Original Research Article

Examination of the Role of Extension Agents in Shea Butter Processing and Marketing in Zuru Agro-Ecological Zone of Kebbi State, Nigeria

Sanchi, I. D[1*], Alhassan, Y. J[2], Sabo, A. Y[1]

[1]Department of Agricultural Economics and Extension, Federal University of Agriculture, Zuru, Kebbi State, Nigeria
[2]Department of General Studies Federal University Wukari, Taraba State, Nigeria

*Corresponding Author: Sanchi, I. D
Department of Agricultural Economics and Extension, Federal University of Agriculture, Zuru, Kebbi State, Nigeria

Abstract: This article examined the role of extension agents in shea butter processing and marketing in zuru agro-ecological zone of kebbi state, Nigeria. Primary data were collected through the use of structured questionnaires and interview schedule from 104 processors and marketers using a multi-stage sampling technique. The data collected were analyzed using both descriptive and inferential statistics. Results revealed that processors and marketers were mostly young, married females. Most of the processors and marketers had little or no formal education but had between six and 15 years of processing and marketing experience. It was revealed that the average age of the respondents was 33 years, most were married (92.4%), illiterate (55.4%), lacked access to credit and market information with average income of ₦233, 547.06 (US$ 659.23) per annum. Extension officers were not fully involved in the training of processors and marketers, especially in the areas of teaching and practical demonstrations. The study shows that age (χ^2 = 38.865, p = 0.000), educational level (χ^2 = 69.018, p = 0.000), and years of processing experience (χ = 40.118, p = 0.000) were significantly related to the training received from change agents on shea butter processing and marketing. Lack of storage facility (X =2.12), distance to market (X =2.10) and discrimination from buyers (X =2.00) were major constraints to shea butter processing and marketing. Age (β=-0.29), educational qualification (β=0.17), proximity to market (β=-0.22), access to market information (β=0.30), production output (β=0.34) and income (β=0.007, 0.026) from shea butter including membership in a group (β=1.39) significantly influenced respondents' decision to participate in shea butter processing and marketing. The study concludes that shea butter processors and marketers in the study area have potentials to contribute to economic growth and development but lack full participation in large scale or international markets thus, relying mostly on small local community based markets. Hence, it is recommended that processors and marketers be properly trained on modern processing and marketing technologies, extension officers and skilled extension agents should be fully utilized, especially in the areas of teaching and practical demonstrations. In designing extension training programmes for processors and marketers in the study areas, age, level of education, and years of processing and marketing experiences should be taken into consideration by the change agents, since these aspects were shown to have significant relationships with extension roles.

Keywords: Examination, Extension Agents, Shea Butter, Processing, Marketing, Agro Ecological Zone, Kebbi State.

INTRODUCTION

In recent years, Shea trees has gained importance as economic trees, because of the heavy demand for its butter locally and internationally. Researchers have also found out that, the Shea trees are the second most important oil crops in Africa after oil palm tree. Daniel *et al.* (2005) noted that Kebbi state is blessed with copious shea trees. These authors opined that shea trees are economic trees that provides a veritable treasure of benefits for rural women. In addition, the shea trees has proven to be a source of livelihood as well as a means of ensuring environmental sustainability through biodiversity conservation (Eneh 2010). Similarly, Akinsokeji (2012) posited that shea butter processing offer employment to rural women and also serve as a means of poverty alleviation and food security. Shea butter extraction is

a lucrative business especially in rural areas where the shea trees thrives (Daniel *et al.,* 2005). Similarly, Aboyella (2012) posited that shea butter has a high–value export to Europe and the United States, where it is considered a luxury product/commodity. The butter which is extracted from the kernel is used for traditional medicines, cosmetics, chocolates, candle and pastries as cocoa butter substitute. It is also used in pharmaceuticals and it is naturally rich in precursors of Vitamins A and E. Furthermore, shea butter is widely utilized for domestic purposes such as cooking, skin moisturizer, edible products (Abera, 2009). Traditionally, Shea butter are used as cream for dressing hair, protecting skin from extreme weather and sun, relieving rheumatic and joint pains, healing wounds/swelling/bruising, and massaging pregnant women and children. It is also used in treatments of eczema, rashes, burns, ulcers and dermatitis (Ojo and Adebayo, 2013). In Europe and Japan, shea butter is prized for its superb healing and moisturizing properties (Aculey, 2007). It is an ingredient in body creams, sun screens, conditioners and in the treatment of burns and muscle pains.

The Shea processing is dominated by women and therefore contributes to significant proportion of their income. Majority of them that are engaged in the Shea industry for instance, do so because of the potentials of the industry to reduce poverty levels (Ademola, 2012). Financing the production and marketing of the Shea industry is therefore an important course for development. Hence, reliable evaluation of Shea butter processing to the socio-economic development of the rural population is very important. However, despite its nutritional and economic contribution to the rural poor, shea butter marketing has not received enough attention for its expansion as a sustainable rural industry (NEPC, 2012). Hence, identifying and analysing factors that determine participation in shea butter marketing is critical in designing carefully targeted policy interventions to ensure that rural processors benefit from smallholder market participation. In Nigeria, approximately 45 percent of the land is suitable for the growth of the plant (Ololade and Ibrahim, 2014). Shea trees grows in the wild in many states including Niger, Nasarawa, Kebbi, Kwara, Kogi, Adamawa, Benue, Edo, Katsina, Plateau, Sokoto, Zamfara, Taraba, Borno, and Oyo. It is widely known, valued, and exploited by the natives in all the areas where it grows (Ololade and Ibrahim, 2014). The fruits contribute to food security in areas where it is found growing, mainly for rural poor, especially since their ripening coincide with the lean period of food production. The production of shea nut and processing of the butter serves as one of the main sources of employment for the rural women and children who are engaged in its gathering (Ojo and Adebayo, 2013).

METHODOLOGY
Study area
The study was carried out in Zuru Local Government Area (LGA) of Kebbi State. The Area is located within latitude $11^{o}35'$ and $11^{o}55'$N and longitude $4^{o}45'$ and $5^{o}25'$E of the equator approximately. Zuru LGA is geographically located in the south-eastern part of the state. The estimated population of the LGA is 165,547 people (NPC, 2006). The weather is marked by a single rainy season and long dry season, the average rainfall is 1025mm/annum, the rainy season is between May to October, the rainy season last for four – five months. The climatic condition of the area is characterized by hot and wet season as in the tropics; the month of November to January is the hamattan period. The soil type is sandy loam and rich, which makes it suitable for agriculture.

The LGA has two main climatic seasons; the dry (Hamattan) seasons and wet (rainy) seasons. The maximum temperature is usually not more than 94 0F, recorded between March and June, while the coldest temperatures are measured usually between December and January. The rainfall both in amount (1,100 – 1,600mm per annum) and duration (8 months) favour the growth of shea nut trees in virtually all the villages around Zuru LG. Shea-butter extraction activities are carried out across the Villages around Zuru Local Government.

Sampling procedure and sample size
A multi-stage sampling procedure was used to select 104 Shea butter processors and marketers in the study area. The LGA has thirteen administrative districts namely Bedi, Zodi, Tadurga Seme, Senchi, Chiroman Dabai, Isgogo, Dago, Manga, Ushe, Rafin Zuru, Rikoto and Rumu. In the first stage, all the 13 districts were selected for the study. Secondly, 8 processors and marketers were selected from each of the district (4 processors and 4 marketers) thus making 104 respondents as sample size used for this study.

Method of data collection
The study was based on primary data obtained from the field survey using interview schedule and a structured questionnaire administered to shea butter processors and marketers. Interview was conducted on those that can neither read nor write while questionnaire was administered to the elites in the business. The questionnaires had both open ended and closed ended questions.

Data analysis
Descriptive statistics such as frequency counts, percentages, means, standard deviations and ranking were used to analyse the data collected. Similarly, probit regression was also used for data analysis.

RESULTS AND DISCUSSION
RESULTS

Table 1: Distribution of selected demographic characteristics of the processors and marketers *(N=104)*

Variables	Frequencies	Percentages
Age		
≤ 25	2	1.7
26 - 45	33	27.5
46 - 65	80	66.7
≥ 65	5	4.1
Sex		
Male	4	3.3
Female	116	96.7
Marital Status		
Single	9	7.5
Married	99	82.5
Divorced	5	4.2
Widowed	7	5.8
Educational Attainment		
Non Formal	53	44.2
Arabic	14	11.6
Primary	29	24.2
Secondary	21	17.5
Tertiary	3	2.5
Household Size		
3-6	28	23.3
7-10	73	60.8
11-14	19	15.8
Primary Occupation		
Shea Butter Processing	98	81.7
Others	22	18.3

Source: Field Survey, 2022

Table 2: Distribution of the role of extension agents in training processors and marketers of shea butter (n = 104)

Extension role	Mean score	Standard deviation
Teaching/ lecturing	2.57	1.65
Practical demonstration on the use of processing equipment	2.50	1.56
Preparation/ arrangement of training centres or locations	4.03	1.07
Setting up of teaching aids like a public address system, video, posters, projector at the training centres, etc.	4.33	0.97
Creation of awareness	4.34	0.80
Supervision/ co-ordination of trainees	3.76	1.41
Total mean score	21.53	
Average mean score ($\chi2$)	3.59	

Source: Field survey, 2022

Table 3: Level of involvement in the processing of shea butter

Processing Techniques	Actively involved	Moderately involved	Not involved
Shea nut collection	3.8	23.8	72.5
Washing of collected nuts	14.4	70.6	15.0
Drying of washed nuts	12.5	75.6	11.9
Nut selection	16.3	73.8	10.0
Nut cracking and crushing	11.9	60.6	27.5
Roasting of crushed nuts	39.4	55.6	46.3
Milling of roasted nuts	16.3	37.5	5.0
Cold water mixing	96.9	1.9	1.3
Hot water mixing	98.8	0.6	0.6

Processing Techniques	Actively involved	Moderately involved	Not involved
Cold water separation	98.8	0.6	0.6
Boiling	97.5	1.9	0.6
Filtrations /solidification	98.8	0.6	0.6
Packaging	98.8	0.6	0.6

Source: Field Survey, 2022
*Multiple responses were recorded

Table 4: Distribution of respondents' marketing Channels   (N=104)

S/No	Marketing Outlets	No (%)	Yes (%)			
		Once a Month	Twice a Month	Once a Week	Twice a Week	Daily
1	Wholesalers	5.0	16.9	77.5	-	0.8
2	Retailers	2.5	26.7	1.7	68.3	0.8
3	Consumers within community	89.2	3.3	0.8	4.2	-2.5
4	Consumers outside communities	70.0	9.2	20.8	-	-
5	Food companies in cities	99.2	-	-	0.8	-
6	Cosmetics companies in cities	65.8	25.8	8.3	-	-
7	Traditional hospitals	100.0	-	-	-	-
8	Exports	100.0	-	-	-	-

Source: Field survey, 2022
*Multiple responses

Table 5: Distribution of constraints hindering processors and marketers access to training by extension agents and its severity (n=104)

Constraints	Mean score (χ^2)	Standard deviation (SD)
Non-awareness of training on modern shea butter processing technologies	2.95	0.23
Inadequate information on available training opportunities	2.90	0.37
Inappropriate time for training	2.87	0.34
Illiteracy	2.36	0.65
Inaccessibility of training locations	2.28	0.79
Inadequacy of government aid	1.50	1.17
Inadequate fund to attend training	0.70	0.87
No time for training	0.61	1.05
Level of training instruction inappropriate	0.29	0.65
Unavailability of modern processing equipment at training centres for training exercise	0.20	0.44
Total mean score **Average mean score (χ^2)**	**17 1.7**	

Decision rule: ≥ 1.7 = Very severe,(Very severe = 3, Severe = 2, Not severe = 1
< 1.7 = not severe **Source:** Field survey, 2022

Table 6: Distribution of constraints Influencing Shea butter marketing and processing

Constraints	Very severe	Severe	Not severe	Not a constraint	Mean	Rank
Lack of storage facility	46(38.8)	54(45.6)	13(11.3)	5 (4.4)	2.12	1st
Distance to market	59(50.0)	32(26.9)	7 (6.3)	20 (16.9)	2.10	2nd
Discrimination from buyers	38(31.9)	47(40.0)	29(24.4)	4 (3.8)	2.00	3rd
Low price	26(21.9)	70(59.4)	15(12.5)	7 (6.3)	1.97	4th
Unstable price	27(22.5)	57(48.1)	33(28.1)	1(1.3)	1.92	5th
Cost transportation	37(31.3)	53(45.0)	8(6.9)	20 (16.9)	1.91	6th
Lack of standard measurement	43(36.4)	44(37.3)	6(5.0)	25 (21.1)	1.88	7th
Inadequate labour	23(19.5)	33(27.1)	36(30.5)	27 (22.9)	1.43	8th
Low patronage	14(11.9)	31(26.3)	41(34.7)	32 (27.1)	1.23	9th

Source: Field Survey, 2022

Table 7: Probit Analysis showing the factors that determines shea butter processing and marketing by small scale shea butter processors

Variable	Coefficient	Std. Err.	Z-value	P>|z|
Age	-0.29	0.359	0.54	0.000**
Marital status	0.16	0.47	0.69	0.492
Level of education	0.17	0.75	1.99	0.049*
Household size	0.13	0.43	1.59	0.114
Production output	0.34	0.07	0.52	0.004**
Income	0.01	0.04	3.31	0.026*
Years of experience	0.11	0.01	1.29	0.199
Market information	0.30	0.97	2.03	0.003**
Access to credit	0.55	0.93	2.80	0.000**
Proximity to market	-0.22	0.03	-0.61	0.015*
Membership in a group	0.88	1.39	0.63	0.000**

Source: Field Survey, 2022
Log likelihood = - 17.167565, LR Chi^2= 72.4; Prob> Chi^2 = 0.000; Pseudo R^2 = 0.616

DISCUSSION

Table 1 shows the demographic characteristics of shea butter processors and marketers in which 40.6% of the processors are between ages 56 and above, implying that weak labour and probable laggards dominate Shea butter processing. Most (82.5%) of the processors are married indicating that they have responsibilities of their households to meet. The predominance of married processors suggests that they are deriving some form of support from family members. Ojo and Adebayo (2013) opined that education is a variable that determines the ability of a respondent to access and understand information. Result shows that majority (44.2%) have no formal education, inferring illiteracy and difficulties in accepting innovation. On the other hand, the productive activities of males and females in agriculture are very important and must be taken into consideration. Majority (96.7%) of the processors are female, corroborating Cocoa Research Institute of Ghana (2007) that women are more involved in the processing of Shea butter. Household size implies the total number of people staying under a roof and being fed. Higher number of children is an indication of family wealth in rural areas. Children are an added labour advantage for increased agricultural productivity because they do bulk of the farm work, 60.7% of the processors have between 7-10 household, which should result in increased production. Majority (81.7%) of the processors have their primary occupation to be Shea butter processing, showing the level of devotion to the vocation in the area.

Table 2 Distribution of the role of extension agents in training processors and marketers of shea butter. The results revealed that extension officers were not fully involved in training activities such as teaching/ lecturing (M = 2.57, SD = 1.65) and practical demonstrations (M = 2.50, SD = 1.56). The implication of this finding is that processors were not properly taught and this could have hindered their effective use of modern processing equipment. In addition, Table 2 shows that the creation of awareness (M = 4.34, SD = 0.80), setting up of teaching aids like a public-address system, video, posters, and a projector at the training centres (M = 4.33, SD = 0.97), and preparation/ arrangement of training centres or locations (M = 4.03, SD = 1.03) were the training activities that extension officers were fully involved in.

Table 3 indicated the level of involvement in the processing of shea butter by the respondents. The level of involvement of respondents illustrated above showed that processors are actively involved in cold water mixing (96.9%), hot water mixing/kneading (98.8.2%), cold water separation (98.8%), boiling 97.5% filtration & Solidification (98.8%) and packaging (98.8%), A larger percentage of the processors were actively involved in the latter stages of processing as this requires a lot of skill and expertise in determining the quantity and temperature of water, temperature at which the paste is boiled, also in the filtration and packaging of the butter in a bid to reduce the impurities in the butter. This corroborates the findings of [9] the quality of Shea butter is highly variable, depending on the care and skill of the processor. while 75.6% were moderately involved in the washing of the nuts, 73.8% in nut selection, 70.6% washing of nuts, 60.6% in nut cracking and crushing, 55.6% in roasting of crushed nuts while only 37.5% in milling of roasted nuts . the study revealed a lesser percentage of the respondents were moderately involved in these activities as children were involved in these stages and most processors supervise these activities, based on the findings in Table 5 that a large number of the respondents were elderly, activities that required high energy are assigned to children who are still youthful and energetic. The study further revealed that 72.5% of the respondents were not involved in shea nut collection, 46.3% in the milling of roasted nuts. Most of the respondents are not involved in shea nut collection as the tree grows in the wild, that are very far from the villages, as well as the fact that most of the processors are quite elderly and cannot walk such long distances, also in the course of collection of nuts the processors are exposed to a number of dangers such as snake bites, scorpion bites etc as this in line with the findings of Olade and Ibrahim, (2014] who found that Pickers

wake early in the morning and trek up to 15km, then carry the loads back in head pans of20-25kg (sometimes over 40kg). Hazards include scorpions and snakes bites, especially when nut collection is beyond cultivated area

Table 4 shows that marketing to wholesalers and retailers occur majorly (77.5% and 68.3% respectively) once a week. Consumers in the community hardly constitute part of the market, as Shea butter processing is an art known to almost all in the community; those that do not produce for the market produce for personal consumption. Also, there is little direct trade of the product as 70.0%, 99.2%, 65.8% of the processors do not sell to consumers outside their communities, food companies in cities, and cosmetics companies in cities respectively. None of the processors sell to traditional hospitals because the latter produces what it requires and they neither sell internationally. There is either little sensitization of the public and industries of the efficacy of Shea butter or distrust in its quality, as also opined by Daniel *et al.*, (2005).

Table 5 shows the constraints hindering processors and marketers access to training by Extension agents and its severity. Non-awareness of training programmes ($\chi 2 = 2.95$), inadequate information on available training opportunities ($\chi 2 = 2.90$), and inappropriate time for training ($\chi 2 = 2.87$) were found to be very severe constraints hindering processors' effective access to training programmes. The implication of this finding is that most of the processors will lack the necessary skills and knowledge on modern processing technologies that would have enhanced their production of high quality shea butter. Others include illiteracy ($\chi 2 = 2.36$) and inaccessibility of training locations ($\chi 2 = 2.28$). Furthermore, Table 4 reveals that inadequacy of government aid ($\chi 2 = 1.50$), inadequate fund ($\chi 2 = 0.70$), and no time for training ($\chi 2 = 0.61$) were constraints that were not severe in hindering respondents' effective access to training programmes.

Table 6 reveals the constraints of marketing shea butter. The results in the table found out that lack of storage facility ($X\_2.12$) ranked first among the constraints faced by the respondents in the study area. A sizeable proportion of the respondents were affected by distance to market ($X\_ =2.10$). Conditions of the road to the nearest towns determine accessibility of markets. In contrast, a lack of road connectivity can lead to delays in transferring produce to market areas, which can lead to quantitative and qualitative losses in shea butter. This was closely followed by discrimination from buyer ($X\_ =2.00$) and low price from buyer ($X\_ =1.97$). Other constraints reported were unstable price ($X\_ =1.92$), cost of transportation ($=1.91$) and lack of standard measurement ($X =1.88$).The constraints variable imply that when price does not commensurate with time, resources and man power employed in processing activities, market participation by respondents tend to be hindered. This finding is in agreement with Abera (2009), that prices offered to shea processor are usually unfair rather than beneficial. Similarly, Aculey (2007) asserts that traditional processing usually results in poor quality and unhygienic products, thus causing buyers to offer low prices to processors. By the following eight covariates: proximity to market, access to market information, access to credit, age, educational qualification, income from Shea butter production and quantity of shea butter. Table 6 also reveals a R2 value of 0.616 which suggests that about 61.6% of the variation in the dependent variable is explained by variation in the explanatory variable. Statistics in Table 6 further revealed a strong significant ($p \leq 0.05$) and very weak negative relationship between age of shea butter processors and market participation in the study area i.e. ($\beta= -0.29$; p= 0.000). Negative but significant relationship between age and market participation indicates that as respondent advances in age, their productivity and market participation decreases. The plausible reason could be the labour intensive nature of shea butter processing activity. This corroborates the finding of Eneh (2010) that job performance decreases as workers advance in age

Table 7 presents findings on factors determining market participation. The result indicated a negative and significant relationship between proximity to market and respondents' decision to participate in shea butter marketing ($\beta=0.22$, p=0.015). There was a positive significant relationship between access to market information and market participation ($\beta=0.30$, P=0.003). This suggests that the farther the distance to market, the lesser the willingness of respondents to participate in shea butter marketing. This result is in tandem with Ademola *et al.*, (2012) and Aboyella (2002) who affirmed that distance to the market negatively influences the decision to participate in markets. Production output also showed a significant relationship with market participation in shea butter ($\beta=0.34$, p=0.004). Usually, quantity produced will determine where to sell. The result indicates that an increase in production output will increase respondents' participation in Shea butter marketing. Similarly, income from shea butter significantly contributed to respondents' decision to participate in shea butter marketing in Shea butter marketing. Membership of shea butter group or marketing associations significantly contributed to respondents' decision to participate in shea butter marketing ($\beta=1.39$, P = 0.000).

The plausible reason for the significant relationship between membership in association and market participation could be attributed to the fact that group dynamics creates synergy among the respondents and enables them to access market information as well as share experiences. Abera (2009) stated that group dynamics facilitate access to improved technology, training and output markets and consequently increasing expected profits. Though not significant,

respondents' household size and years of experience had a positive sign implying that they promote respondents' decision to enter the market.

CONCLUSION

It is concluded that Shea butter processors and marketers were mainly female, middle aged, married, with little or no formal education, have large household size, and have Shea butter processing and marketing as their primary occupation. The processing techniques are manual, take time, and highly demanding. There are limited market opportunities for the product, and the processors and marketers hardly seek information to improve their activity. Moreover, limited credit facilities and processing equipment are the major constraints of the processors. Shea butter production in the area is lower than expected, as it is their primary livelihood activity. Finally, the quantity of Shea butter produced is neither affected by available markets, neither the processing techniques. The study also showed that most of the processors and marketers could not access training programmes because of their low level of awareness. Non-awareness of training programmes, inadequate information on available training opportunities, inappropriate time for training and illiteracy were the major constraints hindering processors and marketers effective access to training on improved ways of processing by extension agents. The study observed that small scale shea butter processors have potentials to contribute to economic growth and development.

RECOMMENDATIONS

In the light of these findings, it is recommended that:

- Creation of adequate awareness and information dissemination by the stakeholders on training programmes for processors and marketers in the study area should be carried out. This will enhance processors and marketer's access to training programmes organized by extension agents and other concerned stakeholders.
- In designing training programmes for processors and marketers in the study area by the change agents, accessibility to training locations and time of training should be well considered since they were found to be among the major constraints limiting processors and marketers access to training.
- For processors and marketers to be properly trained on modern processing and marketing technologies, extension officers and skilled extension agents should be fully utilized, especially in the areas of teaching and practical demonstrations.
- Training should be conducted at least twice a year for the processors and marketers by the extension officers in the identified areas of training needs in order to improve their skills and competencies in the jobs that they do.
- In designing extension training programmes for processors and marketers in the study areas, age, level of education, and years of processing and marketing experience should be taken into consideration by the appropriate stakeholders, since these aspects were shown to have significant relationships with training needs.
- It is recommended that Shea butter processing should be adopted by both governments and NGOs as a poverty alleviation initiative, given its enormous potentials locally and internationally.

REFERENCES

- Abera, G. (2009). Commercialization of Smallholder Farming: Determinants and Welfare Outcomes. A Cross Sectional Study in Enderta District, Tigrai Ethiopia. Master's Thesis, The University of Agder, Kristiansand.
- Aboyella, C. (2002). "An economic analysis of shea nuts and cashew production in the Bawku East District". An Unpublished BSc. Dissertation submitted to the Department of Economics & Agribusiness, University of Ghana.
- Aculey, P. C. (2007). Effect of primary processing of Shea Fruit on Shea Butter Quality. Unpublished report. Accra: Cocoa Research Institute of Ghana.
- Ademola, A. O., Oyesola, O. B., & Osewa, S. O. (2012). Assessment of shea butter processing among rural dwellers in Atisbo Local Government Area of Oyo State, Nigeria. *European Journal of Business and Social sciences,* (6), 1-8.
- Akinsokeji, O. A. (2012). Perception of shea butter processors on modern processing technologies in Kwara state, Nigeria. M.sc thesis, university of Ibadan, Ibadan, Nigeria. pp 45-82.
- Daniel, A., Olafimihan, O., Kwaya, E., & Odejide, O. (2005). Shea nut processing. Raw material update. a bi-annual publication of raw material research and development council, 5(2), 138-142.
- Eneh, M. C. C. (2010). An overview of shea nut and shea butter industry in Nigeria. Paper presented at the national seminal organized by central bank of Nigeria in collaboration with federal ministry of agriculture and rural development and Nigeria export promotion council (nepc) Niger state; 4-5 august, 2010. pp 1-4.
- National Population Census. (2006). Population census interim report. A publication of the national population commission, Abuja, Nigeria. pp 49-52.
- Nigerian Export Promotion Council (NEPC). (2012). Quality production of shea butter in Nigeria. Training workshop for extension workers under stdf project 172. pp 33-47.

- Ojo, O. A., & Adebayo, T. A. (2013). Bio-deterioration of shea butter fruit (*vitellaria paradoxa*) in storage and its effects on the nutrient composition. rep opinion 2013; 5(12): 13. http://www.sciencepub.net/report. Retrieved august 17, 2015.
- Ololade, I. S., & Ibrahim, F. A. (2014). Assessment of the contribution of shea butter processing to poverty reduction among women in Kwara state, Nigeria. *j of sustain dev.in afr,* 16(3), 1-12.
- Omowunmi, O. (2013). Role of Nigerian export promotion council in shea nut/ butter development. Global Shea Alliance Conference, 2013. Pp 1-42.