

## INVOLVEMENT OF RURAL WOMEN IN GATHERING OF FOREST PRODUCTS AS A MEANS OF LIVELIHOOD IN SOUTH-WESTERN NIGERIA

<sup>1</sup>Ajala, A.O., <sup>1</sup>Ogunjimi, S.I., <sup>1</sup>Alabi, O.O., <sup>2</sup>Okonta, O.W., <sup>1</sup>Adebimpe, A.T.  
 and <sup>1</sup>Adesegun, D.B.

<sup>1</sup>Department of Agricultural Economics and Extension, Federal University, Oye-Ekiti, Nigeria.

<sup>2</sup>Department of Agricultural Economics and Extension, Landmark University, Omu-Aran, Kwara State, Nigeria.

Corresponding Author: [abiodun.ajala@fuoye.edu.ng](mailto:abiodun.ajala@fuoye.edu.ng)

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### ABSTRACT

*This study evaluated the involvement of rural women in the collection of forest products. Three hundred rural women involved in gathering of forest products were selected by a three stage sampling technique while primary data were collected with the use of interview schedules as well as Focus Group Discussion (FGD). Analysis of data was done using frequency counts, percentages, mean, standard deviation, correlation and Chi-square. The study revealed that majority (61%) of the women were in their economically active ages, married (76.7%), with mean age and household sizes of 39years, 6 persons respectively. Majority (87%), of the women gather vegetables, fruits (77%), snails (76%), and alligator pepper (71%) and herbs (62%) among others. Women gatherers had positive perceptions that gathering of forest produces is a source of livelihood ( $\bar{x}$ = 4.42), gathering of forest is profitable, ( $\bar{x}$ = 4.36); and gathering business has improved their standard of living ( $\bar{x}$ = 4.06) among others. The benefits derived from gathering activities included: provision of foods (fruits, vegetables, and soup condiments) which ranked first and provision of employment and improvement in rural living standards from sustained income among others. Respondents' age ( $r=0.201; \leq 0.05$ ), experience ( $r=0.694; \leq 0.01$ ) and household size ( $r=0.694; \leq 0.01$ ) had significant relationship with involvement in the gathering enterprise. It is concluded that rural women involvement in gathering of forest products is high enough but may not ensure sustainable livelihood. The study recommends that stakeholders should prioritize programmes that would promote off-farm income-generating diversification activities through technical and financial support.*

**Keywords:** Gathering, forest, women, rural and livelihood.

### INTRODUCTION

Gathering is defined as the foraging of uncultivated plants and undomesticated animals for subsistence or the collecting of food or raw materials from the forest/ wildlife (Crus-Garcia and Price, 2014). Gathering of forest and wildlife involves the practice of

collecting food or raw materials from the wild without disrupting the structure and function of the forest. Gathering societies are earliest form of society. In the earlier times, rural women primarily survive through gathering of forest produce. Gathering of forest products constitute a good source of livelihood earnings for rural through the sale

of such non timber products such as snails, fodder, staking materials condiments, mushrooms, wood, wall nuts, brooms, palm fruits, vegetables that exists in the wild, kolanut, bitterkola, medicinal herbs among others. Other examples are: Chewing stick, Bamboo, Ginger, Bread fruit, Locust bean, mushroom, Scent plant, Raphia palm, African guinea pepper, Cheese, Ropes, Black pepper, Garden egg, Gum, Honey, Coffee, Spring onion, Shear butter and rattans. (Suleiman *et al.*, 2017).

Forest resource gathering activities are carried out by rural men and women with various interest in what they seek out for and are collected all the year round with little or no charges (Oboho, 2014). Aju (2014) affirms that the contribution of forestry to sustainable food security and agricultural production is tremendous. Johnson and Ifeoma, (2018) affirms that majority of these women who constitute about seventy percent of the population rely on forest products and natural resources for their survival because of their roles as those who feed and cater for the family. They are always involved in harvesting and utilization of forest species and are well imbued with the knowledge and skill on their location. The need for livelihood approaches to development especially among rural women has been an issue of concern to development stakeholders. In the light of this, research efforts is being focused at identifying what rural communities can do to alleviate poverty and improve sustainable rural livelihood. Angoni (2015) affirmed that gathering of forest produce is one of such ways that is gaining global attention. Rural women involvement in gathering forest practices was as a result of the several benefits that they accrue to them in terms of providing income and food. Oboho (2014) reported that respondents in his study area in Niger State, Nigeria see gathering as an important source of income, food and employment. It is therefore important that the activity be seen as an importance source of economic sustenance and rural livelihood for women.

Therefore, gathering of forest produce is indisputably a notable source of employment and serves as means of improving rural family income, and hence livelihood (Ibrahim, et al., 2016). However, it is not only a source of income, it provides medicine (through provision of medicinal herbs and raw materials needed for traditional medicine) therefore contributes to household health and food security (Jimoh and Haruna, 2007). With little or no capital investment in the process of gathering, processing and marketing, it provides a wide range of useful items and raw materials such as snail shell, hide and skin among others.

Rural women are vulnerable, excluded and deprived of many infrastructural facilities. Sociocultural factors do not sometimes favour women access and exploitation of productive resource such as land and forest materials (International Food for Agricultural Development, 2023). As such, majority of rural women live in abject poverty and deprivation. The burdens of family life rests more on rural women as mothers of children and care takers of the family (De and Ghosh, 2016). As such, they are always looking for poverty mitigation strategies or bail out of poverty and starvation. Gathering of forest wildlife produce lend such an opportunity. However, the present day challenges of insecurity, kidnapping and banditry which is reducing access to the forest and the issue of climate change and deforestation causing declining availability of forest resources constitute threats which will have severe consequences on rural women livelihood if the tide is not stemmed (Lidestav and Ekstrom, 2005).

Gathering of forest produce compared to timber harvesting is not a destructive activity. Consequently, gathering and trading of forest produce potentially offers a means of concurrently achieving sustainable rural livelihood (Olaniyiet *al.*, 2013). Suleiman *et al.*, (2017) also affirms that women involvement in forest and wildlife gathering therefore can be a panacea towards mitigating

poverty in rural households towards sustainable livelihood. It is in the light of the foregoing, that this study was carried out with the following objectives, which were to: describe the socioeconomic characteristics of women gatherers of forest and wildlife produce; identify the forest produce gathered by women; assess the level of involvement in gathering forest produce; ascertain the perception of rural women on gathering of forest produce; investigate the occupational hazards of forest produce gathering and to evaluate the constraints to gathering.

### **Hypothesis of the Study**

Ho: There is no significant relationship between socio-economic characteristics of the forest produce gatherers and their involvement in the enterprise.

### **MATERIALS AND METHODS**

The study was carried out in Southwest, Nigeria. The zone has six (6) states which are Oyo, Osun, Ondo, Ekiti, Ogun, and Lagos. The study was conducted in Ekiti and Oyo States. Ekiti state is located at latitude 7° 40° N and longitude 5°15 and is mainly upland zone {250 meters above sea level}. It is bounded on the east by Osun state, south by Kwara and Kogi states, and by Ondo State in the east and south {Ekiti State Government, 2014} It has a generally undulating land surface underlaid by metamorphic rocks. The state enjoys a tropical climate with two distinct seasons: rainy season between April to October and dry season between November and March. The temperature ranges from 21°C to 28°C with high humidity. South – westerly and north-easterly winds blow in the rainy and dry seasons respectively. Tropical forest exists in the southern part of the state, while guinea savannah occupies the northern peripheries. Agriculture is the predominant occupation of Ekiti people.

Oyo State lies between latitude 7°0N and 10°0N of the equator and between 2.5°E and 5°0E of the prime meridian. The State has thirty-three local government areas, a total population of 5.6 million going by the

provisional population figure of 2006 (National Population Commission, 2024), and a land area of 27,140,000 square kilometers. Annual mean rainfall ranges above 1000mm; rainy season in the state averages eight months in a year. Rains start in Oyo State during the first week of March with storms. Mean temperature varies from daily minimum of 18.9°C to a daily maximum of 35°C. Humidity is quite high in Oyo State. Relative humidity in the State is 70 percent with a maximum of about 60 percent in the evening and a maximum of around 80 percent in the morning (Agada and Agada, 2017). The Yoruba ethnic group constitutes the majority of the population living in Oyo State. The targeted population of this study included all the rural women forest produce gatherers in Oyo and Ekiti State. A multistage sampling procedure was employed to select the women gatherers. The first stage involved the selection of one third of the states in Southwestern Nigeria comprising of Oyo and Ekiti states. Oyo State has four (4) Agricultural Development Project zones which are Ibadan/Ibarapa zone (14LGAs), Ogbomoso zone (5LGAs), Oyo zone (5LGAs) and Saki zone (9LGAs) while Ekiti State has three (3) Agricultural Development Project zones which are Aramoko Zone 1 (5LGAs), Ikere Zone 2 (5LGAs) and Ikole-Ekiti Zone 3 (6LGAs). Forty percent of the LGAs in the states was proportionately selected based on the number of LGAs making 13 LGAs from Oyo State and 6 LGAs from Ekiti State making 19 LGAs.

At the second stage, from each of the nineteen selected LGAs, four communities were selected, giving a total of seventy six communities. At the third stage, from each of the seventy six communities, four respondents were randomly selected making a total of three hundred and four women fruit gatherers. However, three hundred interview schedules were retrieved and coded. The primary data were elicited from the respondents using a structured interview schedule and Focus Group Discussion, which were held in three of the randomly selected

communities. Descriptive and inferential statistics used included frequency distribution, percentages, mean, standard deviation, correlation coefficient and chi-square.

The dependent variable of the study was the involvement in forest produce gathering by rural women. The respondents were given a 17 item list of forest products such as firewood, fibres, mushroom among others and were measured on a 3 point Likert type scale such as Involved (3 points), Partially involved (2 points), and Not involved (1 point) so as to know the level of respondent's involvement in forest produce gathering. Maximum score was 51 while the minimum was 17. Total score for each respondent were grouped into three categories: high, low and medium.

## **RESULTS AND DISCUSSION**

### **Socioeconomic characteristics of rural women forest gatherers.**

The result in Table 1 showed that 60.7% of the respondents in the study area were in the age bracket of 36-45 years, with their mean age of 39 years. This result affirms that forest gathering is a tedious task meant for younger women folks as it involves walking far into the forest, carrying load for long distances and working for long hours in the sun. Suleiman, *et. al.*, (2017) reported a mean age of 38 years among household heads involved in gathering of forest produce in Falgore Game reserve, Kano. Moreso, Uzokwe (2014) also reported that women gatherers in their study area were relatively young and active women. This implies that the gatherers were in their economically productive ages. Nuhuet *al.*, (2017) reported that younger women are actively involved in entrepreneurial activities which make them contribute tremendously to the sustainable livelihood of their families and communities at large.

Majority (74.3%) were married while 3 percent of the respondents were single. Married women are committed to seeking a sustainable means of livelihood because of

the responsibility of feeding and caring for the family. Adewale and Oladeji (2023), submitted that being married is an enviable status in the rural society. Above average (58.7%) of respondents practice Christian religion, while 33.3% practices Islamic religion and 5% were traditional worshipers. This is a clear indication that religion has no contradiction to the role of forest gathering as a means of securing ones livelihood. Majority (84%) of the female fruit gatherers were literates. This indicates that the level of literacy in the study area is high, this implies that the women will have high knowledge of marketing strategies and as such increase their profit thereby improving their livelihood. The result of this study is in contrast with Shuaibu (2015), who reported that women have low level of education. Majority (75.3%) were into gathering of forest products as their primary occupation. This is a pointer to the importance of gathering in the rural economy. This table revealed that 43.3.0% of the respondents were members of an association while 56.7% of the respondents does not belong to any association. The rural women involved in forest gathering in the study area had an average household size of 8 persons. Large family size increases the burden of the household heads and therefore the need to gather free items from the forest because of the need to maintain the family. It also has some obvious implications on the amount of labour available for gathering activities. This result is in tandem with the findings of Aniedu (2016) who posited that the size of the household supplements farm labour thereby increasing productivity. Majority (72.7%) of the respondents had their income ranging from between 100,00 - 149,000, 18.3% had their income ranging from 150,000 -299,000, 6% had their income ranging from 300,00- 450,000 while 3% of the respondents had income greater than 450,000. A mean annual income of ₦205,333.0 suggests that the female fruit gatherers are low income earners. Sonwa *et al.*, (2001) affirmed that the capacity of women in earning income is

increasingly seen as one way of achieving more sustainable development.

**Table 1: Socio-economic characteristics of women forest produce gatherers in the study area**

	Frequency	Percentage	Mean/std.
<b>Age</b>			
25-35	90	30.0	
36-45	182	60.7	39
45-55	22	7.3	
≥ 60	6	2.0	
<b>Marital status</b>			
Single	8	2.7	
Married	223	74.3	
Divorced	69	23.0	
<b>Religion</b>			
Christianity	176	58.7	
Muslim	101	33.7	
Traditional	23	7.7	
<b>Level of education</b>			
No. of education	32	10.7	
Primary	101	33.7	
Secondary	151	50.3	
Tertiary	16	5.3	
<b>Major occupation</b>			
Gathering of forest products	226	75.3	
Farming	15	5	
Trading	53	17.7	
Civil servant	6	2.0	
<b>Association Membership</b>			
Member	130	43.3	
Non Member	170	56.7	
<b>Household size</b>			
1-5	23	7.7	
6-10	120	40.0	8
11-15	139	46.3	
16-20	18	6.0	
<b>Income (Naira.p.a)</b>			
100,000-149,000	218	72.7	
150,000-299,000	55	18.3	205,333.00±35.9
300,00-450,000	18	6.0	
≥ 450,000	9	3.0	

**Source:** Field Survey, 2023

### Forest produce gathered by rural women

According to Table 2, majority (87%) of the women gathered vegetables, followed by fruits (78.3%), snails (76.7%), alligator pepper (71.3%), locust beans (67.7%), mushroom (66%), chewing stick (63.7%), herbs (62.3%), coconut (58%), garden egg (56.7%), palm fruits (45.3%), while the least gathered produce is gum with 12.3 per cent. Some highly relished uncultivated vegetables and fruits which exist in the wild command high prices (because they possess medicinal values) are in high demand in current times. Bamiwuyee *et al.*, (2019), reported that palmfruits, vegetables, snails and firewood were some of the non timber forest produce gathered by majority of women in Southwest Nigeria and that the women expressed their willingness to continue in the gathering business. However, Ibrahim, *et.al.* (2016), reported that household heads in BorguLGA of Niger state consider firewood as the most important forest produce gathered.

**Table 2: Forest produce gathered by rural women**

S/N	Forest produce	*Frequency	Percentage %
1	Vegetable	261	87.0
2	Fruits	235	78.3
3	Snails	230	76.7
4	Alligator pepper	214	71.3
5	Locust beans	203	67.7
6	Mushroom	198	66.0
7	Chewing sticks	191	63.7
8	Herbs	187	62.3
9	Coconut	174	58.0
10	Garden egg	170	56.7
11	Palm fruits	136	45.3
12	Fire wood	129	43.0
13	Cherry	124	41.3
14	Honey	120	40.0
15	Palm fruits	136	45.3
16	Shea butter	64	21.3
17	Fibres	39	13.0
18	Gum	37	12.3

**Source:** Field Survey, 2023

**\*Multiple responses**

**Perception of rural women about gathering.**

The result in Table 3 showed that that gathering of forest produces is a source of livelihood with a mean score of ( $\bar{x}$ = 4.42) ranked first, gathering of forest is profitable ( $\bar{x}$ = 4.36), ranked second while gathering business has improved their standard of living, ( $\bar{x}$ = 4.25), ranked third. Forest produce gathered is for providing sustenance for family and to make money) ( $\bar{x}$ = 4.06), ranked fourth, they also sell farm produce gathered at market. ( $\bar{x}$ = 4.26) ranked fifth. Bamiwuye *et al.*, (2019) and Dishan *et al.*, (2010) submitted forest gathering as an enterprise is a sustainable means of income amongst rural women which rural women cannot do without. This also corroborates the findings of Olaniyi *et al.*, 2013; and Suleiman *et al.*, 2017.

**Table 3: Perception of rural women on gathering of forest produce.**

S/N	Perception statement	Mean	S. D	Decision	Rank
1.	Gathering of forest produce is my source of livelihood.	4.42	0.92	Positive	1 <sup>st</sup>
2.	Gathering of forest is profitable.	4.36	0.79	Positive	2 <sup>nd</sup>
3.	I do sell farm produce gathered at market.	4.25	1.75	Positive	3 <sup>rd</sup>
4.	Forest produce gathered is for providing sustenance for family and to make money.	4.23	1.08	Positive	4 <sup>th</sup>
5.	Gathering business has improved my standard of living	4.06	1.07	Positive	5 <sup>th</sup>
6.	I do keep records of produces gathered.	2.37	1.35	Negative	6 <sup>th</sup>
7.	Gathering of forest produce to the market is easy.	2.04	1.07	Negative	7 <sup>th</sup>

**Source:** Field Survey, 2023

**Table 4: Focus Group Discussion Report**

Discussed Issues	FGD Report
Manner of carrying outgathering.	"Each season has its gatherable forest product, snails, snakes, nuts, etc. so we enter the forest with this knowledge and we get things to gather"
Strategy of maximizing profit	"we target the local five days market as we gather, so we sell directly to buyers( some of whom are from big cities) in the open market to avoid exploitation by middlemen"
On exploitation by middlemen.	"The exploitation of middlemen is not unavoidable if we are financially pressed to borrow from them either to pay school fees or to meet one urgent need or the other."
Level of profitability of gathering,	One respondent said: " we enter the forest with our cutlasses, we are neither cultivators nor planters, we only gather free forest resources such as snails, snakes, nuts, wild vegetables, herbs etc and by the time we take them to market we sell them at good prices because some of our products are luxury and essential items to our customers, so it's a profitable venture."
Occupational hazards of forest produce gathering.	<p>"One can lose direction in the thickly forested areas; we can be attacked by snakes and scorpions if we accidentally step on one; we can fall into ditches and can step into hidden and buried traps"</p> <p>"One can have <i>Mucunamucunoides</i> attack; one can be kidnapped, or raped or get killed by forests marauder, marabouts and bandits especially if you go alone."</p>
Coping strategies of occupational hazards.	<p>"We go in groups like forest hunters, we arm ourselves with sharp cutlasses and knives; and we wear smart dresses that will make us smart enough to run from danger if we are faced with one."</p> <p>"We inform our family members of the direction of our movement and we carry our phones along armed with contacts of local security agents in case we are confronted with emergency situations."</p>

### Occupational Hazards of gathering

As shown in Table 5, bees attack (64%) ranked first among the occupational hazards followed by soldier ants attack (57%) which ranked second, *Mucunamucunoides* attack, ranked third with 45 percent while falling into ditches(20%), Stepping on hidden traps(9%) loss of direction(20%), ranked 4<sup>th</sup>, 5<sup>th</sup> and sixth respectively. As shown in Table 5, a respondent commented: ***"One can lose direction in the thickly forested areas; we can be attacked by snakes if we accidentally step on one; we can fall into ditches"***.

Another discussionist responded: ***"One can have Mucunamucunoides attack; one can be kidnapped, or raped or get killed by forests marauders or bandits."***

When asked on how they cope with occupational hazards of gathering, a discussionist responded:

*“We go in groups like forest hunters, we arm ourselves with sharp cutlasses and knives; and we wear dresses that will make us smart enough to run from danger if we are faced with one.”*

Another discussionist responded: *“We inform our family members of the direction of our movement and we carry our phones along armed with contacts of local security agents in case we are confronted with emergency situations.”*

**Table 5: Occupational hazards of gathering.**

S/N	Occupational hazards*	f	Rank
1.	Bees attack	64	1 <sup>st</sup>
2	Soldier ants attack	57	2 <sup>nd</sup>
3	Mucunamucunoides attack	45	3 <sup>rd</sup>
4.	Snake bite	15	4 <sup>th</sup>
5.	Falling into ditches	20	4 <sup>th</sup>
6.	Loss of direction	2	6 <sup>th</sup>
7	Stepping on hidden traps	9	7 <sup>th</sup>

**Source:** Field Survey, 2023

\*Multiple responses.

### Constraints to gathering of forest produce

The Result in Table 6 showed that bush burning ( $\bar{x}$ = 3.6) ranked first among the constraints to gathering, followed by deforestation ( $\bar{x}$ = 3.41), climate change ( $\bar{x}$ = 3.32), banditry ( $\bar{x}$ = 2.8) and kidnapping ( $\bar{x}$ = 2.41) which ranked second, third and fourth respectively. While Marketing channels and over exploitation by middle men ranked sixth and seventh. International Union for the Conservation of Nature, IUCN (2021) reported that 25 per cent of the rural global population rely on forests for their livelihoods including many of the world's poorest communities.

**Table 6: Constraints to gathering of forest produce.**

S/N	Constraints*	Mean	Rank
1.	Bush burning	3.6	1 <sup>st</sup>
2.	Deforestation	3.41	2 <sup>nd</sup>
3.	Climate change	3.32	3 <sup>rd</sup>
4.	Banditry	2.8	4 <sup>th</sup>
5.	Kidnapping	2.51	5 <sup>th</sup>
6.	Marketing channels	2.4	6 <sup>th</sup>
7.	Over exploitation by middlemen	2.25	7 <sup>th</sup>

**Source:** Field Survey, 2023

### Test of hypothesis

Table 7 and 8 show that at 0.05 level of significance, respondents age ( $r=0.201$ ) had significant relationship with involvement in the gathering enterprise while gathering experience ( $r=0.694$ ) and household size ( $r=0.694$ ) were also significant at 0.01 level of significance. Also, religion ( $\chi^2=47.060$ ) marital status, ( $\chi^2=140.122$ ) educational level ( $\chi^2=52.080$ ) had significant association with involvement in the gathering enterprise. This may be because gathering is a technical operation wherein skill acquired over years will matter. However, a significant relationship between the household size and their involvement may be due to the fact that the higher the household size the



more the family labour involved in gathering. Married status confers more responsibilities on the women which will in turn require more involvement in gathering as additional source of income. The higher their educational level, the higher their involvement in the enterprise, this may be due to their increased knowledge about the availability, usage and technical know-how about the benefit of forest produce.

**Table 7: Correlation analysis showing relationship between socioeconomic characteristics of the respondents and involvement in forest gathering.**

Variables	Correlation ( r )	Coefficient of determination, r <sup>2</sup>	of P-value	Decision
Age	0.201*	0.004	0.05	Significant
Household size	0.706**	0.498	0.01	Significant
Gathering experience	0.694**	0.481	0.01	Significant

**Source:** Field Survey, 2023

\*Correlation is significant at the 0.05 level (2- tailed); \*\*Correlation is significant at 0.01 level (2-tailed)

**Table 8: Chi-square analysis showing relationship between socioeconomic characteristics of the respondents and involvement in forest gathering.**

Variables	$\chi^2$ - value	Df	P-value	Decision
Religion	47.060 <sup>a</sup>	2	0.01	Significant
Marital status	140.122 <sup>b</sup>	3	0.01	Significant
Educational level	52.080 <sup>c</sup>	3	0.01	Significant

**Source:** Field Survey, 2023

Df= Degree of freedom

## CONCLUSION

The study concluded that women involvement of gathering of forest products is high enough but may not ensure sustainable livelihood. These products contribute both directly and indirectly to household economy as they generate food, income from the sale of forestry products and provide employment through their marketing and exchange. The study recommends that stakeholders should prioritize programmes that would promote off-farm income-generating diversification activities through technical and financial support.

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