

## MARKETING ANALYSIS OF FLUTED PUMPKIN (*TELFAIRIA OCCIDENTALIS* HOOK F.) IN ALIMOSHO LOCAL GOVERNMENT AREA, LAGOS STATE, NIGERIA

I. A. KAREEM, M. F. ADEKUNLE, M. O. ADEDOKUN, C. P. IBEGBULEM

Department of Forestry and Wildlife Management, Federal University of Agriculture,  
Abeokuta, Ogun State Nigeria

\*Corresponding Author: kareemia@funaab.edu.ng Tel: +2348060940252

---

### ABSTRACT

Fluted pumpkin is a Non-Timber Forest Product (NTFP) of high importance to the socioeconomic life of the rural and urban dwellers. This study analyzed the marketing of Fluted Pumpkin (*Telfairia occidentalis* Hook) locally known as 'ugu' in different market locations in Alimosho Local Government Area, of Lagos State, Nigeria. Descriptive Statistics was used to estimate the socio-economic characteristics while inferential statistics was used to analyze the factors affecting the marketing of Fluted pumpkin (*Telfairia occidentalis* Hook) in the study area. Data were collected through the use of well-structured questionnaire administered to Fluted pumpkin traders in five (5) selected markets in Alimosho Local Government Area. These included Ayobo, Iyana-Ipaja, Dopemu, Ikotun and Igando markets. 200 copies of questionnaire comprising of 40 in each market were administered to the traders. Socio-economic characteristics of *Telfairia occidentalis* traders and marketing variables such as transportation cost, rent, labour cost, selling price, cost price, market tax, among others were collected and analysed. The results showed that ugu sellers were involved in both wholesale (47.4%) and retail (42.5%) marketing which implied that there were more wholesalers than retailers which was attributed to purchase of ugu in bulk. Marketing of Fluted pumpkin is gender sensitive; all 100% of the respondents were women; 56.8% had primary education and were married. They all sourced their capital from personal savings. Profitability analysis across the five markets revealed that it was highest (₦25,669.74) in Iyana Ipaja and least (₦20,785.53) in Ayobo market. Total revenue across markets revealed that it was highest (₦106,881.58) in Iyana Ipaja market and lowest (₦94,782.90) also in Ayobo market. The marketing efficiency of the respondents in each market revealed that Iyana Ipaja is the most efficient (129.99%) which indicated that for every ₦100 invested in Ugu market there is about ₦30 profit. It was concluded from the study that the trade of Ugu is a profitable venture in Alimosho Local Government Area and also capable of providing employment to people. Hence, there is need for enlightenment program on how to improve the profitability of *Telfairia occidentalis* through efficient marketing.

**Keywords:** Non-Timber Forest Product (NTFP), Marketing Efficiency, Profitability.

### INTRODUCTION

Fluted pumpkin (*Telfairia occidentalis*, Hook F.) is one of the most important vegetables cultivated in Nigeria. It is generally referred

to as a leaf and seed vegetable. The leaf has high nutritional, medicinal and industrial values being rich in protein, fat, minerals and vitamins (Ndor *et al.*, 2013). It is locally called

Ugu in Igbo land, Eweroko in Yoruba, Kabewa in Hausa, and Ikong-Ubong in Efik. *Telfairia* is a greenish leafy vegetable that is found in West Africa but it is mostly grown in various parts of southern Nigeria. It is a valuable leafy vegetable, indigenous to the south eastern Nigeria. Among the important indigenous vegetables, *Telfairia occidentalis* from the family cucurbitaceae is widely consumed in Nigeria and cultivated for its edible succulent shoots and leaves as a garden crop mainly by the Igbo tribe. With the migration of Igbos to other parts of Nigeria, *Telfairia* is now grown in almost every part of the country (Akoroda, 1990). In the middle belt region of Nigeria, *Telfairia* is now being cultivated both as a garden crop and also as a commercial crop during both rainy and dry seasons.

The importance of plant seeds, particularly in the diet of people in the developing countries is growing increasingly for various reasons. First, the seed has nutritive and calorific values, which makes them essential in diets as good sources of protein, edible oils and fat. The seeds are also a capable source of raw materials for local industries, especially in the oleo chemical and animal feed industries (Christian, 2007). *Telfairia* contains calcium, iron, potassium, and manganese. Fluted pumpkin leaves are a good source of dietary fibre that keeps the digestive system healthy. It also offers a good amount of vitamins A, B2, C and E. These vitamins help in maintaining cells, tissues, membranes, and also the skin and treat wounds. It is also recommended for patients who are suffering from low blood production due to the important minerals that help boost the blood in the body system. Iron, being the essential mineral in the red blood cell can be so effective when there is insufficient blood circulation in the

body. As a result of this, fluted pumpkin has been used to increase the level of blood in the body system. Vegetables are generally effective for weight loss and fluted pumpkin leaves cannot be overlooked due to their high dietary fibre content which helps to lose weight and lower appetite. It also contains little or no calories which completely reduces the chances of storing calories in the body (www.finelib.com).

Vegetables are suitable in the farming system since they are generally short-duration crops, which makes them suitable for mixed cropping, association and intercropping. Fluted pumpkin germinates 10 days after planting and can be harvested two to four weeks after planting or when the stems are long. Therefore, this leads to high cropping intensity and higher income per unit area. Fluted pumpkin can also be a source of supplementary income to farmers and can be grown successfully as intercrop alongside trees, therefore, yielding more profits from forest plantation. In establishing a fluted pumpkin plantation, labour is required which could serve as a source of employment. In this case, there are involvements of people on the large-scale production of fluted pumpkin (Agropedia, 2009).

As a result of the high nutritional, medicinal and economic value of fluted pumpkin, there is a need for information on its trade and potential to enhance the livelihood among the inhabitants of both rural and urban areas. Lack of information on the marketing and low sale of non-timber forest products make them undervalued in the agricultural commodity markets (Opabode and Adeboye, 2005).

Aiyelaagbe and Kintomo (2002) reported that the major reason for the low profitability

of non-timber forest products (NTFPs); *Telfairia occidentalis* for example, is the absence of an organized information system about the importance of NTFPs which is to help individual producer and marketer organize production, distribution and marketing of their products. Also, production of *Telfairia occidentalis* has been insufficient to meet up with the demand of consumers which is probably due to a lack of information on its economic importance and marketing efficiency. *Telfairia occidentalis* is a non-timber forest product that provides food both for human and animal consumption; for medicinal purposes; for aesthetic values; and most importantly, to generate income so as to sustain the livelihood of people within and outside the forest communities.

Regardless of the importance of non-timber forest products in Nigeria, and Lagos State, in particular, markets for non-timber forest products most especially *Telfairia occidentalis*, which add value at the local level are not well informed. Despite their high degree of importance, they are still classified as minor in the forest.

The Economics of both rural and urban areas can rely on non-timber forest products to generate income, food and medicine; As a result of this, there is a need to place more emphasis on the benefits of the natural renewable earner. It becomes relevant that the study analyses the marketing of *Telfairia occidentalis* for livelihood sustenance in Alimosho Local Government Area in Lagos State. The main objective of this study was to analyse the marketing of *Telfairia occidentalis* (Fluted pumpkin) in Alimosho Local Government Area, Lagos state, Nigeria. Specifically, the study aimed at:

- describing the socio-economic character-

istics of the marketers of *Telfairia occidentalis*

- estimating the profitability of *Telfairia occidentalis* in the study area.
- determining the marketing efficiency of the respondents in the selected markets.
- identifying the constraints involved in the marketing of *Telfairia occidentalis*

### METHODOLOGY

Alimosho is a Local Government Area in Lagos State, Nigeria with the largest population of about 3,082,900, according to population 2019-projection (Metro Lagos, 2022). The 2006 Census claimed the population was 1,288,714 but the Lagos State Government argued that the population as at 2006 within the LGA was more than 2 million residents (Fagbohun *et al*, 2020; Alimosho LGA, 2022). Alimosho occupies coordinates 6°36'38"N 3°17'45"E. It has now been subdivided into several Local Community Development Areas (LCDA). Majority of the people living in these areas are predominantly Aworis and Egbados while the main occupation of its settlers is peasant farming.

Simple Random Sampling Technique was adopted to select 40 fluted pumpkin sellers from each of the five (5) purposively selected markets which gave a total of 200 respondents for this study. The markets selected were Ayobo, Dopemu, Iyana-Ipaja, Ikotun and Igando. They were purposively selected because they are the major markets in Alimosho LGA of Lagos State where sales of Fluted pumpkin are predominant.

Descriptive tools such as frequency, means, mode and percentages were used to analyze the socio-economic variables. The budgetary technique was used to estimate the cost and returns of fluted pumpkin marketing in the study area.

Variable costs (VC) consist of Labour cost, Rent cost, Transportation and market tariffs. Fixed costs (FC) included the cost of bags and baskets used for storage.

$$TC = TVC + TFC \text{-----Equation. 1}$$

Where:

TC= Total cost

TVC= Total variable cost

TFC= Total fixed cost

$$GP = TR - TVC \text{----- Equation 2}$$

Where:

GP = Gross Profit

TR = Total revenue given as  $P_y \cdot Y$

Where  $P_y$  is price per unit of product

$Y$  = Product

$$NP = GP - TFC \text{.....Equation 3}$$

Where:

NP = Net profit

TFC= Total fixed cost.

The multiple linear regression model was used to determine the factors that contributed to the selling price of *Telfairia occidentalis* in the study, the model specification was given as

$$Y = a + bX_1 + bX_2 + bX_3 + bX_4 + e_i \text{----- Equation 4}$$

Where:

$Y$ = the selling price

$X_1$ = Labour cost (₦)

$X_2$ = Rent cost (₦)

$X_3$ = Transportation cost (₦)

$X_4$  = Market tariffs (₦)

$e$ = Error terms

b1, b2 ..... Co - efficient of independent variables and are the estimated parameters.

This implied that an inverse relationship exists between transaction costs and quantity

$$(RORI \%) = \frac{TR-TC}{TC} \times \frac{100}{1} \text{----- Eq. 5}$$

**Analysis of marketing efficiency**

$$ME = \frac{\text{Total sales}}{\text{Total marketing cost}} \times \frac{100}{1} \text{----- Eq. 6}$$

of Flutedpumpkin supplied by marketers.

**Profitability Ratio**

Rate of Returns on investment

**RESULTS**

The socioeconomic characteristics of the respondents revealed that all the respondents are females, (Table 1). This might be attributed to the fact that selling of vegetables such as Ugu requires a little effort which makes it convenient for women. This agreed with the findings of Agbugba, (2003) that reported women are key players in the marketing of indigenous leafy vegetables. Majority (71.6%) of the women’s age ranged between 30 and 50 years. This agreed with the findings of Yohanes, (2015) that the age structure of most practitioners of vegetable marketing are active and middle-aged dominated. The variation in age brackets across the markets was further illustrated in figure 1 where age group < 20 years had the lowest percentages in all the five markets whereas Ayobo and Ikotun markets had highest percentages(42.1% and 36.8% respectively) for 31-40 years while Dopemu, Iyana-Ipaja and Igando markets had highest percentages (42.1%, 39.5% and 42.1% respectively) for age group 41-50 years. The mean household size is 7 as illustrated in figure 2 which showed that all respondents had between 6-7 persons in their

households. This is due to their understanding that a larger household size will bring about cheaper labour which they can rely on in supporting their businesses.

**Level of Education:** Averagely, more than half (56.8%) of *Ugu* sellers had primary school education (figure 3) This may be attributed to the fact that primary school education is sufficient in enabling them to read and write which can be used for their business activities. This agreed with the discovery of Agbugba *et al.*, 2017 who indicated that the majority of the respondents in the study area had primary education (37%), followed by those with no formal education (34%), respondents with secondary education (17%), and those with tertiary education (2%).

**Ethnic Group:** Majority (85.8%) of the women were Ibo due to the fact that *Ugu* is associated to be a south-eastern vegetable (Fig. 4).

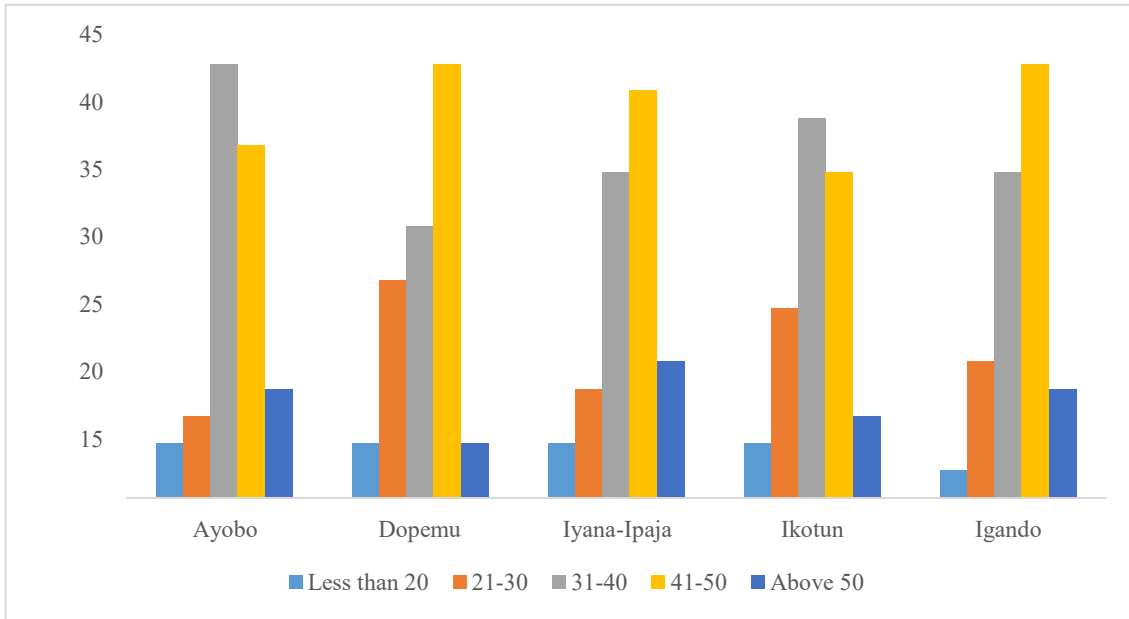
The socioeconomic variables shown in Table 1 are further illustrated with the following figures:

## RESULTS AND DISCUSSIONS

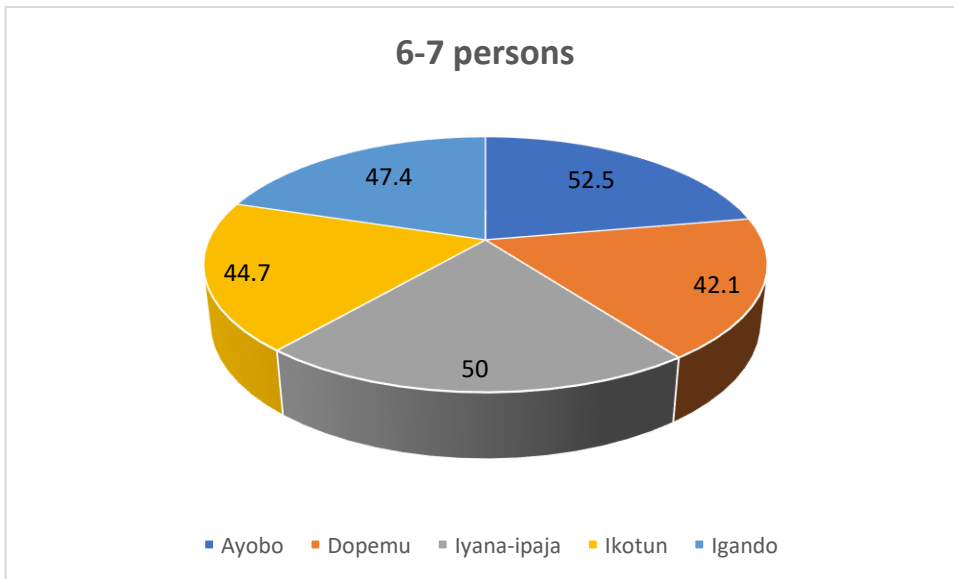
**Table 1: Socioeconomic Characteristics of 'Ugu' Traders**

Variables	Ayobo		Dopemu		Iyana-Ipaja		Ikotun		Igando	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
<b>Age</b>										
Less than 20	2	5.3	2	5.3	2	5.3	2	5.3	1	2.6
21-30	3	7.9	8	21.1	4	10.5	7	18.4	5	13.2
31-40	16	42.1	10	26.3	12	31.6	14	36.8	12	31.6
41-50	13	34.2	16	42.1	15	39.5	12	31.6	16	42.1
Above 50	4	10.5	2	5.3	5	13.2	3	7.9	4	10.5
Total	38	100	38	100	38	100	38	100	38	100
Mean	43		46		42		51		49	
<b>Sex</b>										
Male	-	- 100	- 38	- 100	-	- 100	-	- 100	-	- 100
Female	38	100	38	100	38	100	38	100	3	100
Total	38				38		38		8	38
<b>Household size</b>										
3 - 4	14	36.8	20	52.6	14	36.8	18	47.4	16	42.1
6 - 7	20	52.5	16	42.1	19	50.0	17	44.7	18	47.4
8 and above	4	10.5	2	5.3	5	13.2	3	7.9	4	10.5
Total	38	100	38	100	38	100	38	100	38	100
Mean	7		6		5		5		6	
<b>Level of education</b>										
None	1	2.6	3	7.9	1	2.6	3	7.9	1	2.6
Primary school	22	57.9	20	52.6	23	60.5	22	57.9	21	55.3
Secondary school	14	34.2	13	34.2	11	28.9	12	31.6	13	34.2
Tertiary school	1	5.3	2	5.3	3	7.9	1	2.6	3	7.9
Total	38	100	38	100	38	100	38	100	38	100
<b>Ethnic group</b>										
Yoruba	6	15.8	5	13.2	6	15.8	4	10.5	6	15.8
Ibo	32	84.2	33	86.8	32	84.2	34	89.5	32	84.2
Hausa	-	- 100	- 38	- 100	-	- 100	-	- 100	-	- 100
Total	38				38		38		3	8

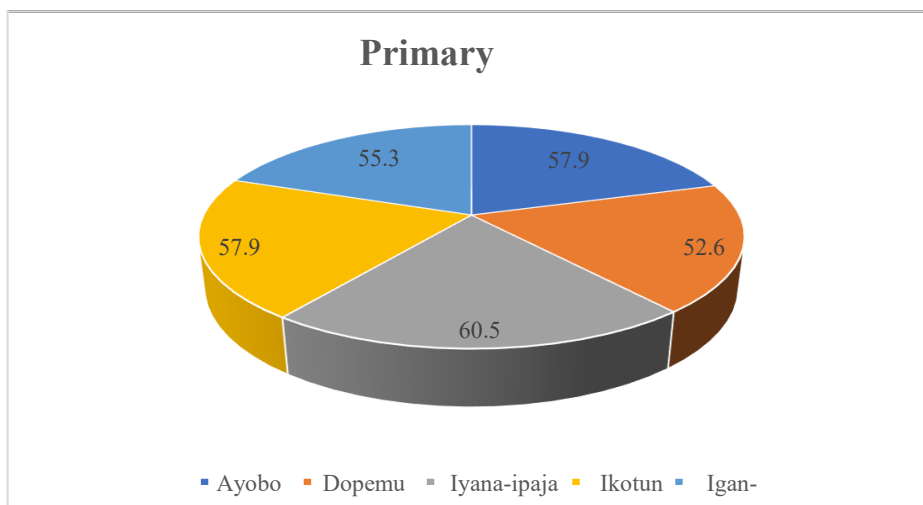
Note: Freq. - Frequency



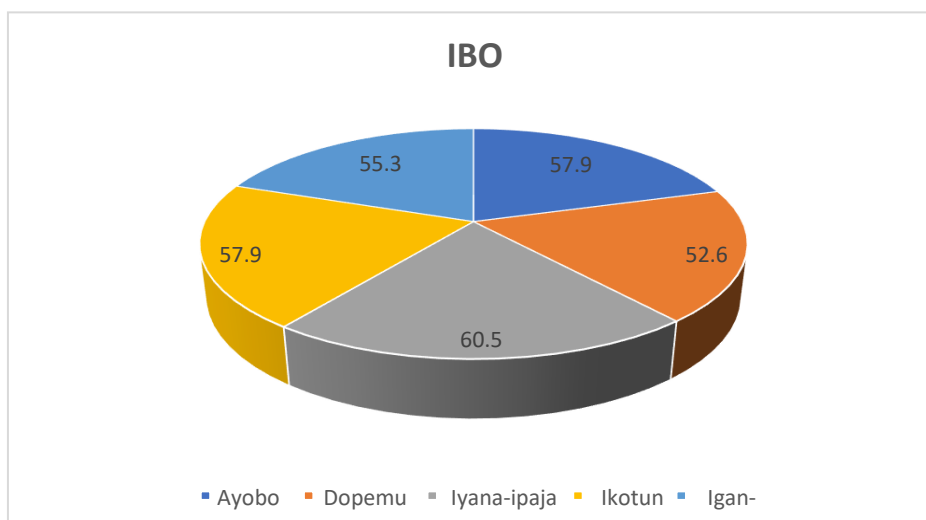
**Fig. 1: Age Distribution across the Five Markets**



**Figure 2: Household Sizes Across the Five Markets**



**Figure 3: Level of Education**



**Figure. 4: Ethnic Group**

**Table 2: Profitability of Ugu (Fluted pumpkin)**

Variable	Ayobo	Dopemu	Iyana Ipaja	Ikotun	Igando
Total cost	75,007.58	78,397.62	82,222.58	73,140.52	79,143.22
Total Variable cost	73,997.37	77,386.84	81,211.84	72,130.26	78,131.58
Total Fixed Cost	1,010.21	1,010.78	1,010.74	1,010.52	1,011.64
Total Revenue	94,782.90	100,328.95	106,881.58	95,065.79	101,210.53
Gross profit	20,785.53	22,942.11	25,669.74	22,935.53	23,078.95
RORI	26.36	27.97	29.99	29.97	27.88



The profitability of the respondents revealed that Iyana-Ipaja had the highest values of all the variables while Ayobo had the lowest (Table 2). This implies that Iyana-Ipaja has the highest number of Ugu buyers which could be as a result of their dominant population. Therefore, Ugu marketing is profitable.

**Table 3: Marketing Efficiency of the Respondents in each market**

Market	Marketing efficiency (%)
Ayobo	126.36
Dopemu	128.04
Iyana-paja	129.99
Ikotun	129.97
Igando	127.88

The result of the marketing efficiency of the respondents in each market revealed that Iyana Ipaja is the most efficient (129.99%) which indicated that for every ₦100 invested in Ugu market there is about ₦30 profit (Table 3). This suggested that Ugu market is profitable for the sellers. Afolabi, (2007) made a similar observation in his marketing of selected food items in South-western Nigeria indicating that a vegetable marketer with a ₦1000 increase in the ₦3,343.

**Table 4: Regression analysis showing the factors affecting the marketing of ugu**

Variables	Coefficients	Standard error	p-value
Constant	92.261	19.244	0.000
Transportation cost	0.079	.019	0.000
Market tax	-0.369	.082	0.000
Rent	0.002	.002	0.384
Labour	-0.047	.017	0.008
R-square	0.429		
Adjusted R- Square	0.392		
F-Value	11.648		
P-value	0.000		

The F-value of the tested variables was 11.648 and significant at  $p < 0.001$  meaning that the model is fit (Table 4). R-Square was 0.429 which means that 42.9% of the variability in the dependent variable (selling price) was jointly explained by the specified independent variables in the model. Most of the independent variables had a positive relationship with the dependent variable except market tax and cost of labour which had negative relationship with the dependent variable. Three variables out of four independent variables were found to be statistically significant at acceptable levels (Table 4).

Transportation cost was positively related to the selling price of ugu and statistically significant at 1% probability level. This means that a unit increase in transportation cost by ₦1 will increase the selling price of ugu by 7.9%. However, the coefficient of market tax was found to be negatively related to the selling price but statistically significant at 1%. The coefficient being 0.369 suggested that additional increase in market tax by ₦1 brought about 36.9% reductions in selling price of ugu. This could mean that market tax on ugu marketing may be low and hence unable to increase price of ugu in the market. In addition, coefficient of cost of labour was negatively related to selling price and significant at 1% implying that additional cost of labour by ugu seller will reduce selling price by 4.7% (Table 4). This suggested that most of the ugu sellers have been using family labour for their business.

## REFERENCES

- Afolabi, J.A.** 2007: Evaluation of poultry egg marketing in south western Nigeria. *International Journal of Poultry Science* 6(5); 362-366.
- Agbugba, I.K., Ayman shelaby** 2017. Marketing Analysis of Selected Vegetables in Port Harcourt Metropolis Rivers State, Nigeria, *Journal of Agriculture* 9(1): 46-54.
- Agbugba, I.K.** 2003. Economics of Vegetable Production and Marketing in Aba Area, Abia State, Unpublished B. Agric. Thesis Dept. of Agricultural Economics, University of Nigeria, Nsukka. *Journal of Agriculture and Veterinary Science* 11(2): 26-34.
- Agropedia** 2009. Vegetables Production: Advantages / Limitations. <http://agropedia.iitk.ac.in/content/vegetable-production-advantages/limitations>. Assessed on June 5, 2009.
- Aiyelaagbe, I.O.O, A.A Kintomo** 2002. "Nitrogen Response of Fluted pumpkin (*Telfairia occidentalis* Hook.F) grown sole or intercropped with Banana." Nutrient Cycling in Agro-ecosystem *Journal of Agriculture* 64: 231-235.
- Akoroda, M.O.** 1990: "Ethno botany of *Telfairia occidentalis* (Cucurbitaceae) among Igbos of Nigeria" Economic Botany. *Journal of Botany* 43(4) 29-39.
- Alimosho Local Government Area** 2022: [www.manpower.com.ng](http://www.manpower.com.ng) Retrieved 23 July, 2022.
- Christian, A.** 2007. Fluted pumpkin (*Telfairia occidentalis* Hook. F.) seed: a nutritional assessment. *Electronic Journal of Environmental Agriculture and Food Chemistry* 6(2): 1787-1793.
- Fagbohun, I. K., Idowu, E. T., Otubanjo, O. A. and Awolola, T. S.** 2020. "Susceptibility status of mosquitoes (Diptera: Culicidae) to Malathion in Lagos, Nigeria" *Animal Research International* 17(1): 3541-3549. ISSN 1597- 3115
- Finelib.com** 2017. Health and Nutritional Benefits of Fluted Pumpkin leaves. <https://www.finelib.com/about/tropical-fruits-and-vegetables/about-health-and-nutritional-benefits-of-fluted-pumpkin-leaves-ugu/261>. Assessed January 31<sup>st</sup>, 2017
- Metro Lagos, Nigeria 2022. Local Government Areas – population statistics, Charts and Map [www.citypopulation.de](http://www.citypopulation.de). Retrieved 4

September, 2022.

**Ndor, E; Dauda, S.N., Garba, M.N.** (2013): Growth and Yield performances of Fluted pumpkin (*Telfairia occidentalis* Hook. F) Under Organic and Inorganic Fertilizer on Ultisols of North Central Nigeria. *International Journal of Plant and Soil Science*, 2(2): 212-221, 2013 Article no: *IJPSS.2013.004*

**Opabode J.T., Adeboye O.C.** 2005. Application of biotechnology for the im-

provement of Nigerian indigenous leaf vegetables. *African Journal of Biotechnology* 4: 138-142.

**Yohanes, M.** 2015. Performance and challenges of vegetable market: The case of Kombolcha District - East Harerghe Zone - Oromia National Regional State – Ethiopia. M.Sc. Thesis submitted to the Department of Agriculture, College of Agriculture and Environmental Sciences, Haramaya University. 123PP.

*(Manuscript received: 22nd September, 2021; accepted: 29th September, 2022).*