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## LEVEL OF INVOLVEMENT OF SHEA BUTTER PROCESSORS IN PROCESSING ACTIVITIES IN NORTH-CENTRAL, NIGERIA

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### ABSTRACT

The study examined the level of involvement of Shea butter processors in processing activities in North-central Zone of Nigeria. A multistage sampling procedure was used to select 330 respondents for the study. The data was collected through an Interview schedule and analysed with descriptive and inferential statistics. The result of the findings shows that the average age of the respondents was 40.2 years, with 97.9% and 97.0% being female and of Islamic faith respectively. They have average household size of 8.78 persons and 54.8% were members of cooperative with an average working experience of 19.40 years. Generally, the respondents had low level of involvement in Shea butter processing activities (57.9%), though there was high level of involvement in milling of the nuts (1.69) and boiling dough (1.667). The respondents were able to meet their basic needs of life through their involvement in Shea butter processing activities. However, lack of credit facilities and high cost of processing equipment were the major constraints to Shea butter processing. There were significant relationship between memberships of Shea butter processors ( $\chi^2= 20.8$ ,  $p=0.00$ ), age ( $r=0.17$ ,  $p=0.03$ ), years of experience ( $r=0.21$ ,  $p=0.00$ ), benefit ( $r=0.44$ ,  $p=0.00$ ) and constraints ( $r=0.23$ ,  $p=0.00$ ) with their level of involvement in Shea butter processing. There is the need to sensitise the processors on the benefits inherent in Shea butter production and belonging to Shea butter processors association to increase the level of involvement and income generation for the processors.

**Keywords:** Shea butter, Involvement, North central zone, Nigeria and Processing

### INTRODUCTION

The potential contribution of Shea butter trees to the Nigerian economy is enormous. Jamala, Jada, Yidau and Joel (2013) submitted that more than 2.8 million people particularly women engaged in the transformation of Shea nuts to butter in Sudan savannah region of Africa.

The Shea tree is a blessing to the region where they are found due to the butter produced from the nuts having wide range of benefits such as medicinal, cosmetics and confectionaries. Nigeria though blessed with the resources in abundance, is yet to fully exploit the potentials. (Sanusi, Tijani, and Akinsokeji, 2016). Shea butter production in the country is on a low (Akinsokeji, Tijani, Sanusi, Igene and Orifah 2017). This could be attributed to little or no value was added to the nuts rather the nuts are sold or smuggled across the border to neighboring countries that have mechanical inputs transforming the nuts to margarine, vegetable oil and other useful products later imported to the country. The Shea trees are concentrated in the North-central Agro-ecological zone of the country. According to a baseline survey in Niger State, Shea butter produced is below performance and little or no value is added (Ebayahaya, 2014 and Sanusi and Tijani, 2018). This fact was also corroborated by Kotongora who noted that many of the nuts were smuggled to neighboring country unabated. (Daily thrust, 2014).

The problem was compounded with the tedious nature of work associated with Shea butter production and low mechanical input to ease the work may be accountable for this and the low production in the country. This could be attributed

to the level of involvement of the processors which underscores the need to assess the level of involvement of Shea butter processors in processing activities in North-central Agro-ecological zone of Nigeria.

The general objective of the work is to assess the level of involvement of Shea butter processors in processing activities in North central agro-ecological zone of Nigeria while the specific objectives are to:

- i. describe the socioeconomic characteristics of the respondents,
- ii. assess the level of involvement of Shea butter processors in the study area
- iii. ascertain the benefits derived from Shea butter processing, and
- iv. identify the constraints experienced by the processors.

The hypotheses of the study are thus stated:

- H<sub>0</sub>1: There is no significant relationship between selected respondents' socioeconomic characteristics and their level of involvement in Shea butter processing.
- H<sub>0</sub>2: There is no significant relationship between the benefits derived and the level of involvement in Shea butter processing.
- H<sub>0</sub>3: There is no significant relationship between the constraints and the level of involvement in Shea butter processing.

### METHODOLOGY

The study was carried out in North-central Agro-ecological Zone of Nigeria. The zone is made up of six states namely Kogi, Benue, Niger, Kwara, Nassarawa, Plateau and the Federal Capital

territory. The zone has a population of about 21.1 million (National Population Census, 2006) and a land area of 235.110 km<sup>2</sup> of Nigeria. The two states used for the study are Niger and Kwara States which are known to have a more significant number of Shea butter processors in the Zone.

A multi-stage sampling procedure was used for the study. The first stage involved purposive selection of Niger and Kwara States because of the prevalence of Shea butter processing activities in the two states. The second stage involved a purposive selection of Niger State Agricultural Mechanisation Development Agency zone A and C out of the 3 in Niger State and Kwara State Agricultural development zone A and C out of the 3 in Kwara State. The third stage involved a random selection of 40% of Local government areas in each zone of Niger State Agricultural Mechanisation Development Agency and while all and 50% of the Local government Areas in zone A and C respectively in Kwara State. The selected L.G.As in Niger State are Katcha, Gbako and Lavun from NAMDA zone A and Meshegu, Kotongora and Borgu in NAMDA zone C while in Kwara State Kaiama and Baruten LGAs were selected from KWADP zone A and Asa, Ilorin East and Moro LGAs were selected from KWADP zone C. Thirty respondents were selected from the selected LGA.s to give a total of 330 respondents that were used for the study.

The socioeconomic characteristics were subjected to frequencies counts and mean. The benefits from Shea butter processing and the constraints associated to processing were measured on a 3 point scale of not beneficial (0), moderately beneficial (1) and very beneficial (3) and not a constraint (0), mild constraint (1) and severe constraint (2) for constraint. The mean scores ranked and the most ranked benefits and constraints

were considered the most beneficial and severe constraints associated with Shea butter processing. The level of involvement was measured on a 3 point scale of never, occasional and always with score of 0, 1 and 2 respectively. Mean involvement of 32.27 was used to classify level of involvement into high or low for values from mean and above and values below the mean respectively.

## RESULT AND DISCUSSION

Result in Table 1 show the distribution of the respondents according to their socioeconomic characteristics. The result revealed that 29.4% and 28.2% of the processors were between ages 21-30 years and 31-40 years respectively. The average age of the respondents was 40.22 years. About Fifty-eight percent (57.6%) of the processors fall between 21-40 years. It shows that the processors are in their active age. A majority of the processors were female (97.9%) with (97%) practicing Islamic religion and an average household size of 8.78. More than half of the processors were members of Shea butter processor association (54.5%) with an average working experience of 19.4 years. This suggests that the respondents are not new in the Shea butter processing activities. The result also revealed that 77.6% engaged in other activities in addition to Shea butter processing while 22.4% depend solely on Shea butter processing for their income. This suggests that the processors engaged in other activities to augment the proceeds from Shea butter processing activities. The processors sourced for the money that they used for processing from personal savings (81.85), followed by relatives (7.6%) and money lenders (7.3%). This implies that Shea butter industry are not supported by formal sector and only supported by the informal sector which may not be good for the industry's sustainability.

**Table 1: Socioeconomic characteristics of the processors**

Variables	Frequency	Percent	Means
Age			
1-20	7	2.1	40.22
21-30	93	28.2	
31-40	97	29.4	
41-50	76	23.0	
51-60	40	12.1	
61 and above	17	5.2	
Sex			
Male	7	2.1	
Female	323	97.9	
Religion			
Islam	320	97.0	



Variables	Frequency	Percent	Means
Christianity	9	2.7	
Traditional	1	0.3	
Household size			8.78
1-10	252	76.4	
11-20	72	21.8	
21 and above	6	1.8	
Shea butter association			
Non-member	150	45.5	
membership	180	54.5	
Years of experience			19.4
1-10	97	29.4	
11-20	120	36.4	
21 -30	71	21.5	
31-40	29	8.8	
41 and above	13	3.9	
Level of engagement			
Shea butter as a sole occupation	74	22.4	
Shea butter and other activities	256	77.6	
Source of finance			
Government	5	1.5	
Personal savings	270	81.8	
Cooperatives/association	3	0.9	
Commercial bank	3	0.9	
Money lenders	24	7.3	
Relatives	25	7.6	

In order to ensure sustainability of any activity, the benefit must be adequate to ensure the continuous participation of the actors. Table 2 showed the benefits that the respondents derived from engaging in Shea butter production. The processors ranked the benefit of being able to clothe oneself adequately ( $\bar{x} = 1.439$ ) first, followed by increased income generation from Shea butter processing ( $\bar{x} = 1.415$ ), help to reduce

their poverty status ( $\bar{x} = 1.346$ ) and being able to feed ones household ( $\bar{x} = 1.318$ ). The result showed the reason why the respondents engaged in Shea butter processing as to be able to clothed themselves, generate more income, reduce poverty and feed the members of their households. These are the basic needs of life that ensures the peaceful coexistence of the people in the rural areas. .

**Table 2: Distribution of respondents based on the benefits derived from Shea butter processing**

Benefit of Shea butter processing	Not beneficial	Moderate beneficial	Very beneficial	Mean	Rank
Increase in income generation	2 (0.6)	189 (57.3)	139 (42.1)	1.415	2 <sup>nd</sup>
Being politically active.	82 (24.8)	197 (59.7)	51 (15.5)	0.906	12 <sup>th</sup>
Being more mobile	68 (20.6)	199 (60.3)	63 (19.1)	0.985	9 <sup>th</sup>
Belonging to a prestigious social group	101 (30.6)	159 (48.2)	70 (21.2)	0.906	12 <sup>th</sup>
Gaining more knowledge /technical	97 (29.4)	155 (47.0)	78 (23.6)	0.942	11 <sup>th</sup>
Being able to feed one's household well	16 (4.8)	193 (58.5)	121 (36.7)	1.318	4 <sup>th</sup>
Social security (freedom of expression and association)	82 (24.8)	182 (55.2)	66 (20.0)	0.952	10 <sup>th</sup>
Meeting social responsibility	43 (13.0)	199 (60.3)	88 (26.7)	1.136	8 <sup>th</sup>
Acquisition of household assets	29 (8.8)	200 (60.6)	101 (30.6)	1.218	6 <sup>th</sup>
Acquisition of working equipment	40 (12.1)	201 (60.9)	89 (27.0)	1.149	7 <sup>th</sup>
Reducing poverty	7 (2.1)	202 (61.2)	121 (36.7)	1.346	3 <sup>rd</sup>
Acquisition of means of mobility	239 (72.4)	70 (21.2)	21 (6.4)	0.339	14 <sup>th</sup>
Being able to take good care of one's health.	5 (1.5)	220 (66.7)	105 (31.8)	1.303	5 <sup>th</sup>
Being able to clothe oneself adequately	8 (2.4)	169 (51.2)	153 (46.4)	1.439	1 <sup>st</sup>

Constraints are the limitation confronting the processors to achieved their goals in their chosen career, reduce the benefit which they derive from processing and influence their level of involvement in Shea butter production. Table 3 revealed that lack of credit facilities ( $\bar{x} = 1.764$ ) was the most severe constraint to Shea butter processing followed by high cost of processing equipment ( $\bar{x} = 1.727$ ) and lack of government assistance in term of inputs ( $\bar{x} = 1.694$ ). The result further help to substantiate an earlier result that the Shea butter processors is greatly affected by lack of funds to run the business as the processors used their personal savings or money gotten from their relatives. The processors are also constrained by high cost of processing equipment which is expected to reduce the drudgery associated with Shea butter processing and improve the quality and quantity of butter produced. According to Sanusi, Adelaye and Adegebo, (2017) most processing machines are very expensive and the processors are

at the mercy of government and donors to buy the equipment for them. Government policies do not recognize the Shea butter sub sector of the economy because it is still an informal sector with no structure, hence the low assistant gotten from government and financial institutions.

The processors did not recognise the following constraints as a serious threat to their processing activities, inadequate transport facilities and cost ( $\bar{x} = 0.946$ ), insect infestations ( $\bar{x} = 0.963$ ), lack of technical know-how to operate machines ( $\bar{x} = 1.012$ ) progressively. Transportation facilities and cost was not a constraint because most of the processors sell their butter locally at no cost and transport facilities are not required. The processors know how to preserve their Shea nuts hence no insect infestation. Most of the processors did not have processing equipment, so the knowledge of how to operate them is not a threat to the profession.

**Table 3: Constraints to Shea butter processing**

Constraints	Not constraint	Mild constraint	Severe constraint	Mean	Ranks
Scarcity of Shea nuts	25 (7.6)	124 (37.6)	181 (54.8)	1.473	7 <sup>th</sup>
Lack of storage facility	104 (31.5)	116 (35.2)	110 (33.3)	1.018	19 <sup>th</sup>
Lack of government assistance (inputs)	26 (7.9)	49 (14.8)	255 (77.3)	1.694	3 <sup>rd</sup>
Tedious processing method	24 (7.3)	98 (29.7)	208 (63.0)	1.406	11 <sup>th</sup>
Poor quality/lack of water at processing sites	39 (11.8)	118 (35.8)	173 (52.4)	1.267	16 <sup>th</sup>
Inadequate transport facility and cost	49 (14.9)	144 (43.6)	137 (41.5)	0.946	22 <sup>nd</sup>
Scarcity of labour to help in processing activities	102 (30.9)	144 (43.6)	84 (25.5)	1.430	9 <sup>th</sup>
Poor income accruing to the processors	20 (6.1)	148 (44.8)	162 (49.1)	1.430	9 <sup>th</sup>
Unstable price of Shea butter	19 (5.8)	148 (44.8)	163 (49.4)	1.436	8 <sup>th</sup>
High cost of processing equipment	12 (3.6)	66 (20.0)	252 (76.4)	1.727	2 <sup>nd</sup>
Lack of credit facilities	17 (5.2)	44 (13.3)	269 (81.5)	1.764	1 <sup>st</sup>
Lack information on Shea butter processing and marketing potential	41 (12.4)	156 (47.3)	133 (40.3)	1.279	15 <sup>th</sup>
Indiscriminate felling of Shea trees	34 (10.3)	97 (29.4)	199 (60.3)	1.500	6 <sup>th</sup>
Lack of technical know-how to operate machines	122 (37.0)	82 (24.8)	126 (38.2)	1.012	20 <sup>th</sup>
Low demand of Shea butter	38 (11.5)	122 (37.0)	170 (51.5)	1.400	12 <sup>th</sup>
Lack of electricity to run the machine	74 (22.4)	77 (23.4)	179 (54.2)	1.318	14 <sup>th</sup>
High cost of maintaining the equipment	80 (24.2)	86 (26.1)	164 (49.7)	1.252	17 <sup>th</sup>
Inadequate machines to go round the processors.	118 (35.8)	85 (25.8)	127 (38.4)	1.027	18 <sup>th</sup>
Snake and scorpion bite	38 (11.5)	128 (38.8)	164 (49.7)	1.382	13 <sup>th</sup>
Insect infestation	115 (34.8)	112 (33.9)	103 (31.3)	0.963	21 <sup>st</sup>
Lack of modern processing technologies	35 (10.6)	60 (18.2)	235 (71.2)	1.606	4 <sup>th</sup>
lack of working material	23 (7.0)	118 (35.8)	189 (57.2)	1.503	5 <sup>th</sup>

Table 4 showed the involvement of the processors in the Shea butter processing activities. The respondents were most involved in grinding/milling ( $\bar{x} = 1.694$ ), followed by boiling dough ( $\bar{x} = 1.667$ ) and kneading ( $\bar{x} = 1.609$ ). The result shows the most important stages that are

involved in the transformation of Shea nuts to butter. Milling or grinding, boiling the dough and kneading are very important to produce quality butter and in large quantities which are essential for increasing the benefits that the processors derive from Shea butter production. Table 5 shows the level of involvement of the processors in the



processing activities. Generally, the level of involvement of the processors was low (56.4%). The reason for the low level of involvement can be adduced to the fact that younger people were involved in Shea butter processing. These set of

people are at their prime and would like to venture into many things at the same time and the issue of seasonality of the Shea nuts which may be unavailable at times.

**Table 4: Distribution of respondents based on their level of involvement in Shea butter processing**

Activities involved	Never	Occasional	Always	Mean	Ranking
Harvesting	54 (16.4)	196 (59.4)	80 (24.2)	1.079	21 <sup>st</sup>
Gathering	52(15.8)	173(52.4)	105 (31.8)	1.161	19 <sup>th</sup>
Transporting	30 (9.1)	158 (47.9)	142 (43.0)	1.339	13 <sup>th</sup>
Washing fruits	52(15.8)	161 (48.8)	117 (35.4)	1.197	17 <sup>th</sup>
De-pulping	48 (14.5)	169 (51.2)	113 (34.3)	1.197	17 <sup>th</sup>
Parboiling nuts	21(6.4)	163 (49.4)	146 (44.2)	1.379	9 <sup>th</sup>
Dry parboiled nuts	23 (7.0)	170 (51.5)	137 (41.5)	1.463	7 <sup>th</sup>
Cracking nuts	23 (7.0)	167 (50.6)	140 (42.4)	1.355	11 <sup>th</sup>
Drying nuts	29 (8.9)	167 (50.6)	134 (40.5)	1.346	12 <sup>th</sup>
Buying Kernel	35 (10.6)	154 (46.7)	141 (42.7)	1.321	14 <sup>th</sup>
Washing kernel	37 (11.2)	175 (53.0)	118 (35.8)	1.246	16 <sup>th</sup>
Drying washed kernel	30 (9.1)	167 (50.6)	133 (40.3)	1.318	15 <sup>th</sup>
Kernel sorting	20 (6.1)	170 (51.5)	140 (42.4)	1.376	10 <sup>th</sup>
Kernel crushing	12 (3.6)	148 (44.9)	170 (51.5)	1.479	6 <sup>th</sup>
Roasting crushed kernel	120 (36.4)	111 (33.6)	99 (30.0)	0.936	22 <sup>nd</sup>
Drying roasted kernel	98 (29.7)	92 (27.9)	140 (42.4)	1.125	20 <sup>th</sup>
Grinding/milling	8 (2.4)	85 (25.8)	237 (71.8)	1.694	1 <sup>st</sup>
Kneading	10 (3.0)	109 (33.0)	211 (64.0)	1.609	3 <sup>rd</sup>
Cold separation	20 (6.1)	124 (37.6)	186 (56.3)	1.503	5 <sup>th</sup>
Hydraulic pressing	315 (95.5)	12 (3.6)	3 (0.9)	0.055	24 <sup>th</sup>
Boiling dough	16 (4.8)	78 (23.6)	236 (71.6)	1.667	2 <sup>nd</sup>
Decanting butter	14 (4.2)	133 (40.3)	183 (55.5)	1.512	4 <sup>th</sup>
Filtration	186 (56.6)	72 (21.7)	72 (21.7)	0.649	23 <sup>rd</sup>
Packaging butter	13 (3.9)	160 (48.5)	157 (47.6)	1.436	8 <sup>th</sup>

**Table 5: Level of involvement of Shea butter processors**

Level of involvement	Frequency	Percent
Low	186	56.4
High	144	43.6

Mean =32.2727

Table 6 shows the Chi-square of the relationship between membership of Shea butter association and level of involvement. There was positive relationship between membership of Shea butter association and their level of involvement in Shea butter processing. Membership of Shea butter association was found to increase with level of

involvement of the respondents' in Shea butter processing because being a member of the processors group will avail the individuals the benefits of training, credit facilities and inputs to enhance their work, thereby increase their level of involvement in processing.

**Table 6: Relationship between membership of Shea butter association and level of involvement in Shea butter processing**

Variables	$\chi^2$ value	p-value
Membership of Shea butter association	20.8	0.000

$p \leq 0.05$

Table 7 shows the relationship between ages, years of experience, benefits derived from Shea butter processing and constraints to Shea butter processing with level of involvement in Shea butter processing. There were positive relationships between ages, years of experience, benefits and

constraints. The higher the age of the respondents the higher the level of involvement. This can be explained based on the fact that the higher the age of the processors, the less they have the power to venture into many things at the same time and concentrate on Shea butter production, hence the



high level of involvement. The higher the year of experience the higher the level of involvement can be explained from the point of view that long years of experience allow the processors to know the way of doing the work easily and they are more attached to the work hence the higher level of involvement. Benefits derived are a function of level of involvement. The more the benefits that the respondents derived the more their level of involvement. The relationship between constraints

and level of involvement was unexpected because the higher the constraints, the higher the level of involvement. The reason for this could be that the constraints measured in the study were not considered as constraints by the respondents or the constraints might have been addressed by the processors individually or collectively. It could also be that they get assistance from external sources like the government and other donor organisations.

**Table 7: Relationship between ages, years of experience benefits and constraints and the level of involvement of involvement in Shea butter processing**

variables	r-value	p-value
age	165	0.03
Years of experience	0.208	0.00
Benefits	0.441	0.00
Constraints	231	0.00

p ≤ 0.05

### CONCLUSIONS AND RECOMMENDATIONS

The level of involvement in Shea butter processing activities was low, though milling, boiling of dough and kneading of butter were the three most involved activities. The respondents derived the benefits of clothing themselves, generating more income and feeding the members of their household. The processors identified lack of credit facilities, high cost of processing equipment and lack of government assistance in inputs as significant constraints to the processing.

Efforts should be put in place to sensitised the processors on the benefits of the profession and increase the numbers of Shea processors in cooperative societies since it was found to increase the level of involvement. Credit facilities should be made available to the processors through commercial banks and government. This is to assist the processors to acquire modern processing technologies which is necessary to produce quality butter and in large quantity. All these will increase the benefits derived by the processors and at the long run will increase the level of involvement of the processors and increase the production of Shea butter in Nigeria.

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