



ANALYSIS OF NON-TIMBER FOREST PRODUCTS (NTFPS) UTILISATION AMONG HOUSEHOLDS IN CHIKUN LOCAL GOVERNMENT AREA OF KADUNA STATE

ONI, B.O.<sup>1</sup>, GANIYU, L.<sup>2\*</sup>, ABDULKAREEM, S.B.<sup>2</sup>, SULEIMAN, R.T.<sup>3</sup>, ADEMOLA, T.O.<sup>2</sup>, OBEKPA, N.B.<sup>3</sup>, AMILA, J.J.<sup>4</sup> AND OMOLEYE, O.A.<sup>5</sup>

<sup>1</sup>Department of Entrepreneurship and Innovative Agriculture, FCFM., Afaka, Kaduna, Nigeria

<sup>2</sup>Agricultural Technology Department, Federal College of Forestry Mechanisation, Kaduna, Nigeria

<sup>3</sup>Basic Science Department, Federal College of Forestry Mechanisation, Afaka, Kaduna, Nigeria

<sup>4</sup>Agricultural Extension and Management Department, Federal College of Horticulture, Gombe, Nigeria

<sup>5</sup>Lead City University, Ibadan, Nigeria

ABSTRACT

The study examined the analysis of Non-Timber Forest Products (NTFPs) utilisation among households in Chikun Local Government Area (LGA) of Kaduna State, Nigeria. Data were gathered through the administration of questionnaire to 96 randomly selected users from 8 purposively selected communities in 4 purposively selected wards of Chikun LGA. The data were analysed using descriptive statistics and mean score. The result of the analysis showed that the respondents were chiefly (52.9%) male, most (69%) of whom were married with average household size of 8 members, mean age of 40 years with secondary education (34.5%) and earned ₦35,300 per month on the average. Furthermore, spices/ condiments, medicinal herbs, sweetener and stimulants formed the basis for NTFPs utilisation in the study area. The result further showed that lack of awareness ranked 1<sup>st</sup> in the list of constraints. The study recommended the adoption of a more people-oriented forest-management approach through awareness creation by policy makers, value addition to NTFPs by households and organisation of training on sustainable utilisation of NTFPs.

**Keywords:** Constraints, households, NTFPs, utilisation, users

**\*Correspondence:** ganiyul457@gmail.com, 08034709407

INTRODUCTION

Forests provide domestic subsistence and consumption needs which increase disposable incomes to the households; serve as insurance premiums during times of economic hardships; and contribute to direct monetary benefits through sales [1]. Forests products can be classified in to Timber and the Non-Timber Forest Products [2]. NTFPs was defined by Opute *et al.* [3] as goods of biological resources, products and services other than timber which are collected from the forest ecosystem for survival and trade. They include fruits and nuts, vegetables, medicinal plants, gum and resins, bamboo, rattans and palms, fibres and flosses, grasses, leaves, seeds, mushrooms, honey and lac. NTFPs can also be referred to as all the resources or products that may be extracted from the forest ecosystem and are utilised within the household or marketed and have social, cultural or religious significance [4]. However, the sustainable utilisation of NTFPs is threatened by increasing household population. This research sought to analyse the various types and forms of utilisation of NTFPs in Chikun LGA because of the availability of NTFPs in the area.

MATERIALS AND METHODS

Study area

The study was conducted in Chikun Local Government Area of Kaduna State. It covers an area of about 445,659 km<sup>2</sup> and lies between latitude 10° 13' 29" N and longitude 7° 2' 19" E of the Northern Guinea Savanna.

Sampling techniques

A multi-stage sampling technique was employed in selecting the respondents. In the first stage, Purposive sampling was used to select four (4) wards viz: Chikun, Kujama, Narayi and Nasarawa, out of the twelve (12) wards in Chikun LGA, due to the abundance of NTFPs in these wards. In the second stage, two (2) villages were purposively selected from each of the four (4) wards based on the prominence of NTFPs. Finally, random sampling was used to select twelve (12) households in each of the eight (8) selected villages to give a total of ninety-six (96) respondents. Out of the ninety-six (96) questionnaire administered to the respondents, eighty-seven were retrieved and used for the analysis.

**Data analysis**

Descriptive statistics and mean score were used.

**RESULTS AND DISCUSSION****Socio-economic characteristics of households**

Results in Table 1 showed that 33.3% of the households were between the age range of  $\leq 30$  years. This is closely followed by 31% who were between 41 – 50 years while only 20.7% and 14.9% of the households were in the age range of  $>50$  and 31 to 40 years respectively. The average age of the household was 40 years, meaning that they are in their youthful age. This implied that the youth population utilise NTFPs than the older population in the study area. The respondents' distribution by sex shows that about half (52.9%) of the households were males while their female counterparts were only 47.1% of the rural households' population. This implied that male headed households had NTFPs as their primary source of livelihood while their female counterparts prefer less tasking agricultural activities like processing. This is consistent with Balogun *et al.* [5]

“appraisal of perception on environmental forestry in Ebonyi State where 75% of the respondents were male. Majority (69%) of the household were married. Only 31% of them were single. This implied that family labour will be readily available for use in the assessment and collection of NTFPs in the study area. This is in line with the submission by Ganiyu *et al.* [6]. The classification by household size showed that there was an average of 8 members in a household and that 44.8% of them have 6 – 10 members. This is followed by those with 11 – 15 members (29.9%) and 1 – 5 members (25.3%). This confirms the use of family labour by the households in the study area. The result is consistent with the submission by Olagunju *et al.* [7].

The distribution of households by their level of education showed that 34.5% of them had secondary education. These were followed by those with non-formal education and tertiary education, representing 24.1% and 23.0% respectively. Only 18.4% of them had primary education in the study area. This implied that household in the study area will readily accept technology that can affect their utilisation capacity positively when given the opportunity. This conforms to Bankole *et al.* [8].

**Table 1:** Distribution of households by socio-economic characteristics

Characteristics	Frequency	Percentage	Mean
31 - 40	13	14.9	40
41 - 50	27	31.0	
> 50	18	20.7	
Sex			
Male	46	52.9	
Female	41	47.1	
Marital status			
Single			
Married			
Household size	27	31.0	
1 – 5	60	69.0	
6 – 10			
11 – 15	22	25.3	
	39	44.8	8
	26	29.9	

Education		
Non-formal	21	24.1
Primary	16	18.4
Secondary	30	34.5
Tertiary	20	23
Total	87	100

Source: Field Survey, 2023.

#### Income level

The income distribution of households in Table 2 showed that 32.2% of them earned between ₦41,000 – ₦50,000 from NTFPs trade monthly in the study area. Only 26.4%, 21.8%, 10.3% and 9.2% realized ₦31,000 – ₦40,000, ₦21,000 – ₦30,000, ≤ ₦20,000 and > ₦50,000 per month respectively. This contradicts the submission by Solomon *et.al.* (9). This implied that income from NTFPs accounted for the major indicator of utilization in the study area.

**Table 2:** Distribution of Households by Income

Income (₦)	Frequency	Percentage	Mean
≤20,000	9	10.3	
21,000 – 30,000	19	21.8	
31,000 – 40,000	23	26.4	35,300
41,000 – 50, 000	28	32.2	
>50,000	8	9.2	
Total	87	100	

#### Occupation of the households

The major occupation of the households as seen in Table 3 is farming (37.9%). This is followed by civil servants (25.3%), Traders (18.4%), tailors (14.9%) and weavers (3.4%). This implied that many

households in the study area engage in the utilisation and sale of NTFPs and this ensures sustainable access to food and food security. This finding is in line with that of Suleiman *et al.* [10].

**Table 3:** Distribution of households by occupation

Occupation	Frequency	Percentage
Farming	33	37.9
Trading	16	18.4
Civil Servants	22	25.3
Tailoring	13	14.9
Weaving	3	3.4
Total	87	100

Source: Field Survey, 2023.

### Experience of the households in NTFPs utilisation in the study area

Almost half (40.2%) of the households in the study area had above 12 years of experience in the collection, trading and utilisation of NTFPs. This is followed by those with 9 – 12 years (32.2%) experience, 5 – 8 (18.3%) experience and 1 – 4 years (9.2%) experience. This implied that the trade and utilisation of NTFPs increased within the last 5 years in the study area. The abundance of these resources in terms of accessibility contributes in no small measure

to its collection for daily utilisation to secure the nutritional needs of the households as seen in condiments like locust bean. Household heads who are in these activities do teach their children to ensure that these activities are being transferred and sustained as alternative source of livelihood to guarantee food security. Households with more years of experience tend to be more cautious in the use of NTFPs with a view to ensuring its sustainability because they know that the wellbeing of their future generation is their social responsibility.

**Table 4:** Distribution of households by years of experience

Years of experience	Frequency	Percentage
1 – 4	8	9.2
5 – 8	16	18.3
9 – 12	28	32.2
>12	35	40.2
Total	87	100

Source: Field Survey, 2023.

### Cooperative membership

The distribution of household head by cooperative membership showed that they are chiefly members (75.9%) of cooperative societies. Only 24.1% of them do not belong to cooperative societies in the study area. This means that the households involved in NTFPs utilization and trading in the study area will be

able to benefit from the services of cooperative societies in terms of access to loan for NTFPs business expansion and access to market information. This finding agrees with the assessment of Shea fruits processors in Niger State, Nigeria by Solomon *et al.* (9) where 94.7% of the processors were members of Cooperative societies.

**Table 5:** Distribution of households by their membership of cooperative

Cooperative Membership	Frequency	Percentage
Yes	66	75.9
No	21	24.1
Total	87	100

Source: Field Survey, 2023.

### Major non-timber forest products (NTFPs) in the study area

The information on major NTFPs in the study area were extracted from the NTFPs used by the households. The study revealed that bush meat ranked 1<sup>st</sup> in the study area. This was closely followed by honey (2<sup>nd</sup>), spices (3<sup>rd</sup>), locust bean (4<sup>th</sup>), shea nuts and baobab (5<sup>th</sup>), medicinal plants (7<sup>th</sup>) and mushroom (8<sup>th</sup>). This could be because bush meat and honey

were found to be more lucrative among the other products in terms of revenue, implying that the households in the study area engage more in the collection, utilisation and trade of these products to meet their food need. However, this study considers the available resources hence only 8 products among others were selected. Below is the distribution of the NTFPs.

**Table 6:** Distribution of households by the major NTFPs Used

NTFPs Type	*Frequency	Percentage	Rank
Bush meat	28	23.3	1 <sup>st</sup>
Honey	26	21.7	2 <sup>nd</sup>
Spices	19	15.8	3 <sup>rd</sup>

<b>Locust bean</b>	14	11.7	4 <sup>th</sup>
<b>Shea nuts</b>	11	9.2	5 <sup>th</sup>
<b>Baobab</b>	11	9.2	5 <sup>th</sup>
<b>Medicinal plant</b>	8	6.7	7 <sup>th</sup>
<b>Mushroom</b>	3	2.5	8 <sup>th</sup>

\*Multiple response allowed. Source: Field Survey, 2023.

### Forms of utilization of NTFPs

To ascertain the form of NTFPs utilization by households in the study area, a 3-point Likert-type scale of rarely, sometimes and often with a score of 1, 2, and 3 respectively was used. A summation of scores for each respondent was determined and the point of average (2.2) and above was accepted High (H) while points below the aggregate score was

regarded as Low (L). As shown in Table 7, there is high index score with respect to utilization of NTFPs as spices and condiments (2.8), medicinal herbs (2.7), sweetener (honey) (2.6), stimulants (2.5) and fruits/vegetables (2.3) by the households. Since 5 utilization statements were significant (56%) out of the 9 statements, it implied that the households in the study area highly utilized NTFPs due to their access to NTFPs to meet their nutritional needs.

**Table 7:** Mean response of households on their Form of NTFPs utilisation

NTFPs Utilisation Forms	Mean	Decision
1. Used as Fruits/Vegetable	2.3*	H
2. Used as Oil	1.7	L
3. Used as Meat	1.8	L
4. As Spices and condiments	2.8*	H
5. As Medicinal herbs	2.7*	H
6. As Stimulants	2.5*	H
7. As Fibre	1.9	L
8. As Sweetener (Honey)	2.6*	H
9. As Beverages	2.1	L
Aggregate Score	2.2*	

Source: Field Survey, 2023.

### Constraints to NTFPs utilisation by households

The constraints faced by the households in the utilization of NTFPs were shown in Table 8. From the table, lack of awareness on NTFPs utilization ranked 1<sup>st</sup>. This is closely followed by lack of training for products transformation (2<sup>nd</sup>) that will aid their use to meet household's food need. Seasonality of NTFPs, inadequate storage facility, lack of market information, variation in NTFPs distribution within

the forest and poor transport facility ranked 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup> respectively. This means that NTFPs are underutilized by the households in the study area to meet their food need, hence the need to enlightened them on the various uses. This corroborates the submission by Amusa *et al.* [11] on the marketing constraints affecting NTFPs trade in tropical lowland rainforest of South western Nigeria.

**Table 8:** Distribution of households by the constraints to NTFPs utilisation

Constraints	*Frequency	Percentage	Rank
Seasonality	21	17.5	3 <sup>rd</sup>
Poor transport facility	7	5.8	7 <sup>th</sup>
Inadequate storage facility	17	14.2	4 <sup>th</sup>
Lack of awareness on utilization	31	25.8	1 <sup>st</sup>
Lack of market information	11	9.2	5 <sup>th</sup>
Lack of training for product transformation	24	20	2 <sup>nd</sup>
Product distribution within the forest	9	7.5	6 <sup>th</sup>

\*Multiple response allowed. Source: Field Survey, 2023.

## CONCLUSION

Based on the findings of the study, it was concluded that the users of NTFPs are farmers with average age of 40 years and mostly members of cooperative societies. The study further concluded that bushmeat was mostly utilised among households in the list of NTFPs. The findings also showed that there is high form of utilisation of NTFPs as spices/ condiments, medicinal herbs, sweetener and stimulants by the

## REFERENCES

1. JAMES, O.M., TSINGALIA, M.H. & CHEBOIWO, J. (2018). Socioeconomic Factors Influencing Dependence of Households on Non-Timber Forest Products in South Nandi Forest, Kenya. *Journal of Economics and Sustainable Development*, **9**(14): 105 – 113.
2. FAMUYIDE, O.O., ADEBAYO, O., BOLAJI-OLUTUNJI, K.A., AWE, F., OWOEYE, A.Y., AWODELE, D.O. & ADEYEMO, A. (2013). Assessment and sustainable management of non-timber forest products used as food and medicine among urban dwellers in Oyo State, Nigeria. *Journal of Horticulture and Forestry*. **5**(11): 186 – 193. DOI 10.5897/JHF2013.0324.
3. OPUTE, O. H., IDUMAH, F. O., ARABOMEN, O. J. & OLOBA, O. G. (2020). Contribution of Non-Timber Forest Products to Sustainable Livelihood. In: Ogunsanwo, O.Y., Adewole, N.A., Oni, P.I., and Idumah, F.O. (Eds). *Forestry Development in Nigeria: Fifty years of Interventions and Advocacy*. Proceedings of the 42<sup>nd</sup> Annual Conference of the Forestry Association of Nigeria, Pp 508 – 515.
4. MAHONYA, S., SHACKLETON, C.M. & SCHRECKENBERG, K. (2019). Non-Timber Forest Product Use and Market Chains Along a Deforestation Gradient in Southwest Malawi. *Frontiers in Forests and Global Change*, **2**: 71. DOI:10.3389/ffgc.2019.00071
5. BALOGUN, R.B., NWAIGBO, L.C., KAEJAIYE-MATTI, R.B. & EKE, K.A. (2011). An Appraisal of Perception on Environmental Forestry in Ebonyi State. *Journal of Sustainable Environmental Management*, **3**: 10 – 16.
6. GANIYU, L., ABDULKAREEM, S.B., BABASANYA, B., OLADELE, G.O. & OLUMUYIWA, S. (2016). Socio-Economic Factors Influencing the Adoption of Social Forestry Practices by Farmers in Birnin Gwari Local Government Area of Kaduna State. Proceedings of the 21st Annual Conference of the Agricultural Extension Society of Nigeria (AESON), University of Ibadan, Nigeria. 17th – 20th April, 2016, Pp 193 – 200.
7. OLAGUNJU, O.E., OLUYAI, B., GANIYU, L., OLAGUNJU, O.S., OLORUKOBA, M. M., OLAFEMI, S.O. & TOR, L.G. (2020). Knowledge and Attitude of Rural Women towards Agroforestry Practices in Kaduna State. *Asian Journal of Agricultural Extension, Economics and Sociology*, **38**(1): 11 – 21. DOI:10.9734/AJAEES/2020/v38i1230482
8. BANKOLE, O., ABDULKARIM, S.B., GANIYU, L., SULEIMAN, R.O., EMMANUEL, J.O. AKANNI, R., OKECHALU, O.S., LAPKAT, L.G. & LIKITA, M.S. (2020). Constraints and Perception of Social Media Usage among Farm Youth in Rural Communities of Federal Capital Territory (FCT), Nigeria. *Nigeria Journal of Agricultural Extension*, **21**(1): 55 – 61.
9. SOLOMON, O., GOLD, I.L. & IGENE, L. (2018). Assessment of Shea Fruit Processors in Niger State for improved Livelihood and Entrepreneurial Activities. *Global Journal of Pure and Applied Sciences*, **24**: 17-23. DOI: <https://dx.doi.org/10.4314/gipas.v24i1.3>.
10. SULEIMAN, M.S., WASONGA, V.O., MBAU, J.S., SULEIMAN, A. & ELHADI, Y.A. (2017). Non-Timber Forest Products and their contribution to household's income around Falgore Game Reserve in Kano. *Ecology Process*, **6**(1): 23.

households in the study area. It was finally concluded that lack of awareness on sustainable NTFPs utilisation ranked 1<sup>st</sup> in the list of constraints.

## RECOMMENDATION

The study recommended the adoption of a more people-oriented forest-management approach through awareness creation by policy makers, value addition to NTFPs by household and organisation of training on sustainable utilisation of NTFPs.

11. AMUSA, T.O., JIMOH, S.O. & AZEEZ, I.O. (2017). Socio-economic factors influencing marketing of non-timber forest products in tropical lowland rainforests of south-western Nigeria. *Southern Forests: A Journal of Forest Science*, **3**: 1–8. DOI:10. 2989. 12/20702620.2016.1255411.