FUTO Journal Series (FUTOJNLS), 2015, VOL. 1, Issue 2
p-ISSN: 2467-8325; e-ISSN: 2476-8456

Roles of Rural Women in Palm Oil Processing in Nkwere Local Government Area of Imo State, Nigeria

Ajaero, J.O., Umunakwe, P.C. and Anele, O.C.
Department of Agricultural Extension, Federal University of Technology, P.M.B. 1526. Owerri, Imo State, Nigeria
Corresponding Author: polycarpchika@yahoo.com; 08063639426

Abstract
The study analyzed the roles of women in palm oil processing in Nkwere local area of Imo State, Nigeria. Specifically, it determined their level of involvement in palm oil processing; identified their roles in palm oil processing; identified constraints to their involvement in palm oil processing and determined their perception of palm oil processing. Multistage sampling technique was used to select a sample of 100 women. A set of structured questionnaire was used to elicit data from the women. Data were analyzed using mean, percentages and bar charts. Results show that a greater proportion (41.4 %) of the women was very actively involved in palm oil processing. The roles performed included fruit mashing (89.9 %), fibre and nut separation (81.8%), storage (80.0 %) and oil clarification (78.8 %). The women perceived palm oil processing as a source of income (M = 4.68), source of employment (M = 4.48), an efficient way of using rural labour (M = 4.17) and a way of ensuring the availability of the products (M = 3.51). Constraints include inadequate credit (90.0 %), inadequate palm fruits(80.0 %),poor extension contact (88.0 %), use of traditional techniques (87.0 %) and poor government support (89.0 %). The recruitment of more extension staff and the provision of farmers with hybrid oil palm seedlings were recommended.

Keywords: roles, women, palm oil, processing, Nigeria

1.0 Introduction

Oil palm *(Elaeis guineensis)* is an important oil producing crop throughout the world. It is believed to have originated from the tropical rainforest region of West Africa. The main belt runs through the southern latitudes of Cameroun, Cote d'Ivoire, Ghana, Liberia, Nigeria, Sierra Leone, Togo and into the equatorial region of Angola and the Congo. During the 14th to 17th centuries, some palm fruits were taken to the Americans and from there to the Far East. The plant appears to have thrived better in the Far East thus providing the largest commercial production of an economic crop far removed from its center of origin (FAO, n.d). Oil palm is cultivated on approximately 15 million hectares across the world (FAO, 2009; Fitherber et al. 2008; Koh & Ghazoul, 2008).

The global demand for palm oil is increasing, thus the crop serves as a means of livelihood for many rural families and indeed, it is the farming culture of millions of people in Nigeria (Ohimain, *et al.*, 2014). For example, palm oil has remained an important ingredient in the diet of many Nigerians (Ohimain *et al.,* 2014). It is the world's largest source of edible oil, accounting for 38.5 million tonnes or 25 % of the global edible oil and fat production (PMOC, 2007). It is estimated that for every Nigerian household of five, about two liters of palm oil are being consumed weekly for cooking (Ekine and Onu, 2008).

Palm oil is an essential raw material for both food and non-food industries (Armstrong, 1998). It is used to manufacture margarine, soap, candle, base for lipstick, waxes and polish bases in a condense form (Embrandiri *et al.*, 2011; Aghalino, 2000), pharmaceuticals (Helleiner, 1966), tin plating, lubricant, biodiesel (Pleanjai *et al*. 2007; Armstrong, 1998), fat spread, ice cream, coffee whiteners, whipping creams, fatty acids free formulation, palm-based cheese, micro-encapsulated, filled milk, mayonnaise and sealed dressings, red oil/olefin (Basiron & Weng, 2004).

Before 1965, Nigeria was the world's leading producer and exporter of palm oil and has since 1974 ceased to contribute to the export trade in the commodity, largely due to domestic demand/consumption which has not matched the production (Omoti, 2004). During the past decade, Nigeria has become a net importer of palm oil (Olagunju, 2008). While in the early 1960's,

Nigeria's palm oil accounted for 43% of the world's production, currently, the country accounts for about 1.7 % of the global palm oil production. According to Teoh (2002) and Nnorom (2012) Nigeria lost to Malaysia and Indonesia as the largest oil producer in the world today because of her poor commitment to oil palm production.

According to FAO (2005), oil palm cultivation in West Africa is basically subsistent and small-scale covering less than 7.5 hectares. About 80% of the production in Nigeria comes from dispersed small holders who harvest semi-wild plants and use manual processing techniques (Carrere, 2001; Olagunju, 2008). According to Carrere (2001) and Olagunju (2008), several million small holders are spread over an estimated area of 1.67 million hectares in the Southern part of the country. Among these small scale producers are women.

As Ani (2004) posits women form the backbone of the agricultural labour force and it is estimated they produce about 40 % of the gross domestic product (GDP) and over 50 % of developing nation's food. He went further to posit that they produce more than half of the food and raise many of the livestock produced in Nigeria. According to him, it is they who process and market the crops and also engage in a wide range of small on- and off-farm businesses earning vital income for their families.

Studies on women's contributions to economic activities have proliferated, strengthened by the increasing realization of their immense contributions to food security. However, the inadequacies of available statistics in capturing the degree of their participation in economic life have become progressively more obvious. As Ani (2004) argues a large chunk of women's contributions to economic activities are still obscure and the observed ones still have less values attached to them. This situation tends to underestimate their contributions thus making it difficult to consider their participation in economic activities. It is against this backdrop that the study seeks to assess the roles of women in palm oil processing in Nkwere local government area of Imo state, Nigeria. The following research questions are being asked: what are the following oil palm processing techniques adopted by the women? What are the demographic features of women engaged in oil palm processing? What are the various constraints faced by women in oil palm processing?

1.1 Objectives of the study

The broad objective of the study was to assess the roles of women inoil palm processing in Nkwere local government area of Imo state, Nigeria. Specifically, it seeks to:

1. describe the socioeconomic characteristics of the women;
2. determine their level of involvement in oil palm processing;
3. identify the roles they perform in oil palm processing;
4. identify the constraints militating against their involvement in palm oil processing; and
5. determine the perception of the respondents about oil palm processing as a sustainable rural livelihood activity.

2.0 Materials and Method

The study was conducted in Nkwere local government area which is among the 27 local government areas in Imo state, Nigeria. Situated in the South eastern, Nigeria, Imo state covers an area of 5,530 square kilometers and shares boundaries with Enugu and Ebonyi states to the North, Anambra state to the West, Rivers state to the south and in the North and Rivers state to the South, Cross River and Akwa Ibom states to the East. Imo state lies within latitudes 4° 45' N and 7° 15' N and longitudes 6°50'E and 7° 25' E(www.imostate.gov.ng). According to the 2006 census result, the population of the state is 3,934,899. Generally, rivers constitute the major physical features in the state, which are often marshy.

Nkwere local government area has a population of 80,152 people and an area of 38,000 square kilometers and is composed of six autonomous communities (Asato, 2012). Agriculture is the dominant livelihood activity of the people and staple crops include yam, cassava, cocoyam and maize.

The population for the study comprised all rural women in the local government area. A multistage sampling technique was used to select the respondents. The first stage was the selection of five out of the six autonomous communities in the LGA, using simple random sampling technique. The second stage was the selection of four villages from each of the selected autonomous communities, using simple random sampling technique to give a total of 20 villages. The third and final stage was the selection of five women from each of the selected villages using purposive sampling technique to ensure the selection of those that engage in oil palm

production. A total of 100 women were used for the study.

Data were obtained from both primary and secondary sources. Primary data were obtained using a set of structured questionnaire. Level of involvement in oil palm processing was measured on a rating scale of Very Active = 3, Active = 2 and Not Active = 1. Roles performed in oil palm processing were measured by listing all the possible activities involved in oil palm processing and their responses were recorded. The constraints militating against oil palm processing were measured by providing a list of all the possible constraints and the respondents were asked to indicate the ones they encounter. Perception on palm oil processing was measured by listing all the possible benefits derivable from palm oil and the respondents were asked to indicate the ones applicable to them. Their responses were measured on a 3-point likert-type scale of Highly Beneficial = 3, Beneficial = 2 and Not Beneficial = 1. The mean of the scale was determined by adding the values attached to the scales and dividing by the number of scales to obtain a value of 2.0. So, any statement item with a mean of 2.0 and above would be considered a benefit. Data were analyzed using mean, percentages and bar charts.

3.0 Results and Discussion

3.1 Socio-economic characteristics of the women

Data in Table 1 show that a greater proportion (48%) of the women were in the age bracket of 26 – 42 years and their mean age was about 53 years; majority (56.6%) were married, majority (72.7%) received one form of formal education or the other, with majority (34.3%) attending secondary school. It further shows that a greater proportion (41.5%) of the women had a household size of 6 – 15 people, with an average household size of nine people; majority (82.8%) of the women belonged to social organizations, majority 65.6 per cent had farming as their major occupation while a greater proportion (35.4%) had an annual income of between 351,000 – 551, 000 Naira. The mean annual income was 513,000 Naira.

The mean age of the women implied that they were middle-aged and could still engage effectively in economic activities. This is important for oil processing as it is mostly done manually in developing countries and would require energetic people. Marital status and household size could be assets to the women as their husbands and household members are potential hands (labour) in the processing of oil palm. According to Nnadi *et al*. (2012) marriage and large household size enhance complementarity of efforts. Furthermore, membership of social organizations would enhance the exchange of vital information which could improve the women's oil processing activities. The result on annual income shows that the farmers were living well above the poverty line of $US1.00 (200 naira) per day. This could enable them afford simple implements required for oil processing and thus increase their scale of operation.

Table1: Distribution of rural women according to socio-economic characteristics

Socioeconomic characteristic	%	M
Age (Years)		
≥ 25	15.0	
26 - 42	48.0	
43 - 59	27.0	52.9
≥ 60	10.0	
Marital status		
Single	6.1	
Married	56.6	
Divorced	22.2	
Widowed	15.1	
Educational Level		
No formal education	27.3	
Primary school	26.3	
Secondary school	34.3	
Tertiary education	12.1	
Household Size		
≤ 5	19.2	
6 - 15	41.5	9
> 15	7.1	
Social organization membership		
Yes	82.8	
No	7.2	
Major occupation		
Farming	65.6	
Trading	10.1	
Civil service	7.1	
Artisan	17.2	
Annual income (N'000)		
≤ 350	34.3	
351 - 551	35.4	
552 - 752	3.1	513
> 752	22.2	

Source: Field Survey Data, 2014

3.2 Level of involvement of women in oil palm processing

Data in Figure 1 show that greater proportion (41.4 %) of the women was actively involved in oil palm processing while the remaining 34.3 % and 24.3 % were involved and not involved respectively. The involvement of women in oil palm processing showcases their enormous contributions to agricultural production. Studies (FAO, 1996; Adekanye, 1996) indicated that female labour force is vital in agriculture. However, the passive involvement of some of the women in oil palm production could be attributed to factors that limit their involvement in agriculture. For example, Ani (2004) observes that some cultural restrictions such as right to natural resources like land limit women's involvement in agriculture.

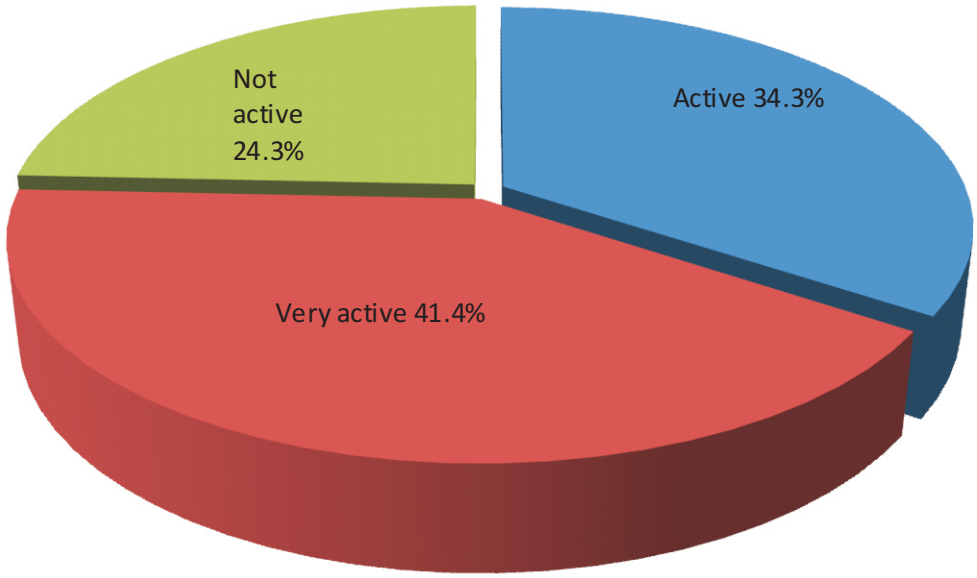

Figure 1: Chart showing the level of involvement of women in oil palm processing
Source: Field Survey Data, 2014

3.3 Roles performed by women in oil palm production

Entries in Table 2 show that women played several significant roles in oil palm production. However the result reveal that the most significant ones included fruit mashing (89.9%), fibre and nut separation (81.8%), storage (80.0%) and oil clarification (78.8%). This result is in line with the findings of a study by Onweagba and Nwaihu (2004) where women were identified as major actors in oil palm processing. The involvement of women in palm oil processing enhances their contributions to food security as they have been observed to spend a reasonable proportion of their income on family upkeep (Quisumbing, 1994).

Table 2: Distribution of women according to their roles in oil palm processing

Roles	% (*)
Purchase of oil palm bunches	10.1
Transportation	14.1
Reception of oil palm bunches	20.2
Bunch threshing	43.3
Weighing	63.6
Sorting	66.7
Fruit fermentation	71.7
Boiling of fruits	73.7
Fruit digestion	33.3
Fruit mashing	89.9
Oil clarification	78.8
Oil drying	71.7
Storage	80.8
Nut drying	77.8
Fibre and nut separation	81.8

Source: Field Survey Data, 2014* Multiple Response

3.4 Perception of oil palm processing as a sustainable rural livelihood activity

Entries in Table 3 reveal that oil palm processing was perceived as a source of income (M = 4.68), source of employment (M = 4.48), a way of making use of rural labour (M = 4.17), a form of physical exercise (M = 3.92), an opportunity to acquire skill and knowledge (M = 3.47) and that it ensures the availability of various palm products (M = 3.51). Agriculture basically provides food and income to farmers. Ani (2004) observes that in addition to food production, women also generate income from agriculture. These help to improve the standard of living of their families while improving food security (Quisumbing, 1994).Favourable perceptions about palm oil processing could encourage other women to participate in the activity.

Table 3: Distribution of the women according their perception of oil palm processing

Perception statements	M	S.D
Oil palm processing is a source of income	4.68*	0.0167
It creates/provides employment	4.48*	0.0148
It creates opportunities to use skills and knowledge	3.47*	0.0005
It is a form of physical exercise	3.92*	0.0092
It makes effective use of rural labour	4.17*	0.0118
It improves quality of life in families	3.43*	0.0004
It ensures the availability of various products from palm oil	3.51*	0.0006
It is the job/work of the uneducated	1.85	0.0114
Grand mean	**3.68**	

Source: Field Survey Data, 2014
* Significant Perceptions

3.5 Constraints to the processing of oil palm products

Entries in Table 4 reveal inadequate credit (90.0%), poor government support (89.0%), poor extension contact (88.0%), use of crude techniques (87.0) and inadequate palm fruits for processing (80.0%) as major constraints militating against palm oil processing in the study area. The result also showed that health hazard (30%) and pests and disease infestation (45.0%) were not serious constraints in the area. The unavailability of adequate oil palm fruits could lead to low output. Also, the use of traditional techniques and lack of modern processing equipment could lead to poor quality and low quantity of the product. They could also make processing more labourious, time-demanding and consequently inefficient. A study by Esu and Akam (2013) identified use of traditional techniques as major constraints to palm oil processing in Nigeria.

Inadequate agricultural extension contact could limit women's access and use of improved palm oil processing technologies, thus limiting their efficiency. Studies have found that women's access to agricultural extension services is limited (Mogues et al. 2009; Ayoade, 2012). Madukwe (2008) identified poor extension coverage as among the major problems facing agricultural production in Nigeria. Furthermore, inadequate credit could constrain farmers from purchasing resources needed in palm oil processing thus lowering their output. Similarly, the use of crude techniques in oil palm processing could reduce efficiency, quality and quantity of the products and increase the amount of time and human energy involved. This reiterates the under-developed nature of agriculture in developing countries.

Table 4: Distribution of women according to constraints in the processing of oil palm products

Constraints	%(*)
Inadequate oil palm fruit for processing	80.0
Lack of modern processing equipment	79.0
Health hazards	30.0
Pests and disease infestation	45.0
Poor government support	89.0
Inadequate credit	90.0
Unstable power supply	69.0
Use of traditional techniques	87.0
Inadequate storage facilities	67.0
Poor extension contact	88.0
90	

Source: Field Survey Data, 2014* Multiple Response

4.0 Conclusion

Palm oil has remained an important product from oil palm crop, having numerous domestic and industrial uses. This view subsists especially in rural areas where majority of the inhabitants are farmers in spite of the fall in oil palm production in Nigeria. Perhaps, because of the economic importance of palm oil and some levels of cultural tolerance, women are involved in its processing, where they perform several roles. They had favourable perceptions about palm oil processing which confirms the importance of the crop. However, some constraints limit their efficiency in the processing of palm oil.

Recommendations

Following the findings of the study, it was therefore recommended that;

1. agricultural extension service should be promoted. This can be achieved through the recruitment of more extension personnel and the provision of adequate training to the recruited ones. Most importantly, extension personnel should be deployed to rural areas where majority of the farmers reside. This will enhance the transfer of modern processing technologies to farmers.
2. the cultivation of oil palm trees should be encouraged. This can be achieved through the distribution of hybrid oil palm seedlings to farmers. This should be followed up with frequent extension visit to provide the farmers with the necessary support to ensure good establishment of the seedlings.
3. credit facility should be made available to farmers. This can be achieved through the formulation and implementation of policies aimed at providing farmers with adequate credit. Also, farmers should be encouraged to form cooperatives to promote self-help effort and enhance accessing of credit. Commercial banks should be mandated by law to remove stringent policies that limit farmers from obtaining loans.
4. the use of modern processing equipment should be encouraged. This can be achieved by government importation of the equipment and subsidizing their costs. Government at all levels can partner with private individuals to provide these equipment to farmers.

References

Adekanye, T.O. (1996). Women agriculture for FGN/UNDP. Agricultural and rural development in Nigeria. Ministry of Agriculture, Abuja.

Amstrong, R. (1998). Palm oil. The Australian National University, URL: http://www.anu.edu.au/forestry/wod/nwfp/palmoil.html.

Ani, A.O. (2004). *Women in agriculture and rural development*. Borno, Nigeria: Priscaquila Publishers, 185.

Ayoade, A.R. (2012). Attitude of women farmers towards agricultural extension services in Ifelodun local government area, Osun State. *American Jour. of Soci. & Magt. Sciences,* 3(3); 99 – 105.

Basiron, Y. & Weng, C.K. (2004). The oil palm and its sustainability. *Journal of Oil Palm* Research, 16(1), 1 -10.

Carrere, T.R. (2001). Overview of the oil palm issues. World Rainforest Movement, Uruguay. pp. 1 – 16. *http://www.wrm.org.uy.plantations/material/oilpalm4.html.*

Ekine, D.I. & Onu, M.E. (2008). Economics of small-scale palm oil processing in Ikwere and Etche Local Government Areas of Rivers State. *Journal of Agri. & Soci. Research,* 8(2), 1 – 9.

Elijah, I.O., Cletus, I.E., Sylvester, C.I. & Dorcas, A.E. (2014). Small-scale palm oil processing in Nigeria: A feasibility study. *Greener Jour. of Busi. & Magt. Studies*, 4(3), 70-82.

Embrandini, A., Singh, R.P., Ibrahim, H.M. & Ramli, A.A. (2011). Land application of biomass residue generated from palm oil processing: its potential benefits and threats. *Springer Science. Environmentalist*, DOI 10.1007/s10669-011-9367-0.

Esu, B.B. & Akam, A.E. (2013). Women participation in oil palm processing in Nigeria: A case study of AkwaIbom State. *International Jour. of Basic & Appl. Sciences,* 2(2), 60 – 64.

Fitzherbert, E.B., Struebig, M.J., Morel, A. Danielsen, F., Bruhl, C.A., Donald, PF & Phalan, B. (2008). How will oil palm expansion affect biodiversity. *Trends in Ecol. & Evolution*, 23(10), 539 – 545.

Food and Agricultural Organization, FAO. (2005). Small-scale palm oil processing in Africa. Corporate Document Repository. *http://www.fao.org/Docrep/05/YE335E/Y4355e03.htm.*

Food and Agricultural Organization, FAO. (2009). FAOSTAT online statistical service. Italy: Food and Agricultural Organization of the United Nations, Rome,

Helleiner, G.K. (1966). Peasant agriculture, government and economic growth in Nigeria. Illinois.

Koh, L.P. & Ghazoul, J. (2008). Biofuels, biodiversity and people: understanding the conflicts and funding opportunities. *Biology Conservation*, 141, 2450 – 2460.

Mogues, T., Cohen, M.J., Birner, R., Lemma, M., Randriamamonjy, J., Tadesse, F. & Paulos, Z. (2009). Access to and governance of rural services: agricultural extension and drinking water supply in Ethiopia. Ethiopia Strategy Support Programme II, Research Note 1. *International Food Policy Research Institute*, IFPRI.

Nnadi, F.N., Umunakwe, P.C., Nnadi, C.D. & Okafor, O.E. (2012). Socioeconomic determinants of farmers' use of ethno-veterinary medicine in Mbaitoli local government area of Imo State, Nigeria. *Rsch. Journal of Agri. & Envi. Management*, 1(1),025-033.

Nnorom, N. (2012). Plantations owners forum of Nigeria (POFON) raises alarm over removal of tariff on imported palm oil. *Vanguard* Wednesday 5 September.

Olangunju, F.I. (2008). Economics of palm oil processing in Southwestern Nigeria. *International Journal of Agri. Econ. & Rura. Development.* 1(2), 96 – 77.

Omoti, U. (2004). Oil palm research at NIFOR, Nigeria. *Burotorop Bulletin* 19, 43 – 46.

Onweagba, A.E. & Nwaihu, E.C. (2004). Palm fruits processing and rural infrastructure development in Imo State, Nigeria. *Journal of Agri. & Food Science*, 2(2), 91 – 97.

Pleanjai, S., Gheewala, S.H. & Garivait, S. (2007). Environmental evaluation of biodiesel production from palm oil in a life cycle perspective. *Asian Journal of Ener. & Environment*, 8(1&2), 15 – 32.

Quisumbing, A. (1994). Gender differences in agricultural productivity: A survey paper series No. 36, Education and Social Policy development. Washington World Bank, D.C:

Teoh, C.H. (2002). The palm oil industry in Malaysia- from seed to frying pan. A report prepared for WWF- Switzerland. Selangor, Malaysia, 1 -59.