

PROMOTING THE AWARENESS AND CONSUMPTION OF UNDERUTILIZED AND NEGLECTED CROPS FOR IMPROVED FOOD AND NUTRITION SECURITY IN OSUN STATE, NIGERIA.

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ABSTRACT

The study examined the level of awareness and consumption of underutilized and neglected crops. Also, estimate factors that can enhance promoting these neglected crops and underutilized crops (NUCS). Multistage sampling method was employed in this study for the selection of 160 Respondents and semi- structured interview method was used for collection of data from the respondents and data collected were analysed using Descriptive techniques and Logistic regression model. The study revealed a larger percentage (76%) of the respondents are aware that these neglected and underutilized crops among are safe to consume, healthy and nutritious for consumption. Logistic regression model results indicated that awareness about the crop is a significant variable influencing to pay for these neglected and underutilized crops. The study concluded that awareness of these Neglected and Underutilised crops influences consumption and willingness to pay. Therefore, there is a need for a strong medium that can improves and boosting awareness.

Keywords: Underutilized and Neglected Crops, Awareness, Consumption, Food and Nutrition Security

IJAFS 2022(17).12:1907 - 1919

INTRODUCTION

Neglected and underutilized crops (NUC) are those crops that are less available, less utilized, rarely used or region specific (Padulosi *et al* 2015). Hussian *et al* (2016) deduced that these plants as species whose potentials have not been realized and so being neglected by plant breeders, researchers' consumers and policy makers. Past study inferred that there are many terms used to describe underutilized species like orphan crops, neglected crops, indigenous crops, traditional crops, minor, poor people's food and local crops among others (Mabhaudhi *et al* 2016). The neglected and underutilized crops (NUS) are usually considered in relation to their end use which are grouped into categories like; beverages, cereals, legumes, vegetables, fruits, root and tubers, medicinal plants (Mabhaudhi *et al* 2016) Modi (2015) reported that several of these indigenous leafy vegetables had significant nutritional potentials that enhances the diet of rural people. For example, the dark green leafy vegetables are known to contain oxalates, phytates, nitrates, tannins, phyto hemagglutinating activity which improves the activities of human when taken (Wang *et al* 2016).

Poor people have a very limited choice of food items due to their low-income levels leading to higher food and nutrition insecurity (Hussian *et al* 2016). Poor people depend on many of these species for their food security, diet, nutrition and income, underutilized plants are never minor to them. Neglected and Underutilized Crop (NUC) are not only important for their significant contribution to human nutrition but also because they have been sourcing for traditional medicine

for long time. Their economic and health value remains under exploited (Mabhaudhi *et al* 2016). Many NUC contain more vitamin C and provitamin A than widely available commercial species. The use of these plants plays a role in keeping alive cultural diversity associated with food habit, health practices, religious and untapped potentials. Once underutilized plants are properly utilized, they may help to contribute to food security, nutrition, health, income generation and environmental services. They have poor shelf life, unrecognized nutritional value (Mabhaudhi *et al* 2016). Poor consumer awareness and reputational problems. For this reason, many people refer to NUC poor people food (Massawe *et al* 2015).

Root and tuber crop, including yam, cassava, potato and sweet potato are the most important food crop for direct human consumption in Africa. These four crops account for about 95% of the total root and tuber crops production in Africa and produce more than 240 million tons annually on 23 million hectares (FAO, 2023). There are many compelling reasons for encouraging these humble root and tuber crops for sustainable food production in Africa. They are versatile staples to address food and nutrition insecurity for millions of people and produce more food per unit area of land (Nnamani *et al.*, 2019). These crops are also capable of efficiently converting natural resources into a more usable product. Also, the caloric energy in the growing season, which is the most productive of all major arable crop, almost double that of wheat and rice. Yam, cassava, potato and sweet potato are cheap but nutritionally rich staple food that contribute protein, vitamin C, vitamin A, Zinc, and iron towards the dietary demands of the region's fast-growing towns and cities (Hussian *et al* 2016).

Nigeria has 53 million hungry people (approximately 30% of total population) and 52% live under the poverty line of 1 US Dollar per day (NBS, 2023). This has made poverty and malnutrition inevitable, leaving many Nigeria trapped in the spiral of hardship (NBS, 2023). Vitamins and minerals can be returned to contemporary diets through the use of micronutrient-rich underutilized and neglected species by transplanting them from their wild habitats into home gardens. This will offset malnutrition and also provide a source of income as indigenous vegetables represent inexpensive but high-quality nutritional sources, for rural and urban dwellers especially where malnutrition is wide spread as in Nigeria (FAO, 2023).

Neglected indigenous Crop though underutilized due to lack of awareness of their nutritional values in favour of exotic ones, these vegetables, are rich sources of carotene, ascorbic acid, riboflavin, folic acid, phytochemicals and minerals like calcium, iron and phosphorous essential for healthy living (Nnamani *et al.*, 2019). George (2003), expressed that even though the bulk of their weight is water, the potassium content of leafy vegetables is good in the control of diuretic and hypertensive complications, because it lowers arterial blood pressure. The fibre content of vegetables prevents constipation and contributes to the feeling of satisfaction while the proteins are superior to those found in fruits, despite being inferior to those found in grains and legumes. Every year, there are over ten million hunger-related death occurring in developing countries of the world (children accounting for about 50%) testify to the nations' failure to achieve global food security. Researches has established that the major cause of this malnutrition and hunger is food insecurity and one of many ways to tackle food insecurity is by retracing the neglected and underutilized crops found in numerous agricultural ecosystems and marginal areas (Ayinde *et al.*, 2016).

Statement of Research Problem

It was estimated that the number of hungry people in Nigeria is over 53 million which is about 30% of the total population of roughly 150 million and 52% live under the poverty line (Ibok *et*

al., 2021). Also, FAO (2023) revealed that a total of 925 million people were undernourished worldwide in 2010 while approximately 162 million children below five years of age in developing countries are stunted due to chronic under-nutrition and 148 million children are under weight. Hence reduction in malnutrition would help to decrease disease globally by 32%. Malnutrition has been reported to impede fetal brain development, resulting to an abnormal brain physiology and anatomy (Rushmore *et al* 2022). Malnutrition leads to a high mortality rate, increase cost of disease treatment and a low rate of recovery from sickness (Goestes's *et al* 2021) worldwide, malnutrition is responsible for 45% of death in children.

Information on global food production show that Nigeria, will have to increase food production by 300% to provide “minimally” equate diets for more than 300 million people projected by 2050 (FAO 2023). Most of these underutilized and neglected crops are usually gathered from the wild and they remain largely unknown and accessible because organised research systems have not recognised or given these species priority for crop development as a source for improving human nutrition and enhancing farmer's income. In the literature, several issues have been established to militate against the consumption of these neglected crops which are yet to be unravelled. Even if these crops are available, would the consumers willing to pay from them? These are the issues this study is willing to shed light upon (Rushmore *et al* 2022).

Several studies have also pointed to the enormous potential of less utilized crops (Dansi *et al.*, (2012); Ebert (2014); Chivenge *et al.*, (2015); Akwee *et al.* (2015); Galluzzi & Noriega (2014); Mabhaudhi *et al.*, (2016); Massawea *et al.*, (2015). In Ghana, as in many African countries, considerable attention has not been given to the impact of less utilized crops and plant species on food security. There seem to be limited empirical research and documentation of neglected and underutilized plant species and their potential to enhance food security. This is evidenced by the 2013 Accra Statement for a food secure Africa report, which identified most countries in Africa including Ghana as pursuing agricultural and food policies based on a limited number of crops or staples such as maize and rice. Empirical researches that have been undertaken have primarily focused on the potential of these crops. without its direct impact on food security. In a study that explored the competitiveness of neglected and underutilized crops in Ghana, Nyadanu & Lowor, (2014) examined the nutritional composition and medicinal values of some indigenous leafy and fruit crops.

The study also compared the nutritional composition of Ghanaian indigenous leafy and fruit crops with the one of selected exotic crops. The findings showed that proteins, carbohydrates, dietary fibers, potassium, calcium, magnesium, phosphorus, vitamin A, vitamin C and vitamin E were significantly higher in indigenous crops than their exotic counterparts. The results highlighted the nutritional importance of indigenous crops and the need to promote their consumption and safeguard their genetic resources. In another study on the diversity, forms of consumption and management practices of neglected and underutilized crops, it was observed that a high diversity of neglected and underutilized species (NUS) genetic resources could be used to further enhance nutrition and food security in Ghana. These findings create an urgency to collect and conserve genetic resources of NUS in Ghana to promote their utilization and breeding of improved varieties (Nyadanu *et al.*, 2016

METHODOLOGY

Study area

The study was conducted in Osun state, Nigeria. A state in southwest Nigeria.

Method of Data Collection

Multi-stage stratified sampling technique was used to collect primary data using pretested structured questionnaire from the respondents. At the first stage, all local government areas in Osun state were identified and four local government areas were randomly selected. At the second stage, two communities were randomly selected, from each local government areas. At the third stage, 40 respondents were randomly selected from each local government with 20 respondents from each community to make a total of 160.

Analytical techniques

Descriptive statistical analysis- tables, chart, graph, and percentage was used for the objective; level of awareness, availability and accessibility level of the selected underutilized crops. Contingent Valuation Method was used to analyze willingness to accept, consume and pay for the neglected and underutilized crops. The factors determining the consumers' willingness to pay was analyzed using logistics regression model as defined by the equation below:

$$P_i = F(Z) = F(\alpha + \sum \beta_i X_i) = \quad (1)$$

Where,

P_i is the probability that consumers will be willing to buy the underutilized and neglected crops or not given the respondents i^{th} explanatory variables; and α and β_i are parameters to be estimated: and represent the base of natural logarithms which is approximately equal to 2.718. The odds ratio of probability (P_i) that an individual will choose an alternative to the probability ($1-P_i$) that he/she would not choose.

$$= e^{Z_i} = e^{(\alpha + \sum \beta_i X_i)} \quad (2)$$

Applying logarithm transformation to equation (2) gives the final equation:

$$Z_i = \ln(= \alpha + \sum \beta_i X_i \quad (3)$$

If the disturbance term is introduced, the logit model becomes:

$$Z_i = \alpha + \sum \beta_i X_i + \Upsilon_i \quad (4)$$

Where,

$i = 1, 2, 3, \dots, n$

n = the number of explanatory variables

α_i = intercept

β_i = logit parameters (slopes) of the equation in the model.

Υ_i = disturbance term

X_i = a vector of explanatory variables such as age, marital status, gender, education level, job type, family size, access to neglected crops, distance to farm and awareness

Z_i = is the explained variables i.e. independent variable representing the willingness to pay in naira and the explanatory variable includes the socio-economic characteristics of the respondents on which willingness to pay depends on just as stated above. These socio-economic variables include:

X_1 = Age (in years), X_2 = Marital status, X_3 = Gender of farmer/consumer, X_4 = Level of education of respondents (years), X_5 = Job type, X_6 = Family size, X_7 = Access to neglected crops, X_8 = Distance to farm, X_9 = Awareness

RESULTS AND DISCUSSION

Distribution of respondents about the awareness of underutilized and neglected crops that are healthy and nutritious for consumption

Vegetables

Table 1 below shows that 75.5% of the respondents were aware that Amaranthus (Tete) are healthy and nutritious for consumption; 63.3% were aware that Moringa leaves are healthy and nutritious for consumption; 65.96% were not aware that Cassava leaves are healthy and nutritious for consumption; 68.6% were not aware that Thaumtococcus danielli (ewe moi-moi) are healthy and nutritious for consumption; 63.12% were not aware that Launaea taracifolia (Yanrin) are healthy and nutritious for consumption; 65.2% were aware that Ebolo are healthy and nutritious for consumption; 93.6% were aware that Solanecio biafrae (Worowo) are healthy and nutritious for consumption; 71.6% were not aware that Baobab (igi oshe) are healthy and nutritious for consumption; 53.2% were aware that Uziza (ata iyere) are healthy and nutritious for consumption; 66.4% were aware that Solanum nigrum (odu) are healthy and nutritious for consumption; 64.5% were aware that Curcubita pepo (elegede) are healthy and nutritious for consumption; 89.1% were aware that Veronia amygdalina (ewuro) are healthy and nutritious for consumption; 88.4% were aware that Solanum macrocarpon (Igbagba) are healthy and nutritious for consumption; 87.1% were not aware that Solanum scarbum (Ogunmo) are healthy and nutritious for consumption; 70.71% were aware that Telfairia occidentalis (Apiroko) are healthy and nutritious for consumption. This table reveals that more of the respondents were aware of the underutilized vegetables

Table 1: Vegetables

Variables	Yes	No	Total
Amaranthus (Tete)	105(75.5%)	34(21.3%)	139(100%)
Moringa leaves	88(63.3%)	51(36.7%)	139(100%)
Cassava leaves (ewe ege)	48(34.04%)	93(65.96%)	141(100%)
Thaumtococcus danielli (ewe moi-moi)	44(31.4%)	96(68.6%)	140(100%)
Launaea taracifolia L(Yanrin)	52(36.9%)	89 (63.12%)	141(100%)
Ebolo	90(65.2%)	48(34.8%)	138(100%)
Solanecio biafrae (Worowo)	131(93.6)	9(6.4%)	140(100%)
Baobab (igi oshe)	40(28.4%)	101(71.6)	141(100%)
Uziza (ata iyere)	75(53.2%)	66(46.8%)	141(100%)
Solanum nigrum (odu)	93(66.4%)	47(33.6%)	140(100%)
Curcubita pepo (elegede)	91(64.5%)	50(35.5%)	141(100%)
Veronia amygdalina (ewuro)	122(89.1%)	15(10.9%)	137(100%)
Solanum macrocarpon (Igbagba)	122(88.4%)	16(11.6%)	138(100%)
Solanum scarbum (Ogunmo)	18(12.9%)	122(87.1%)	140(100%)
Telfairia occidentalis (Apiroko)	41(29.29)	99(70.71%)	140(100%)

Source: Data analysis, 2023

Legumes

Table 2 below shows that 59.9% of the respondents were aware that Pigeon Pea (otinli) are healthy and nutritious for consumption; 60.7% were not aware that African Yam Beans (sese) are healthy and nutritious for consumption; 69.5% were aware that Bambara Groundnut (Epa-

roro) are healthy and nutritious for consumption; 76.6% were not aware that Winged beans are healthy and nutritious for consumption; 82.3% were not aware that Lima bean (papala) are healthy and nutritious for consumption; 83% were not aware that Sword bean (Ponpondo) are healthy and nutritious for consumption. The table made us to know that small of the respondents were aware that legumes are healthy and nutritious for consumption

Table 2: Legumes

Variables	Yes	No	Total
Pigeon Pea (otinli)	82(59.9%)	55(40.1%)	137(100%)
African Yam Beans (sese)	55(39.3%)	85(60.7%)	140(100%)
Bambara Groundnut (Epa-roro)	98(69.5%)	43(30.5%)	141(100%)
Winged beans	33(23.4%)	108(76.6%)	141(100%)
Lima bean (papala)	25(17.7%)	116(82.3%)	141(100%)
Sword bean (Ponpondo)	24(17%)	117(83%)	141(100%)

Source: Data analysis, 2023

Fruits

Table 3 below reveals that 80.71% of the respondents were aware that Garden Egg are healthy and nutritious for consumption; 88.5% were aware that African Star Apple are healthy and nutritious for consumption; 69.8% were aware that Rose apple is healthy and nutritious for consumption; 84.4% were not aware that Beetroots are healthy and nutritious for consumption; 63.8% were aware that Breadfruits are healthy and nutritious for consumption. It was shown that more of the respondents know more about the underutilized and neglected crops under fruits are healthy and nutritious for consumption except for Beetroots.

Table 3: Fruits

Variables	Yes	No	Total
Garden Egg	113(80.71%)	27(19.29%)	140(100%)
African Star Apple	123(88.5%)	16(11.51%)	139(100%)
Rose apple	97(69.8%)	42(30.2%)	139(100%)
Beetroot	22(15.6%)	119(84.4%)	141 (100%)
Breadfruits	90(63.8%)	51(36.2%)	141(100%)

Source: Data analysis, 2023

Root and tubers

Table 4 below shows that 97.14%of the respondents were aware that Cocoyam is healthy and nutritious for consumption; 64.29% of the respondents were not aware that African Yam Beans is healthy and nutritious for consumption; 94.9% of the respondents were aware that Potato is healthy and nutritious for consumption; 84.8% of the respondents were aware that Sweet potato is healthy and nutritious for consumption; 81.6% of the respondents were aware that Water yam is healthy and nutritious for consumption; 70.7% of the respondents were aware that Irish potato is healthy and nutritious for consumption; 77% of the respondents were aware that Arieal yam is healthy and nutritious for consumption. It was shown that more than half of the respondents were aware that each of the underutilized and neglected crops under roots and tubers are healthy and nutritious for consumption

Table 4: Roots and Tubers

Variables	Yes	No	Total
Cocoyam	136(97.14%)	4(2.86%)	140 (100%)
African Yam Beans	48(34.29%)	90(64.29%)	138(100%)
Potato	131(94.9%)	7(5.1%)	138 (100%)
Sweet potato	117(84.8%)	21(15.2%)	138(100%)
Water yam	115(81.6%)	26(18.4%)	141(100%)
Irish potato	99(70.7%)	41(29.3%)	140 (100%)
Arieal yam	107(77%)	32(23%)	139(100%)

Source: Data analysis, 2023

Cereals

Table 5 below shows that 80% of the respondents were aware that Sorghum is healthy and nutritious for consumption; 90.8% were not aware that Fonio is healthy and nutritious for consumption; 56.43% were not aware that Finger millet is healthy and nutritious for consumption; 80.3% were aware that Guinea Corn is healthy and nutritious for consumption; 79% were not aware that Teff is healthy and nutritious for consumption; 55% were not aware that Barley grains is healthy and nutritious for consumption; 82.3% were aware that Broomcorn millet is healthy and nutritious for consumption; 63.3% were not aware that Buckwheat grains is healthy and nutritious for consumption; 73% were not aware that Foxtail millet is healthy and nutritious for consumption. This table shown that less than half of the respondents were aware that each of the underutilized crops under cereal are healthy and nutritious for consumption.

Table 5: Cereals

Variables	Yes	No	Total
Sorghum	112(80%)	28(20%)	140 (100%)
Fonio	13(9.2%)	128(90.8%)	141 (100%)
Finger millet	61(43.57%)	79(56.43%)	140(100%)
Guinea Corn	110(80.3%)	27(19.7%)	137(100%)
Teff	29(21%)	109(79%)	138(100%)
Barley grains	63(45%)	77(55%)	140 (100%)
Broomcorn millet	116(82.3%)	25(17.7%)	141 (100%)
Buckwheat grains	51(36.7%)	88(63.3%)	139 (100%)
Foxtail millet	37(27%)	100(73%)	137 (100%)

Source: Data analysis, 2023

Distribution of respondents about the availability of the underutilized and neglected crops in your environment

Table 6 below shows that 30.6% of the respondent considered the availability of the underutilized crops was difficult, 18.8% felt that it was easy, 16.9% thought that underutilized crops were not available, 25.6% were of the opinion that they available while the remaining 8.1% were indifferent which shows that majority of the respondents show considered that the underutilized crops were difficult

Table 6: Distribution of respondents about the availability of the underutilized and neglected crops

Categories	Frequency	Percent (%)
Difficult	49	30.6
Easy	30	18.8
Not available	27	16.9
Available	41	25.6
Indifferent	13	8.1
Total	160	100

Source: Data analysis, 2023

Respondent's view about the place normally buys or consume them

Table 7 below shows that 0% of the respondents normally buy or consume these underutilized crops in party, 2.5% from Canteen, 7.5% at Road side, 22.5% at Home, 6.88% from food seller; 41.5% at market while for the remaining 18.75% of the respondents, it was shown that majority of the respondents normally buy or consume these underutilized crops from the market.

Table 7: Respondent's view about the place normally buys or consume them

Categories	Frequency	Percent (%)
Party	0	0
Canteen	4	2.5
Road side	12	7.5
Home	36	22.5
Food seller	11	6.88
Market	66	41.5
Hawkers	30	18.75
Total	159	100

Source: Data analysis, 2023

Distribution of respondent about the accessibility of Underutilized and Neglected Crops.

Table 8 below show that 86.9% of the respondents had negative belief about the consumption of any of the underutilized crops while the remaining 13.1% of the respondents did not, this show that majority of the respondents had negative belief about the consumption of any of the underutilized crops. With regard to the feeling that the NUOs are not affordable, 47.2% of the respondents feels that the NUO are not affordable while the remaining 52.8% did not. This shows that majority of the respondents did not have the feeling that the NUO are not affordable.

With respect to finding it easy to get the crops from where they are, it was show that 55% of the respondents find it easy to get the crops where they are while the remaining 45% of the respondents did not revealing that a majority of the respondents finds it easy to get the crops from where they are. Based on looking for the crops to buy in their area, 50.6% of the respondents have looked for any of the crops to buy in their area while the remaining 49.4% had not. This shows that a larger percentage of the respondents have looked for any of the crops to buy in their area.

Table 8: Distribution of respondent about the aaccessibility of Underutilized and Neglected Crops

Variables	Yes	No	Total
Do you have any negative belief about the consumption of any of these crops?	21(13.1%)	139(86.9%)	160(100%)
Do you have a feeling that you cannot afford	75(47.2%)	84(52.8)	159(100%)
Do you find it easy to get these crops where you are?	72 (45%)	88(55%)	160(100%)
Have you ever looked for any of these to buy in your area?	81(50.6%)	79(49.4%)	160(100%)

Source: Data analysis, 2023

Respondent’s view about willingness to pay for underutilized crops compared to more commonly consumed crops.

Table 9 below expressess that 16.9% of the respondents were willing to pay 10% more to pay for underutilized crops compared to more commonly consumed crops, 27.5% were willing to pay 20% more, 38% were willing to pay 30% more, 22.5% were willing to spend 40% more and the remaining 8.8% of the respondents were willing to pay 50% more. This result shows that a larger percentage of the respondents were willing to pay 40% more to pay for underutilized crops compared to more commonly consumed crops.

Table 9: Respondent's view about willingness to pay for underutilized crops compared to more commonly consumed crops.

Categories	Frequency	Percent (%)
10% more	27	16.9
20% more	44	27.5
30% more	38	23.8
40% more	36	22.5
50% more	14	8.8
Other	1	0.5
Total	160	1100

Source: Data analysis, 2023

Result of the Factors affecting willingness to pay for underutilized and neglected

Binary logistic regression was used to analyse the association between the dependent variable which included age, marital status, gender of the respondents, level of education, primary occupation, household size, access to crop, crop availability, distance to market and awareness. Based on the finding revealed in Table 10. The result show that all socio-economic characteristics of the respondent’s gender, distance, accessibility, availability, primary occupation, households’ size, number of years in schooling, age has no significant relationship with the consumer price the respondent are willing to pay but only their awareness about the crop has a significant relationship with the premium price the respondent are willing to pay.

Table 10: Factors affecting willingness to pay for underutilized and neglected

Wiliness	b	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Distance	.971	.041	-0.69	.493	.894	1.056	
Accessibility	1.039	.77	0.05	.959	.243	4.442	
Availability	1.216	.909	0.26	.794	.281	5.265	
Awareness	4.162	3.567	1.66	.096	.776	22.33	*
Primaryoccupa tion	.707	.175	-1.40	.162	.435	1.149	
householdsize	1.179	.302	0.64	.52	.714	1.947	
Numberofyersi nschool	.978	.085	-0.25	.799	.824	1.16	
Age	.97	.038	-0.80	.426	.899	1.046	
Gender	1.543	1.005	0.67	.506	.43	5.533	
Constant	16.544	45.492	1.02	.307	.076	3624.133	
Mean dependent var	0.919		SD dependent var	0.273			
Pseudo r-squared	0.099		Number of obs	161			
Chi-square	8.963		Prob > chi2	0.441			
Akaike crit. (AIC)	101.385		Bayesian crit. (BIC)	132.199			

*** $p < .01$, ** $p < .05$, * $p < .1$

Source: Data analysis, 2023

CONCLUSION AND RECOMMENDATION

The study therefore concludes that there is much awareness on underutilized and neglected crops in the study area (Aiyedire, Ilesa East, Isokan and Oriade) as the term ‘underutilized’ or ‘neglected’ crops was not new as well as the awareness that that the crops are healthy and nutritious for consumption. The underutilized crops were available and that lack of demand, shortage of supply, insufficient infrastructure for storage and transportation and lack of government support were reasons for the unavailability of underutilized crops in their local markets.

The distance from their home to where they usually purchase indigenous vegetable is 1_5km this makes underutilized and neglected crops easily accessible. Also, the cost of transportation to where they usually purchase the underutilized crops is affordable ranging within _100naira and 200naira. The consumption of underutilized crops in their diet are mostly once in a month and they normally buy these crops Bi-monthly. They are also willing to pay a premium price for underutilized crops to support local farmers and promote their cultivation. It is therefore recommended that government should formulate policies to promote increased production of underutilized and neglected crops should target households in remote areas and those living in areas with difficult market accessibility and supported with credit. Educational campaigns may be useful in creating awareness on the nutritional benefits of underutilized and neglected crops to boost production.

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