



Current Issue:

2019, Vol: 19, Issue No: 1

Original Research

1 . Contributions of social capital to wellbeing of food marketers in Ibadan metropolis, Ibadan, Oyo state, Nigeria

Imran, R. O., Olaore, O. M. and Oladeji, J. O., Fapojuwo, E. O.

Nigerian Journal of Rural Sociology, 19(1): 7 - 16, 2019

[Abstract \(abst?sid=415\)](#) | [PDF \(issues/RUSAN-JOURN-2018-383.pdf\)](#)

Date Published Online: Sep-18-2019

2 . Determinants of youths? involvement in agricultural vocational training in Oyo state, Nigeria

Yekinni, O. T., Ladigbolu, T. A., Adeniyi, R. T. and Bashiru, O. M.

Nigerian Journal of Rural Sociology, 19(1): 17 - 23 , 2019

[Abstract \(abst?sid=416\)](#) | [PDF \(issues/RUSAN-JOURN-2018-365.pdf\)](#)

Date Published Online: Sep-18-2019

3 . Developing a research framework for youth engagement in Agripreneurship: Application of the theory of planned behaviour

Umar, S.

Nigerian Journal of Rural Sociology, 19(1): 24 - 33 , 2019

[Abstract \(abst?sid=417\)](#) | [PDF \(issues/RUSAN-JOURN-2018-316.pdf\)](#)

Date Published Online: Sep-18-2019

4 . Effect of e-wallet programme on rice production among small-scale farmers in Niger state, Nigeria

Abubakar, M. B., Olaleye, R. S., Adeniji, O. B. and Adeoye, A. S.

Nigerian Journal of Rural Sociology, 19(1): 34 - 41 , 2019

[Abstract \(abst?sid=418\)](#) | [PDF \(issues/RUSAN-JOURN-2018-357.pdf\)](#)

Date Published Online: Sep-18-2019

5 . Effect of the third national Fadama additional financing project on the output and poverty levels of rice farmers in Enugu state, Nigeria

Nwaobiala, C. U. and Ubeh, C.

Nigerian Journal of Rural Sociology, 19(1): 42 - 47 , 2019

[Abstract \(abst?sid=419\)](#) | [PDF \(issues/RUSAN-JOURN-2018-314.pdf\)](#)

Date Published Online: Sep-18-2019

6 . Extent of compliance to standard practices by beneficiaries and officers of Fadama project in Oyo state, Nigeria

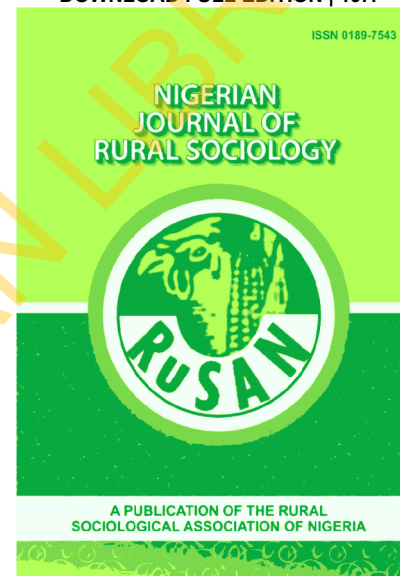
Ladele, A. A., Oyelami, B. O., Kehinde, M. O. and Agboola, O. B.

Nigerian Journal of Rural Sociology, 19(1): 48 - 54 , 2019

[Abstract \(abst?sid=420\)](#) | [PDF \(issues/RUSAN-JOURN-2018-387.pdf\)](#)

Date Published Online: Sep-18-2019

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7 . Level of involvement of Shea butter processors in processing activities in North-central, Nigeria

Tijani, S. A. and Sanusi, M. K.

Nigerian Journal of Rural Sociology, 19(1): 55 - 61 , 2019

[Abstract \(abst?sid=421\)](#) | [PDF \(issues/RUSAN-JOURN-2018-359.pdf\)](#).

Date Published Online: Sep-18-2019

8 . Postharvest information needs among plantain marketers in Southwestern Nigeria

Olajide, B. R. and Olonibua, O. O.

Nigerian Journal of Rural Sociology, 19(1): 62 - 67 , 2019

[Abstract \(abst?sid=422\)](#) | [PDF \(issues/RUSAN-JOURN-2018-381.pdf\)](#).

Date Published Online: Sep-18-2019

9 . Promotion of Striga tolerant maize variety in Tudun Saibu, Soba local government area, Kaduna state

Atiku, J. A.

Nigerian Journal of Rural Sociology, 19(1): 68-71, 2019

[Abstract \(abst?sid=428\)](#) | [PDF \(issues/RUSAN-JOURN-2019-392.pdf\)](#).

Date Published Online: Sep-20-2019

10 . Residents? assessment of farmers-pastoralists conflict in Enugu state, Nigeria

Urama, K. O., Badiru, I. O. and Nwaogu, F. K.

Nigerian Journal of Rural Sociology, 19(1): 72 - 79 , 2019

[Abstract \(abst?sid=423\)](#) | [PDF \(issues/RUSAN-JOURN-2018-366.pdf\)](#).

Date Published Online: Sep-18-2019

11 . Utilisation of HIV/AIDS Information among people living with HIV/AIDS in rural communities of Oyo state

Alabi, A. F.

Nigerian Journal of Rural Sociology, 19(1): 80 - 85 , 2019

[Abstract \(abst?sid=424\)](#) | [PDF \(issues/RUSAN-JOURN-2018-325.pdf\)](#).

Date Published Online: Sep-18-2019

12 . Determinants of livelihood status of rural farming households in Kwara State, Nigeria

Omotesho, K. F., Akinrinde, A. F. and Ogunlade, I.

Nigerian Journal of Rural Sociology, 19(1): 86 - 95 , 2019

[Abstract \(abst?sid=425\)](#) | [PDF \(issues/RUSAN-JOURN-2018-370.pdf\)](#).

Date Published Online: Sep-18-2019

13 . Determinants of utilisation of insecticide treated net among rural households in Oyo state, Nigeria

Thomas, K. A. and Arogunyo, J.

Nigerian Journal of Rural Sociology, 19(1): 96 ? 105 , 2019

[Abstract \(abst?sid=427\)](#) | [PDF \(issues/RUSAN-JOURN-2018-330.pdf\)](#).

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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:

- H₀1: There is no significant relationship between selected respondents' socioeconomic characteristics and their level of involvement in Shea butter processing.
- H₀2: There is no significant relationship between the benefits derived and the level of involvement in Shea butter processing.
- H₀3: 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 km² 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 nd |
| Being politically active. | 82 (24.8) | 197 (59.7) | 51 (15.5) | 0.906 | 12 th |
| Being more mobile | 68 (20.6) | 199 (60.3) | 63 (19.1) | 0.985 | 9 th |
| Belonging to a prestigious social group | 101 (30.6) | 159 (48.2) | 70 (21.2) | 0.906 | 12 th |
| Gaining more knowledge /technical | 97 (29.4) | 155 (47.0) | 78 (23.6) | 0.942 | 11 th |
| Being able to feed one's household well | 16 (4.8) | 193 (58.5) | 121 (36.7) | 1.318 | 4 th |
| Social security (freedom of expression and association) | 82 (24.8) | 182 (55.2) | 66 (20.0) | 0.952 | 10 th |
| Meeting social responsibility | 43 (13.0) | 199 (60.3) | 88 (26.7) | 1.136 | 8 th |
| Acquisition of household assets | 29 (8.8) | 200 (60.6) | 101 (30.6) | 1.218 | 6 th |
| Acquisition of working equipment | 40 (12.1) | 201 (60.9) | 89 (27.0) | 1.149 | 7 th |
| Reducing poverty | 7 (2.1) | 202 (61.2) | 121 (36.7) | 1.346 | 3 rd |
| Acquisition of means of mobility | 239 (72.4) | 70 (21.2) | 21 (6.4) | 0.339 | 14 th |
| Being able to take good care of one's health. | 5 (1.5) | 220 (66.7) | 105 (31.8) | 1.303 | 5 th |
| Being able to clothe oneself adequately | 8 (2.4) | 169 (51.2) | 153 (46.4) | 1.439 | 1 st |

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 th |
| Lack of storage facility | 104 (31.5) | 116 (35.2) | 110 (33.3) | 1.018 | 19 th |
| Lack of government assistance (inputs) | 26 (7.9) | 49 (14.8) | 255 (77.3) | 1.694 | 3 rd |
| Tedious processing method | 24 (7.3) | 98 (29.7) | 208 (63.0) | 1.406 | 11 th |
| Poor quality/lack of water at processing sites | 39 (11.8) | 118 (35.8) | 173 (52.4) | 1.267 | 16 th |
| Inadequate transport facility and cost | 49 (14.9) | 144 (43.6) | 137 (41.5) | 0.946 | 22 nd |
| Scarcity of labour to help in processing activities | 102 (30.9) | 144 (43.6) | 84 (25.5) | 1.430 | 9 th |
| Poor income accruing to the processors | 20 (6.1) | 148 (44.8) | 162 (49.1) | 1.430 | 9 th |
| Unstable price of Shea butter | 19 (5.8) | 148 (44.8) | 163 (49.4) | 1.436 | 8 th |
| High cost of processing equipment | 12 (3.6) | 66 (20.0) | 252 (76.4) | 1.727 | 2 nd |
| Lack of credit facilities | 17 (5.2) | 44 (13.3) | 269 (81.5) | 1.764 | 1 st |
| Lack information on Shea butter processing and marketing potential | 41 (12.4) | 156 (47.3) | 133 (40.3) | 1.279 | 15 th |
| Indiscriminate felling of Shea trees | 34 (10.3) | 97 (29.4) | 199 (60.3) | 1.500 | 6 th |
| Lack of technical know-how to operate machines | 122 (37.0) | 82 (24.8) | 126 (38.2) | 1.012 | 20 th |
| Low demand of Shea butter | 38 (11.5) | 122 (37.0) | 170 (51.5) | 1.400 | 12 th |
| Lack of electricity to run the machine | 74 (22.4) | 77 (23.4) | 179 (54.2) | 1.318 | 14 th |
| High cost of maintaining the equipment | 80 (24.2) | 86 (26.1) | 164 (49.7) | 1.252 | 17 th |
| Inadequate machines to go round the processors. | 118 (35.8) | 85 (25.8) | 127 (38.4) | 1.027 | 18 th |
| Snake and scorpion bite | 38 (11.5) | 128 (38.8) | 164 (49.7) | 1.382 | 13 th |
| Insect infestation | 115 (34.8) | 112 (33.9) | 103 (31.3) | 0.963 | 21 st |
| Lack of modern processing technologies | 35 (10.6) | 60 (18.2) | 235 (71.2) | 1.606 | 4 th |
| lack of working material | 23 (7.0) | 118 (35.8) | 189 (57.2) | 1.503 | 5 th |

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 st |
| Gathering | 52(15.8) | 173(52.4) | 105 (31.8) | 1.161 | 19 th |
| Transporting | 30 (9.1) | 158 (47.9) | 142 (43.0) | 1.339 | 13 th |
| Washing fruits | 52(15.8) | 161 (48.8) | 117 (35.4) | 1.197 | 17 th |
| De-pulping | 48 (14.5) | 169 (51.2) | 113 (34.3) | 1.197 | 17 th |
| Parboiling nuts | 21(6.4) | 163 (49.4) | 146 (44.2) | 1.379 | 9 th |
| Dry parboiled nuts | 23 (7.0) | 170 (51.5) | 137 (41.5) | 1.463 | 7 th |
| Cracking nuts | 23 (7.0) | 167 (50.6) | 140 (42.4) | 1.355 | 11 th |
| Drying nuts | 29 (8.9) | 167 (50.6) | 134 (40.5) | 1.346 | 12 th |
| Buying Kernel | 35 (10.6) | 154 (46.7) | 141 (42.7) | 1.321 | 14 th |
| Washing kernel | 37 (11.2) | 175 (53.0) | 118 (35.8) | 1.246 | 16 th |
| Drying washed kernel | 30 (9.1) | 167 (50.6) | 133 (40.3) | 1.318 | 15 th |
| Kernel sorting | 20 (6.1) | 170 (51.5) | 140 (42.4) | 1.376 | 10 th |
| Kernel crushing | 12 (3.6) | 148 (44.9) | 170 (51.5) | 1.479 | 6 th |
| Roasting crushed kernel | 120 (36.4) | 111 (33.6) | 99 (30.0) | 0.936 | 22 nd |
| Drying roasted kernel | 98 (29.7) | 92 (27.9) | 140 (42.4) | 1.125 | 20 th |
| Grinding/milling | 8 (2.4) | 85 (25.8) | 237 (71.8) | 1.694 | 1 st |
| Kneading | 10 (3.0) | 109 (33.0) | 211 (64.0) | 1.609 | 3 rd |
| Cold separation | 20 (6.1) | 124 (37.6) | 186 (56.3) | 1.503 | 5 th |
| Hydraulic pressing | 315 (95.5) | 12 (3.6) | 3 (0.9) | 0.055 | 24 th |
| Boiling dough | 16 (4.8) | 78 (23.6) | 236 (71.6) | 1.667 | 2 nd |
| Decanting butter | 14 (4.2) | 133 (40.3) | 183 (55.5) | 1.512 | 4 th |
| Filtration | 186 (56.6) | 72 (21.7) | 72 (21.7) | 0.649 | 23 rd |
| Packaging butter | 13 (3.9) | 160 (48.5) | 157 (47.6) | 1.436 | 8 th |

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 | χ^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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