

Determinants of Women Involvement and Adoption of Improved Methods of Groundnut Processing Technologies in Three (3) Local Government Areas of Niger State, Nigeria.

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Abstract: *There is gender division of women in farm labour in Niger State. The gender division of women in farm labour assigns women more responsibilities in the processing of groundnut as Agricultural Food Product and yet, women have no access to improved methods of groundnut processing and depend mainly on the traditional methods. Hence, this study was undertaken to examine the determinants of women involvement and adoption of improved groundnut processing technologies using a total population sample size of 180 respondents. The results showed that education level, income and years of groundnut processing experience are significant at 5% probability level, that is, it has positive influence on the adoption and involvement of women processors on improved groundnut technologies. The result further revealed that about 85% and 78% of the respondents in the study area were involved on improved groundnut sheller and oil press technologies, respectively. And about 79% and 56% of the respondents also shows that they adopt improved groundnut sheller and oil press technologies respectively. This implied that women processors need support from government and Non-Governmental Organization (NGOs) to facilitate their involvement and adoption of improved groundnut technologies in the study area. Also, about 95% of the respondents in the study area indicated that their major constraints were increase in price of petrol. This implied that petrol engine is used for processing when there is no electricity supply and women processors tend to spend more which is not economical and has negative influence on the involvement and adoption of improved groundnut technologies, in order to facilitate women processors involvement and adoption of improved groundnut technologies in the study area there is need for effective credit facilities either by Government or interested Non Governmental organization.*

Keywords: *Women processors, determinants, involvement, adoption, probit model.*

I. Introduction

In today's digital age, the latest technologies always reach the rural poor last in spite of recent advances in communication and information technologies (CTA, 2003). Rural women are much less likely to have access to new agricultural technologies because they are generally less educated and possess less economic and political power relative to their men folk. In Nigeria, reports indicated that women play more important roles in agricultural processing compared to men (Umar, H; Jibrin, Y; Yinka, O; 2003). While records further show that the agricultural labour force is made up of about 60-80 percent women depending on the region, and two thirds of the food crops is processed by the women, (World Bank, 2003). Despite these facts there still exists wide spread assumption that men and not women make the key management decisions (Christiana H.G; Ken, L.B; Abe, G.C; Prefer T.H; Max, K.J; Donna, L; Peter, N.K; and Deidecheche, W. 2007). As a result of this, most extension activities targeted at women emphasize their domestic roles with topics such as child care and family nutrition while excluding activities involving agricultural processing.

Basically, women are involved in the supply of labour, processing of food crops and livestock processing and transportation farm produce for effective storage and marketing (Shannon, 2005; Ugwu and Agbo, 2009). Despite the high level of their involvement in agricultural processing activities such as groundnut processing, they are inadequately recognized and undervalued (Ajayi, 2005; Henn, 2005; Nwachuku and Jibowo, 2007).

Women's role in groundnut processing is not a new phenomena. Their role is fundamental to agricultural growth/ development especially via Agricultural food processing. They account for 100 percent for those who process agricultural food stuff (UN, 2004). In Nigeria, women take part actively in the groundnut processing activities in addition to their domestic household responsibilities. According to Abba, *et al.* (2011)

women are said to be involved in over 95 percent of groundnut milling activities in “Zone A” agro ecological area (Bida).

The purpose of the study was to examine the determinants of women involvement and adoption of improved methods of groundnut processing technologies in three (3) Local Government Areas of Niger State.

Specific Objectives were to:

1. examine the determinants of women involvement and adoption of the improved methods of groundnut processing in the study area, and
2. describe the level of involvement and adoption on improved methods of groundnut processing technologies by women processors in the study area
3. identify the constraints faced by women processors in the study area.

Problem Statement

The declaration of 1975-1985 as decades for women by member countries of the United Nations (UN) marked the beginning of recognition of gender issues in development circle worldwide. This resulted in active discussion among researchers policy makers, educationists and developmental partners on roles of women vis- a vis those of men (Yahaya, 2002). This led to the creation of Women In Agriculture (WIA) programme within the existing state Agricultural Development Projects (ADPs) and the conversion of women home economists to female Agricultural processors, all in an attempt to correct the gender related deficiencies and recognition of the role play in extension and processing of agricultural commodities. There is gender division of women in farm labour in Nigeria, Nkoh, and Domenico, (2005). The gender division of women in farm labour assigns women more works in the processing of groundnut as agricultural food products and yet, women have no access to improved methods of groundnut processing and depend mainly on the traditional methods, due to the constraints that are responsible for it, such as poor electricity supply, lack of credit facilities, high purchasing price of technologies increase in price of petrol, poor processing equipments poor quality of groundnut and absence of sustainable policy for groundnut processing activities. All this constraints affect women processors involvement of improved groundnut processing technologies.

II. Methodology

Study area

The study was conducted in three Local Government Areas of Niger State. These Local Government Areas are located in Agricultural zone one of the state. The climate and ecological condition of is favourable with mean annual rainfall of 782-1250mm and temperature is about 27.70° (Tswanye, 2007). The Agricultural zone has abundant wild vegetation of shea trees and dominated by small scale famers the major crops grown are millet, rice, maize, guinea corn, beans, cassava and groundnuts.

Method of Data collection and sampling procedure.

Multi-stage sampling procedure was used to draw samples for the study. The first stage was purposive selections of Agricultural zone A of the State Agricultural mechanization and development Authority (AMDA) these is because of high concentration of groundnut processing activities in the zone. This was followed by random selection of three (3) local Government Areas (LGAs) from the zone which equivalent to three AMDA Extension blocks. These three Local Government Areas are predominately groundnut processing centres in the state. The third stage was random selection of four (4) Extension cells from each of the extension blocks, giving a total sampling size of 180 women processors used in the study area. Questionnaires and interview schedules were the instruments of data collection. Data collected included age, education, income, household size, experience and labour cost, level of involvement and adoption as well as respondents constraints. The survey was conducted between October, 2012 and February, 2013.

Analytical Techniques

Analysis of the data was done using descriptive statistics to achieved objective 2 and 3 which include measure of central tendency such as mean, percentage, table, and frequency distribution while probit model were used to achieved objective 1, the model is specified as follows:

$$Y = \sum_{i=1}^n b_i Z_i + e_i \dots\dots\dots \text{Implicit}$$

Y = f(X₁ X₂ X₃)+ X₆ Explicit
Explicit form (Linear)

$$\frac{Y_{pi}}{1-p_i} = b_0 + b_1X_1+b_2X_2+b_3X_3+b_4X_4+b_5X_5+b_6X_6 +e$$

Where:

- Y_{pi} = (Probability of high involvement)
- I-pi = (Probability of low involvement)
- Logy = dichotomous variable high = 1, otherwise = 0
- X₁ = Age (years)
- X₂ = Education level (years)
- X₃ = Income (₦)
- X₄ = Household size (Number)
- X₅ = Years of processing experience (Years)
- X₆ = Labour (Man/day)

III. Results And Discussion

Result and discussion of the study are presented in three section namely

1. Determinants of women involvement and adoption. 2) Level of involvement and adoption of improved groundnut processing technologies. 3) Constraints faced by women processors

Determinants of women involvement and adoption of improved methods of groundnut processing Technologies

Education level is a major determinant to women processors in the study area. Majority of the respondents had no formal education. The implication is that low level of formal education is obviously a disadvantage to the respondents due to the fact that improved technologies would have to be communicated to them in native dialects.

This view is support by the finding of Adepoju and Umar (2007) which revealed that education is not only an important determinants in involvement and adoption of Agricultural innovation but also a tool for successful implementation of innovation.

Year of groundnut processing experience is a determinant to respondents involvement and adoption of improved groundnut processing technologies in the study area. The implication is that respondents with high number of processing experience would have better knowledge, management and accurate assessment of the benefit of involvement and adoption. This view was in Agreement with finding by (Johnson, 2009) which revealed that high experience in Agricultural processing can raise productivity.

Income is a major determinants to the involvement and adoption of improved groundnut technologies by the respondents in the study area. Majority of women processor do not have change in income over the last three years for processing groundnut using improved groundnut processing technologies. The implication may be due to lack of continuous support. This view was supported with a finding by (Kangiwa, 2002) on perception of support to small scale farmers, which revealed that lack of support in agricultural innovation not only reduced the level of income realized from such innovation but also reduced the level of involvement and adoption of the technologies.

TABLE 1
Probit Regression Model Showing the Determinants of Women Involvements and adoption on Improved Methods of Groundnut Processing (n=180)

Determinants	coefficient	Z-values
Age	0.0389	0.81
Education	0.1967	2.91**
Income	-0.0000	-2.56**
Household size	-0.0693	-0.65
Experience	0.0918	2.04**
Labour cost	-0.0000	-1.58

Source: Calculated from the data collected 2013

*** Significant at 1% probability level

** Significant at 5% probability level

* Significant at 10% probability level

LR chi-square 2 (8) = 23.49

Probability > chi-square 2 = 0.0028

Pseudo R² = 0.1208

Log likelihood = 85.46538

Respondents level of involvement and adoption

About 85% and 78% of the respondents in the study area are involved with improved groundnut sheller and oil press machine (Table 2). The implication is that there is need for the Government support so that the respondents will be involved with the use of improved groundnut roaster, kneading and deskinner machine, these will not only go a long way to facilitate their involvement, and also exposed respondents to improved groundnut processing technologies.

This view was in line with the study by (Musa, 2006) which revealed that involvement of women in Agricultural improved technologies, increase their level of acceptance and adoption of such technologies.

About 79% and 56% of the respondents in the study area adopt improved groundnut sheller and oil press technologies respectively. The implication is that respondents need the motivation of government extension agencies to adopt improved groundnut roaster, kneading and deskinner these will not only reduce their drudgery in processing groundnut but also to increase their income and quality of other groundnut products. This view was in line with the study by (Rogers, 2002) which revealed that fully adaptation of technologies in any kind of Agricultural innovation will not only improved the level of their involvement and adoption but also increase their income and reduce the drudgery of such technologies.

TABLE 2
Distribution of the respondents based on involvement and adoption (n=180)

Involvement/Adoption	Frequency	Percentage %
Involvement and adoption of improved Groundnut Processing Technologies		
Groundnut Sheller		
Not Involved	27	15.0
Involved	153	85.0
Groundnut Roaster		
Not Involved	94	52.2
Involved	86	47.8
Groundnut Kneading		
Not Involved	108	60.0
Involved	72	40.0
Groundnut Desk inner		
Not Involved	117	65.0
Involved	63	35.0
Oil press machine		
Not Involved	39	21.7
Involved	141	78.3
Adoption in improved Groundnut Processing Technologies		
Groundnut Sheller		
Not adopted	26	14.4
Adopted but discontinue	11	6.1
Adopted	143	79.4
Groundnut Roaster		
Not adopted	82	45.6
Adopted but discontinue	42	23.3
Adopted	56	31.1
Groundnut Kneading		
Not adopted	97	53.9
Adopted but discontinue	59	32.8
Adopted	24	13.3
Groundnut Deskinner		
Not adopted	116	64.4
Adopted but discontinue	36	20.0
Adopted	28	15.6
Oil press machine		
Not adopted	44	24.4
Adopted but discontinue	36	20.0
Adopted	100	

Source: Field survey, 2013

Respondents Constraints

Table 3. shows that about 92% of the respondents in the study area reported that poor electricity constraints were among of their problems faced. about 80% of the respondents also indicated that lack of credit facilities were also their problems such as loan, condition attached to loan disbursement, interest rate, collateral and several trips to the bank before loan is granted. This finding was in agreement with (Saito, 2009) which revealed that women face a number of barriers to obtained credit from lending institutions because most of them have no collateral. The implication of this is that, without loan to facilitate the involvement and adoption of improved groundnut technologies, the respondents will not expand the scope of processing women processor will continue to queue for long at the extraction point. Another problem experienced by the respondents were increase in price of Petrol.

Table 4.13 also shows that about 95% the respondents reported that petrol engine is used for processing when there is no electricity supply, and the women tend to spend more as the cost of kneading is high which is not economical for the respondents. The constraints increase in price of petrol has negative influence on involvement and adoption. It can be concluded here that, if prices of petroleum products are not reduced some of the women processors might revert to the use of the traditional methods of groundnut processing.

About 94% of the respondents reported that they still faced with constraints of poor processing equipment because these technologies are expensive to acquired and then emphasized in traditional methods of groundnut processing.

The implication is that, the respondents are not able to own these technologies individually and consequently affect the level of their involvement in improved groundnut processing technologies.

TABLE 3
Distribution of respondents based on Constraints (n=180)

Constraints	Frequency	Percentage %
Poor Electricity	165	91.7
Lack of Credit Facility	144	80.0
High purchasing Price of Technologies	170	94.4
Increase in price of petrol	171	95.0
Poor Processing Equipment	170	94.4

Source: Field survey, 2013

* Multiple Responses

IV. Conclusion And Recommendation:

The study has provided information on determinants of women involvement and adoption of improved groundnut processing technologies level, of involvement and adoption of improved groundnut technologies by women processors and constraints faced by the women processors in the study area. The result found that majority of the respondents in the study area, do not have access to formal education which aids a major determinants in their involvement and adoption of improved groundnut processing technologies and this can affect dissemination of information (printed) materials on any new technologies to the respondents. its also found in the study that majority of the respondents in the study area involved and adopt two technologies such as groundnut sheller and oil press machines. The major constraints faced by women processors include poor electricity supply, high cost of petrol, lack of credit facilities, high purchasing price of technologies and lack of operational facilities for processing groundnut. Based on the findings in this study the following recommendations are made

1. In view of the high cost of petroleum products and irregular electricity supply, which are required for groundnut processing activities, it was recommended that provision of solar powered electricity by interested NGOs to address the irregular power supply should be made a priority intervention in the study area.
2. It was found that majority of the respondents in the study area lack access to credit facilities. It is therefore recommended that credit facilities should be provided by the government and interested Non Governmental Organization to increase the scope of groundnut processing business and improved their level of living.

3. The study revealed that respondents were faced with high purchasing price of technologies. Constraints, it is recommended that improved groundnut technologies, should be made available for the respondents at a subsidied rate. This can be done though appeal to interested Non Governmental Organizations (NGOs), private volunteers and other organized bodies to assist government in complementing the present high purchasing price of technologies to the respondents.

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