study area. These crops comprises of cereals, legumes, vegetables, spices, fruit trees, herbs, climbers, tubers, roots, shrubs and ornamental trees which were similar to those crops identified to be cultivated in Odeda home gardens as reported by [11]. The findings in this study also supported the study of [14], who reported that staple crops like cassava, maize, yam, plantain/banana and economic crops like cocoa, kola and citrus are commonly grown in home gardens of eastern Nigeria. Cereal crops identified in home gardening practice include maize (56.67%), millet (56.67%) and sorghum (51.67%). Legume crops found in the gardens are cowpea (87.50%), groundnut (82.50%) and pigeon pea (15.00%). The vegetables found in the gardens are tomato (91.67%), okra (75.00%), pumpkin (70.83%), spinach (70.83%), Jute Mallow (48.33%), cabbage (45.00%), lettuce (45.00%), garden egg (22.50%), water leaf (20.00%), water melon (20.00%), and carrot (12.50%). Spices produced from home gardening in the study area include pepper (50.00%), onion (30.00%) and curry leaf (20.00%). Sweet potato (50.00%), yam (25.00%) and cassava (17.50%) were the tubers produced through home gardening, while tree crops include banana (30.00%), moringa (25.00%), mango (25.00%), pawpaw (15.00%) and guava (10.00%). Medicinal plants cultivated by the gardeners were bitter leaf (30.00%), scent leaf (20.00%) and lemon grass (10.00%). Sugar cane (33.33%) was also produced in the gardens. The array of crops produced through home gardening in the study area can be compared with crops produced from main farming activities. The array of crops will provide all the food required by the households both in quantity and quality. Cereal and legume crops are staple food consumed by the teeming populace in the country. This result clearly showed that home gardening also performed the function of producing such staple food. About 37.50% of the crops produced through home gardening were both fruit and leafy vegetables which provide minerals and vitamins for households while the protein and energy needs of the household can be met with the legume and cereal crops produced in the garden respectively. The array of crops produced through home gardening also comprises of spices such as onion, curry leaf and pepper which are also used on daily basis by household

to improve taste and flavour of their food, stew and sauce. Spices are also source of vitamins and minerals. Tree crops comprise of both fruit and leafy crops were also parts of array of crops produced through home gardening. The fruit crops are also good source of vitamins and minerals and some can be used as medicinal plant. Home gardening also produces medicinal plants like bitter leaf, scent leaf and lemon grass which are good plant for the treatment of different ailments among the household family members. Excess from these crops are sold by the gardeners to generate income which can be used to purchase other food items not produced in the garden. The findings in this study concerning types of crops produced through home gardening clearly showed that households that practices home gardening are likely to be food secure since the array of crops produced will supplement their food needs, and income generated from surpluses will also help them to achieve food security. This finding supported the assertion of [9] asserted that home gardening are considered as part of the agriculture and food production systems in many developing countries and serves as a tool for alleviating hunger and malnutrition in the face of a global food crisis. The array of crops produced in this study fit into the definition of food security by [6] and [7] that defined food security as a situation where food is made available at all times, to all persons that needed it and the food is nutritionally adequate in terms of quantity, quality and variety, and is acceptable within the given culture. In this case the array of crops produced in the study area through home gardening met all the conditions describe in the two definitions.

### 3.3 Household Food Security Status

Table 3 showed the distribution of the gardener's house hold based on food security status. The gardeners were grouped into four household size brackets which is made up of bracket (I); those that have between 1 – 5 family member(s), bracket (II); those with 6 -10 family members, bracket (III); those with 11 – 15 family members and bracket (IV); those that have 16 family members and above. Household in each of the bracket was asked three categorical statements such as: Are they food secure? Are they food insecure but with no hunger? Are they food insecure with hunger? The responses of the gardeners were collated and subjected to analysis using Likert - scale to ascertain which of the household bracket is food secure or not. Household bracket with small family members is

expected to be more food secure than those with large family members. Also using food secure scale assigned the Fig. 3 as baseline; household bracket food security index was estimated. The table revealed that all the household size brackets were food secure. The grand total mean score was computed to be 2.73 signifying that the gardeners house hold groups are food secure. The food security index of 0.91 is an indication that 91% of the household group were food secure. This shows that most food eaten by household members are sourced from family farming activities, especially home gardening.

The produce from home gardening is consumed solely by the family and only where and when surplus exist that they are sold to generate income that can be used to purchase other food items. The result from this study clearly showed that the daily nutrition and healthy food required by household members can be obtained from home gardening. Home gardening, therefore, play a significant role to household food security. FAO [15], asserts that home gardening has a dual purpose of provision of food and income generation for households that practice it.

**Table 2a. Frequency distribution of respondents based on types of crop grown**

Crop Type	Life span	Botanical Name	Frequency	Percentage
Tomato	Annual	<i>Lycopersicon esculentum</i>	110	91.67
Cowpea	Annual	<i>Vigna unguiculata</i>	105	87.50
Ground nut	Annual	<i>Arachis hypogaea</i>	99	82.50
Okra	Annual	<i>Ablemoschus esculentus</i>	90	75.00
Pumpkin	Annual	<i>Telfaria occidentalis</i>	85	70.83
Spinach	Annual	<i>Amaranthus hybridus</i>	85	70.83
Maize	Annual	<i>Zea mays</i>	68	56.67
Millet	Annual	<i>Pennisetum glaucum</i>	68	56.67
Sorghum	Annual	<i>Sorghum bicolor</i>	62	51.67
Pepper	Biennial	<i>Capsicum spp.</i>	60	50.00
Sweet Potato	Annual	<i>Ipomoea batatas</i>	60	50.00
Jute Mallow	Annual	<i>Corchorus oleriorius</i>	58	48.33
Cabbage	Biennial	<i>Brassica oleraceae</i>	54	45.00
Lettuce	Annual	<i>Lactuca sativa</i>	54	45.00
Sugar Cane	Biennial	<i>Saccharum officinarium</i>	40	33.33
Bitter Leaf	Perennial	<i>Vernonia amygdalina</i>	36	30.00

Multiple Responses\*Annual crops = 1(50.00%) \*\*Biennial crops=5(15.625%) \*\*\* Perennial crops = 11(34.375%)

**Table 2b. Frequency distribution of respondents based on types of crop grown**

Crop Type	Life span	Botanical Name	Frequency	Percentage
Banana	Perennial	<i>Musa spp.</i>	36	30.00
Onion	Biennial	<i>Allium sepa</i>	36	30.00
Moringa	Perennial	<i>Moringa oleifera</i>	30	25.00
Yam	Annual	<i>Discorea spp.</i>	30	25.00
Mango	Perennial	<i>Mangifera indica</i>	30	25.00
Garden Egg	Perennial	<i>Solanm melongena</i>	27	22.50
Water Leaf	Annual	<i>Talinum triangulare</i>	24	20.00
Water Melon	Annual	<i>Catrulles lanatus</i>	24	20.00
Curry Leaf	Annual	<i>Murraya koenigii</i>	24	20.00
Scent Leaf	Annual	<i>Ocimum gratissimum</i>	24	20.00
Cassava	Biennial	<i>Manihot esculeta</i>	21	17.50
Pigeon Pea	Perennial	<i>Cajanus cajan</i>	18	15.00
Pawpaw	Perennial	<i>Carica papaya</i>	18	15.00
Carrot	Annual	<i>Daucus carota</i>	15	12.50
Guava	Perennial	<i>Psidium guajava</i>	12	10.00
Lemon Grass	Perennial	<i>Cymbopogon schoenanthus</i>	12	10.00

Multiple Responses\*Annual crops = 1(50.00%) \*\*Biennial crops=5(15.625%) \*\*\* Perennial crops = 11(34.375%)

**Table 3. Frequency distribution of the respondents based on household food security status**

Household Size (persons)	Frequency	Food secure (3)	Food insecure with no Hunger (2)	Food insecure with severe hunger (1)	Total score	Mean score	Decision
1- 5	30	22(66)	8(16)	0(0)	82	2.73	Food secure
6-10	48	38(114)	10(20)	0(0)	134	2.79	Food secure
11-15	24	20 (60)	1(2)	1(1)	63	2.63	Food secure
16 and above	18	14 (42)	3(6)	1(1)	49	2.72	Food secure
Total	120	94(282)	22(44)	2(2)	328	2.73	Food secure

*Cut-off score =2.00 (>or= 2.00 = food secure and <2.00 =food insecure) Grand total food security mean = 2.73 Household food security index = 2.73 / 3= 0.91*

**Table 4. Frequency distribution of the respondents based on contribution of home gardening to household food security**

Indicators	Responses				Total score	Mean Score	Decision
	Highly agreed(4)	Agreed(3)	Disagreed(2)	Highly Diagreed(1)			
Home gardening produce contribute to family food needs	80(320)	40(120)	0(0)	0(0)	440	3.67	Agreed
Produce contribute to family income	65(260)	50(150)	4(8)	1(1)	419	3.49	Agreed
All the produce are consumed by the family	70(280)	30(90)	17(34)	3(3)	407	3.39	Agreed
All the produce are sold out	0(0)	0(0)	50(100)	70(70)	170	1.42	Disagreed
Only part of the produce are consumed by the family	18(72)	22(66)	20(40)	60(60)	238	1.98	Disagreed
Only part of the produce are sold out	65(260)	45(135)	5(10)	5(5)	410	3.42	Agreed
Part of the produce are giving out as gift to friends and families	50(200)	45(135)	15(30)	10(10)	375	3.13	Agreed
Produce reduce starvation during food scarcity period	45(180)	45(135)	18(36)	12(12)	363	3.03	Agreed
Total	393(1,572)	277(831)	129(258)	161(161)	2,822	2.94	Agreed

*Cut-off score =2.50 (>or= 2.50 = agreed and <2.00 =disagreed) Grand total food security mean = 2.94 Household food security index = 2.94 / 4= 0.735*



### 3.4 Contributions of Home Gardening to the Household Food Security

The result of home gardening contribution to the household food security is presented in Table 4. Eight indicators were postulated in order to measure the level of home gardening contribution to household food security as shown in the table. Home gardeners responses were them sought for each indicator. The result showed that home gardening contributes significantly to family food needs (mean score =3.67). The study further showed that the household consume all they produce (mean score=3.39) and sell the surplus (mean score = 3.42), after the family food needs had been met to generate additional income for the household (mean=3.49). The study also revealed that part of the produce from home gardening are used as gift to friends and families (mean score =3.13) and also act as security to prevent starvation during food scarcity especially period close to planting period (mean=3.03). As reported by [13], this corroborates the assertion by United Nations Development Programme (UNDP) that home gardening provides direct access to different foods that can be harvested, prepared and fed to family members often on daily basis which contributes to household food security and nutrition. The finding from this study is also in line with the study of [13], who showed that home gardening significantly contributed to family food supply, family income and meant for family consumption. The overall mean (grand mean score) of 2.94 implies that home gardening contributes to the household food security. The home gardening contribution index of 0.735 implies that the contribution of home gardening to household food security in the study area is about 73.50%. The result also revealed that the gardeners disagree with the perception that all the produce from home gardening are sold out (1.42) and that only small portion of the produce are eaten by the gardener household (1.98). This

disagreement of the gardeners with these two indicators also confirmed that home gardening contribute significantly to family food security in the study area. Globally, home gardening has been documented as an important supplemental source contributing to food and nutritional security and livelihoods as extracted from the review of [8]. Musotsi AA et al. [16], argues that for the majority of people in the developing world, home gardening remains the most important method of food production.

### 3.5 Constraints Militating against Home Gardening

Result of constraints affecting home gardening is presented in Table 5. A mean score 45.00% was computed from the study. It is therefore assumed that any constraints that is less than the 45.00 % mean score is considered not to significantly affect home gardening while any constraint that is equal or more than the mean score of 45.00 % is considered to significantly influence home gardening in the study area. Based on this assumption, pests attack and diseases infestation (80.00%) and lack of farm inputs such as seeds, fertilizers, pesticides and farm tools (75.00%) were the major problems affecting home gardening in the study area. Other challenges that can be classified as minor problems are poor financing and theft of produce which were considered by only 25.00% of home gardeners as a problem respectively while only 20.00% of the gardeners reported that they are faced with the issue of their produce been damaged by livestock. Lack of farm inputs, pests and diseases infestation observed in this study were reported as constraints associated with home gardening by various studies as reviewed by [8]. Fernandes ECM, Nair PKR [17], reported limited access to agricultural inputs such as seeds, planting material, tools, and capital as a challenge to home gardening.

**Table 5. Frequency distribution of the respondents based on constraints militating against home gardening**

<b>Constraint</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Lack of finance	30	25.00
Lack of farm inputs	90	75.00
Pest and diseases	96	80.00
Theft	30	25.00
Destruction by animals	24	20.00
Mean score		45.00

*Multiple Responses Source: Field survey 2019*

#### 4. CONCLUSION

The study identified that the practice of home gardening is dominated by male who had many years of experience in such venture and still in their active age cultivating small portion of land around their homestead. Home gardening was seen to provide varieties of fresh food items ranging from fruits, vegetables, spices, medicinal plants and food crops to the family thereby contributing significantly to the household food security through the arrays of crops produced which contributes to family food supplies as well as income generation where surpluses are sold. The result of Likert Scale study on household food security status gave a food security index of 0.91 signifying that 91.00% of the gardener households investigated in this study was food secure while 9.00% of them are food insecure. The result of home gardening contributions to food security using eight postulated indicators showed that home gardening contributed 73.50% to household food index in the study area. The study concluded that home gardening is a veritable tool that can be used to solve food insecurity among household and the nation at large if serious attention is given to it by policy makers. The study recommends that there is a need to integrate home gardening into our farming system by agricultural policy makers and adequate extension services in area of pests and diseases management as well as supply of improved farm inputs to home gardeners by appropriate government authorities is also required. Sensitization of people to cultivate plots of land around their homestead should also be encouraged.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

#### REFERENCES

1. Otunaiya AO, Ibidunni OS. Determinants of food security among rural farming households in Ogun State, Nigeria. *Journal of Sustainable Development in Africa*. 2014;16(6):34-44.
2. United Nations .Human Development Report, New York: United Nations; 1997.
3. Food Agriculture Organization (FAO). Extracts from international and regional instruments and declarations, and other authoritative texts addressing the right to food; International code of conduct on the human right to adequate food. Rome; 1999.
4. Maxwell S. The evolution of thinking about food security, in Devereux S and Maxwell S (eds.) *Food security in sub-Saharan Africa*. 2000;17.
5. Gurkan AA. Determining the structure of food insecurity at the global level: A cross-country framework for analyzing policy issues for the agro-food sector; 1994.
6. Madeley J. *Food for all: The need for a new agriculture*, 2002; 34.
7. FAO. *World food summit plan of action*. Rome; 1996.
8. Galhena DH, Freed R, Maredia KM. Home gardens: A promising approach to enhance household food security and wellbeing. *Agriculture and Food Security*. 2013;2(1):1.
9. Johnson-Welch C, Alemu B, Msaki TP, Sengendo M, Kigutha H, Wolff A. *Improving household food security: Institutions, gender and integrated approaches*. Davis CA, USA: Paper prepared for the broadening access and strengthening input market systems (BASIS) Collaborative Research Support Project (CRSP); 2000.
10. Zerihun K, Weyessa G, Adugna D. Understanding home garden in household food security strategy: Case study around Jimma, Southwestern Ethiopia. *Research Journal of Applied Science*. 2011;1(6):38 – 43.
11. Aworinde DO, Erinoso SM, Ogundairo BO, Olanloye AO. Assessment of plants grown and maintained in home gardens in Odeda area Southwestern Nigeria. *Journal of Horticulture and Forestry*. 2013;5(2):29-36.
12. National Population Commission (NPC). *Federal Office of Statistics. Census*; 2006.
13. Uzokwe UN, Giweze EA, Ofuoku AU. Contribution of home gardening to family food security in Delta North Agricultural Zone, Delta State, Nigeria. *International Journal of Agricultural Extension and Rural Development Studies*. 2016;3(2):26-33.
14. Egharebva RKA, Ogbe F, Obasogie F. Food systems for improved human nutrition: Studies of food production in home garden in Edo State. *Nigerian Journal of Horticultural Science*. 2005;9:79-88.
15. Food and Agriculture Organization (FAO). *Improving nutrition through home gardening: a training package for preparing*

- field workers in Southeast Asia. Rome; 1995.
16. Musotsi AA, Sigot AJ, Onyango MOA. The role of home gardens in household food security in Butere Division of Western Kenya. African Journal of Food, Agriculture, Nutrition and Development. 2008;8(4):375-390.
17. Fernandes ECM, Nair PKR. An evaluation of the structure and function of tropical home gardens. Agr. Syst. 1986 21:279–310.

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