



Original Article

## Costs and Returns of Groundnut Processing Among Rural Women in Sokoto State, Nigeria

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### ABSTRACT

The research examined the costs and returns of groundnut processing in Sokoto State, Nigeria. Simple random sampling technique was used to select one hundred groundnut processors proportionate to the population. Data were generated through the use of structured questionnaire administered to the processors. Data were analyzed using descriptive statistics and farm budgeting technique (Net Farm Income). Result revealed that majority (84%) of Groundnut processors are between the ages of 21 – 40 years with a mean age of 31 years. The mean years of experience in groundnut processing are 13 years, while 66% of the processors were married. However, majority (93%) of the processors were illiterates. The result of the farm budgeting analysis revealed that the variable cost constituted 99.3% of the total cost of groundnut processing. Fixed capital accounted for 0.7%. This indicated that a typical processor realized a gross margin of ₦13, 873.35 and net farm income of ₦14, 699.67 per 50kg. This showed that groundnut processors realized profit. From the foregoing, it could be concluded that groundnut processing in the study area is profitable. It is therefore economical for groundnut processors in the study area to invest more in groundnut processing because it is a profitable and lucrative business. In realization of the simple technology in yielding high productivity and as labour saving device, the government should intervene by providing more machines for oil extraction to processors on loan. Processors should be encouraged to form cooperative societies so that they can benefit from loan which could be allocated to them by the government for improving their capital investment.

**Keywords:** Costs, Returns, Groundnut, Processing, Rural Women, Sokoto State.

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## INTRODUCTION

Groundnut (*Arachis hypogea L.*) otherwise called peanut, monkey nut, gobber pea and arachide belongs to the family *leguminosea*. It originated from Latin America and the Portuguese who were responsible for its introduction into West Africa from Brazil in the

16<sup>th</sup> Century (Gibbon and Pain, 1985; Abalu and Etuk, 1986). Peanut is one of the most popular commercial crops in Nigeria. Nigeria produces 41% of the total groundnut production in West Africa (Echekwu and Emeka, 2005). It is cultivated for its kernels, the oil and hay for livestock. Groundnut cake is often deep fired or dried to make a snack locally called *kuli-kuli*. Groundnut flour is used as an ingredient in soups, sweet, confectionaries and puddings. Groundnut especially those produced in developing countries has been used traditionally since the origin of humanity. It is rich in oil and protein and has a high energy value. Developing countries account for nearly 95 percent of world production (Echekwu and Emeka, 2005). Asia accounts for about 70% of this amount while the major producers, India and China together represent over two-thirds of global output. Other important producers of groundnut are: Nigeria, Senegal, Sudan and Argentina. Groundnut with 25% protein and more than 40% oil, is an important food crop in many areas of semi-arid tropics (Food and Agriculture Organisation, 1994).

In Nigeria, the processing of groundnut into various products is mostly done by women either for home consumption or for commercial purposes (Ibrahim *et al.*, 2005). The most common commercial products of groundnut are: groundnut oil, groundnut cake and fried peanuts which are sold at market places or hawked on the streets, (Ihekoronye and Ngoddy, 1985). The processing of groundnut is both the source of income and employment to a large proportion of rural women in northern Nigeria. Thus, the achievement of the Millennium Development Goal number three (promotion of gender equality and women empowerment) in northern Nigeria, requires that a study be conducted to assess the economic empowerment potentials of this very important economic activity. In addition, the technical and scale efficiency in groundnut processing were also determined alongside the constraints affecting the processing of groundnut by rural women (Ibrahim *et al.*, 2005).

Groundnut processing is basically the transformation of the primary agricultural products (raw groundnut) into other finished commodities like groundnut oil, cake and animal feed among others. Processing of groundnut perhaps the best area an investor can engage in with maximum utilization of the product. The milling of the product would yield edible oil which can be refined to get vegetable oil and groundnut cake which is a valuable input in the preparation of animal feed and as such can be sold to animal feed millers. Therefore, groundnut processing can lead to reduction in food wastage, enhanced food security, improvement in livelihood of low income groups and empowerment of women especially in Nigeria where processing of groundnuts into various products is mostly done by women either for home or commercial consumption (Ibrahim *et al.*, 2005; Purseglore, 2010).

Besides, increasing globalization, technological advances and changing consumers' socio-demographics have brought about expansion of urban areas leading to higher incomes, higher opportunity cost of time and therefore greater demand for agricultural food commodities. This might result into more competitive use of resources which may have dire consequence for sustainability, particularly for rural-based unsophisticated agro-enterprises (Echekwu and Emeka, 2005). In view of the relevance of groundnut processing to small-scale agro-allied industry and economic development, this study examined the costs and returns of groundnut processing in Sokoto State, Nigeria.

## METHODOLOGY

### Study Area

This study was conducted in Sokoto State. The state lies between latitude 10°S to 14°N and longitude 3°31' to 7°10'E. It shares a common border with Niger Republic to north, Kebbi State to the west, Zamfara State to the east. (Abdulrahman, 1996). The state has twenty three Local Government Areas and estimated human population of 4.39 million (NPC, 2006). The climate of the state is characterized by two alternating season, that is the short rainy of five months and a long dry season of seven months (November – May). The mean annual rainfall

ranges from 500-700mm with the highest rainfall being witnessed in July–August (Abdulrahman, 1996).

In terms of vegetation, the state is located within the Sudan Savanna zone which is characterized by sparsely scattered vegetation of trees, shrubs, and grasses. The main occupation of the people is farming. The farming system includes upland arable crop production under rain fed condition and dry season Fadama irrigation farming. Millet, Sorghum and Cowpea are some of the crops grown under rain fed, while sugar cane, sweet potatoes, onions, tomatoes and other vegetable are grown under irrigation. The production system is at the subsistence level under fragmented land holdings. The livestock kept by the people includes cattle, sheep, goats and poultry (Jirgi, 1995).

### **Sampling, Data Collection and Analysis**

Multi-stage sampling was used for the study. Using simple random sampling, four local government areas were selected across the State. Five villages were selected from each local government area and five processors were selected from each village. A total one hundred processors were interviewed. The data used for this study were generated through structured questionnaire, administered on the processors involved. Information was collected on the socio – economic characteristics of the processors such as (age, marital status, sex, and literacy level) and costs and returns of groundnut processing. The data generated on socio–economic characteristics of groundnut processors were analyzed using descriptive statistics such as means, frequency and percentages. The data collected on cost and returns of processing were subjected to budgetary technique.

### **Specification of Model**

Net Farm Income is determined by subtracting fixed costs and variable costs from the Gross farm income. The net farm income represents the returns to processors, resulting from the capital and labour inputs by the processors to the groundnut processing. Gross income is value of the groundnut products (groundnut oil and cake) obtained after processing. Variable costs are costs incurred by the processors in the course of processing such as groundnut, firewood and labour. While fixed cost includes depreciation on pots, mortar and pestle and grinding stone.

$$NFI = GFI - VC - FC \quad (1)$$

Where;

NFI = Net Farm Income,

GI = Gross Income

VC = Variable Costs

FC = Fixed Costs

## **RESULTS AND DISCUSSION**

### **Socioeconomic Characteristics of Processors**

Result showed that 3% of the processors were between the ranges of 11 – 20 years, 42% were between 21 – 30 years, 42% were between 31 – 40 years of age. While 12% were between 41 – 50 years, none of them was between 51 – 60 years and only 1% was between 61 – 70 years of age. This clearly indicated that majority (84%) of Groundnut processors are between the ages of 21 – 40 years. Age influences the amount of physical effort to be put into any economic activity. The mean age of the processors was 31 years. Majority of the processors were neither too young nor too old and maximum energy could be expected from them. Result also revealed that 49% of the processors were in the business within the range 1 – 10 years, 31% were in it within 11 – 20 years, 16% were in it within 21 – 30 years and 4% of the processors fall within 31 – 40 years of experience. Experience helps in carrying out

any activity in the processing business. This showed that majority of them were between the ranges 1 – 10 years. The mean years of experience were 13 years.

Result revealed that 4% of the processors were single, 66% were married 13% and 17% were widowed and divorced respectively. This showed that majority of the processors were married and their engagement in the business could be as a result of the economic hardship which forced most housewives to engage in one type of business or other. This could be attributed to the fact that many husbands are incapable of satisfying the basic need of their wives. This is in accordance with the argument of Callaway (1984) that seclusion in form of purdah of Hausa women is not retrogressive, oppressive and restrictive as it was popularly emphasized by many Europeanized Africans. Women in their secluded homes invest their time and labour in money making pursuits.

Result further revealed that 3% of the processors were males and 97% were females. This showed the majority of the processors were females which indicated that processing of any food crop is not meant for women alone; men could be found engaging in it too. Also revealed from the result is that 93% of the processors were not educated and the remaining 7% that were educated through the formal education and none went through the informal education. As stated earlier, very few of the processors were old and may likely be averse to risk taking and may shy away from adopting improve techniques of processing that could increase productivity. The literacy level of the processors as indicated in result showed that most of them were illiterates could affect the adoption of innovation which will in turn creates motivation to change and thereby enhance productivity.

**Table 1: Socioeconomic Characteristics of processors**

| Variables                    | Frequency | Percentage Mean |
|------------------------------|-----------|-----------------|
| <b>Age</b>                   |           |                 |
| 11- 20                       | 3         | 33.149          |
| 21 – 30                      | 42        | 42              |
| 31 -40                       | 42        | 42              |
| 41 – 50                      | 12        | 12              |
| 51 – 60                      | 0         | 0               |
| 61 -70                       | 1         | 1               |
| <b>Processing Experience</b> |           |                 |
| 1- 10                        | 49        | 49.13           |
| 11 – 20                      | 31        | 31              |
| 21 - 30                      | 16        | 16              |
| 31 – 40                      | 4         | 4               |
| <b>Marital Status</b>        |           |                 |
| Single                       | 4         | 4               |
| Married                      | 66        | 66              |
| Widowed                      | 13        | 13              |
| Divorced                     | 17        | 17              |
| <b>Sex</b>                   |           |                 |
| Male                         | 3         | 3               |
| Female                       | 97        | 97              |
| <b>Type of Education</b>     |           |                 |
| Formal                       | 7         | 7               |
| Informal                     | 0         | 0               |
| None at all                  | 93        | 93              |
| <b>Level of Education</b>    |           |                 |
| Primary School               | 4         | 57.14           |
| Secondary School             | 2         | 14.29           |
| Higher Institution           | 1         | 0               |

Source: Field survey Data and Computation by the Researcher, 2014.

### Costs and Returns of Groundnut Processing

The profitability of any business can be deduced from the relationship between the cost incurred in running the farm business and the returns accruing to it (Adegeye and Dittoh, 1985). The costs and returns associated with groundnut processing in the study area are presented in Table 2. The result of the farm budgeting analysis revealed that the variable cost

constituted 99.3% of the total cost of production of groundnut enterprise. Fixed capital accounted for 0.7%. This indicated that a typical processor realized a gross margin of ₦13,73.35 and net farm income of ₦14,699.67 per 50kg. This showed that groundnut processors realized profit; however, profit can be enhanced if they improve on the processing techniques. This agrees with the findings of Jubril *et al.*, (2012) reported that Groundnut processors in Kwara State earned gross income of ₦4, 643.28 which indicated that Groundnut production is a profitable venture. Ibrahim *et al.*, (2010) in their study on Evaluation of Groundnut Processing by Women in Rural Area of North Central Nigeria reported a net farm income of ₦10,586.60 per production cycle of four days which indicated that groundnut processing is profitable.

**Table 2: Average Costs and Returns of groundnut processing/50kg/Production Cycle**

| Items                         | Costs/Returns (₦) | Percentage  |
|-------------------------------|-------------------|-------------|
| <b>Variable costs</b>         |                   |             |
| Groundnut                     | 18,700.72         | 75.9        |
| Labour                        | 3,894.99          | 15.8        |
| Fire wood                     | 976.33            | 3.9         |
| Water                         | 55.00             | 0.2         |
| Salt                          | 38.00             | 0.2         |
| Grinding and Oil extraction   | 634.00            | 2.6         |
| Transportation                | 154.00            | 0.62        |
| <b>Total variable cost</b>    | <b>24, 453.04</b> | <b>99.3</b> |
| <b>Fixed costs</b>            |                   |             |
| Depreciation on frying pot    | 117.64            | 0.47        |
| Depreciation on stirring bowl | 56.04             | 0.20        |
| <b>Total fixed cost</b>       | <b>173.68</b>     | <b>0.7</b>  |
| <b>Total Costs</b>            | <b>24, 626.72</b> | <b>100</b>  |
| <b>Revenue</b>                |                   |             |
| Sales Groundnut oil           | 25,967.14         |             |
| Sales of Groundnut cake       |                   | 11, 259.25  |
| Total Revenue                 | 38, 326.39        |             |
| <b>Gross Margin</b>           | <b>13, 873.35</b> |             |
| <b>Net Farm Income</b>        | <b>14, 699.67</b> |             |

Source: Field Survey Data and Computation by the Researcher, 2014.

## CONCLUSION AND RECOMMENDATIONS

The importance of groundnut in the study area as it relates to cultivation, processing and marketing cannot be overemphasized. This is because it is a traditional source of protein derived from groundnut cake and vegetable oil. The employment opportunity provided by groundnut for farming and nonfarming households is also something to reckon with, this can be translated in terms of source of revenue to growers, processors and the marketers. It could be concluded that groundnut processing in the study area is profitable.

It is therefore economical for groundnut processors in the study area to invest more in groundnut processing because it is a profitable and lucrative business. In realization of the simple technology in yielding high productivity and as labour saving device, the government should intervene by providing more machines for oil extraction to processors on loan. Processors should be encouraged to form cooperative societies so that they can benefit from loan which could be allocated to them by the government for improving their capital investment.

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