Profitability Analysis of Groundnuts Processing in Maiduguri Metropolitan Council of Borno State, Nigeria

*** A. Iliyasu, I. Wulet and K. Yusuf**
Department of Agricultural Technology, Ramat Polytechnic, Maiduguri
[*Corresponding Author: E-mail: manawaci@yahoo.co.uk. Tel.: + 234(0)8030679164]

ABSTRACT: This paper examines the profitability of groundnuts processing in Maiduguri Metropolitan Council of Borno State. The specific objectives of the study were to examine the socio-economic characteristics of groundnut processors, estimate the costs and returns in groundnut processing and determine the return on investment in groundnut processing in the study area. Structured questionnaires were administered to the sixty respondents and the data were analyzed by the use of descriptive statistics, gross margin and return on investment analysis. The results indicated that majority (90%) of the respondents were married while 30% were in the age group 31-40 years. About 40% of the respondents' had informal education. Profitability analysis showed that groundnut processing was profitable business with gross margin of N43.34 per kg. The return on investment was estimated as 40%. It was recommended that large scale groundnut production should be encouraged by government through provision of farm inputs to farmers at very subsidized rate.
Key words: Profitability, groundnut, processing, Maiduguri, Borno state.

INTRODUCTION

Groundnut or peanut (*Arachis hypogeae*.L) is grown as an annual crop on about 19 million hectares in tropical and subtropical regions and the warmer areas of temperate regions of the world, principally for its edible oil and protein rich kernels or seeds (Woodroof, 1973). After soya beans, groundnut is the second most important source of vegetable oil in the world (FAO,1986). Groundnut oil is the most important product of the crop. At present about 40 % of the world crop produced is crushed for oil, which is used mainly for cooking. Many of the people in West and Equatorial Africa use traditional method of extracting the oil contained in the kernel (Duke,1981; Asaidu 1989).

The groundnuts are shelled, cleaned by winnowing to remove shell and other unwanted particles. It is roasted and cooled, de-skinned by rubbing individual seed with each other and ground into paste. The paste is then mashed with warm water and oil rises to the surface and is skimmed off. The water-oil mixture is fried over a low fire flame to remove most of the water from the oil. The remaining paste is then molded into different shapes and fried in the extracted oil to produce groundnut cake *(Kulikuli*) (Anon 1993).

Groundnut oil forms an important part of the diet in West Africa. The oil may also be used for margarines and vegetable ghee; for shortening in pastries and bread; pharmaceutical and cosmetic products; as lubricants and emulsion for insecticide, and as fuel for diesel engines (Duke, 1981).

The groundnut cake (GNC) known as '*Kulikuli*' in Hausa contained about 40-50% protein and is a valuable feed mainly for poultry. However, it is also used in preparing groundnut soup (Asiedu, 1989). Groundnut flour produced from the cake can be used for enriching tuber flours such as Cassava flour which is low in protein.

However, despite the importance of groundnut oil and groundnut cake in our daily life there was no researches carried out on the profitability of their production in Maiduguri Metropolitan Area of Borno state. In order to close this gap it has become very important to intensify researches on the costs and returns involved in the groundnuts processing.

Objectives of the study

The main objective of the study was to determine the profitability of groundnut processing in Maiduguri Metropolitan Council. The specific objectives were to:

i. examine the socio-economic characteristics of respondents;
ii. estimate the costs and returns in groundnuts processing, and

iii. estimate the returns on investment in groundnuts processing.

METHODOLOGY

Study Area

The study area was Maiduguri Metropolitan area of Borno State. Borno State is located in the North Eastern part of Nigeria between latitude 10^0 N and 14^0N and longitude 11^0 E 13^0E. It has a population of about 4,151,193 people (NPC, 2006). The state occupies a greater part of the Chad basin and shares borders with the Republic of Niger to the North, Republic of Chad to the North-east and Republic of Cameroon to the East.

Sampling techniques and Data collection

Four wards of the metropolis were purposely selected for the study. These are areas where most of the inhabitants produce and sell groundnut oil and groundnut cake. The wards selected include Hausari, Gwange, Bulabulin and Shehuri north. In each of these wards a total of fifteen (15) groundnut oil and groundnut cake producers were randomly selected, making a total of sixty (60) respondents as the sample size.

Data for the study were obtained from secondary and primary sources in 2007. The secondary sources were from journals, textbooks, conference paper, Internet, etc. while the primary data were collected through oral interview and structured questionnaires administered to the selected respondents.

Analytical Techniques

The analytical tools employed for the study were descriptive statistics, gross margin analysis and return on investment.

Descriptive Statistics

The technique was used to analyze the socio-economic characteristics of the respondents. The tools used were means, frequency distribution and percentage.

Gross Margin Analysis

The technique was used to determine the profitability of the groundnuts processing. The gross margin is expressed as follows:

GM = GR – TVC

Where: GM = Gross margin (₦ /kg)
GR = Gross revenue (₦ /kg)
TVC = Total variable costs (₦ /kg)

The gross margin analysis was used under the assumption that fixed costs of production are negligible (Olukosi and Erhabor, 1988).

Return on investment

The return on investment (ROI) was also used to assess the profitability of the enterprise. It estimate how much money the enterprises earn in return for every one Naira invested (UDP, 2001). The return on investment was computed using the formula;

$$ROI = \frac{TR - TVC}{TVC} \times 100$$

Where: ROI = Return on investment
TR= Total return
TVC= Total variable cost.

RESULTS AND DISCUSSION

Socio-economic characteristics of the respondents.

Analysis of Table 1 revealed that the minimum age group was 10 – 20 years of age while 61 years and above formed the maximum age group of the respondents. Majority of the respondents (30%) were in the age group 31 – 40 years followed by those in age group 21 – 30 years (26.7%). This could be due to the fact that these age groups are the most active or energetic which, is required for the tedious nature of traditional methods of groundnuts processing.

Table 1 also shows that majority of the respondents (90%) were married. This shows that groundnuts processing is a responsible venture through which people make enough money to support their family. Also majority (40%) of the respondents had informal education. This distribution may be attributed to the fact that traditional method of groundnuts processing is practiced more by people who have not undergone western education and, therefore, have no opportunity to be employed in government and non-governmental organizations where school certificates are required.

Analysis of gender shows that majority of the groundnuts processors were females (95%). This is due to the fact that females in the study area were financially backward and one need little amount of money (even less than one thousand Naira) to start the groundnuts processing business.

The Table 1 also shows that as the production experiences increases, the number of groundnuts processors increased at an increasing rate, increases at decreasing rate and then decreased. This may be due to the fact that those with more years of experience are getting older and are no longer participating in the operation probably due to the tedious nature of the traditional methods of groundnuts processing.

Table 1: Socio-economic characteristics of the respondents

Age group (years)	No. of respondents	%
1-20	4	6.67
21-30	16	26.66
31-40	18	30.00
41-50	10	16.67
51-60	10	16.67
61 – above	2	3.33
Total	**60**	**100**
Marital status		
Single	3	5
Married	57	95
Total	**60**	**100**
Gender		
Male	3	5
Female	57	95
Total	**60**	**100**
Level of education		
Primary	20	33.3
Secondary	8	13.3
Adult education	8	13.3
Informal education	24	40.0
Total	**60**	**100**
Production		
Experience (Years)		
< 1	6	10.0
2-5	16	26.7
6-10	12	20.0
11-15	14	23.3
16-20	8	13.3
21-25	2	3.3
> 25	2	3.3
Total	**60**	**100**

Source: Field Survey, 2007

Gross Margin and Return on Investment Analysis

In order to determine the profitability of groundnut oil and groundnut cake production in the study area various costs incurred and returns derived from on the products were estimated. The total variable cost (TVC) was subtracted from the gross revenue (GR) to give the gross margin (GM), which is a measure of profitability of the production. The cost and return profile involved in the production are shown in Table 2. From the table groundnut constituted the highest (86.83 %) variable cost while pepper had the least (0.38%) costs. This is expected since groundnut is the major input in the production of groundnut oil and groundnut cake while pepper is a spice that may be included only in groundnut cake and in a very small quantity and sometimes may not be included at all.

Table 2 also showed that groundnuts oil gave the highest return of ₦ 90.24/kg (59.71%) while groundnut cake contributed 40.29% (₦ 60.88/kg) to gross revenue of the production under study. This is also expected because groundnut oil is the major product and more expensive than groundnut cake.

Table 2: Estimated gross margin per kg of groundnut used in production of groundnut cake and groundnut oil

Items	**Value (₦)**	**%**
Revenue (Groundnut cake)	60.88	40.29
Revenue (Groundnut Oil)	90.24	59.71
Total revenue	151.12	100
Variable costs:		
Groundnut	93.59	86.83
Firewood	3.09	2.87
Salt	0.56	0.52
Pepper	0.41	0.38
Transport	2.42	2.25
Grinding	6.78	6.29
Labour	0.93	0.86
Total variable cost	107.78	100
Gross margin /kg	43.34	
Return on investment	40%	

Source: Field survey, 2007

The gross margin of ₦ 43.34 was realized in every 1 kg of groundnut used in production of groundnut cake and groundnut oil. Although groundnut cake and groundnut oil production from the foregoing analysis is profitable but the level of profit is low. The reason for low profitability could be as a result of low price paid for the products and coupled with high cost of groundnuts (Table 1). The high cost of groundnuts which is a cash crop may be attributed to the decline in its production due to negligence by the government since the

discovery of petroleum in 1960 (Rahman, 2003; Talawar *et al*., 2003).

The return on investment in groundnut cake and groundnut production was estimated as 40%. This means for every one naira invested in production of groundnut oil and groundnut cake a profit of 40 kobo is realized. Since the prevailing interest is 20%, therefore, it is better to invest in groundnut cake and groundnut oil production than to save money in a bank.

CONCLUSION & RECOMMENDATIONS

From the socio-economic characteristics of the respondents it can be concluded that groundnuts processing is dominated by married female between the ages of 31 – 40 years and mostly had informal education. From the gross margin and return on investment analysis it can be concluded that groundnuts processing is a profitable business in the study area. However, the high cost of groundnuts which is the major input causes low profit to processors. Based on the findings of the study, it is recommended that large scale groundnuts production should be encouraged by all tiers of government through provision of farm inputs at subsidized rate. Micro- credit through the ministry of poverty alleviation should be made available to the groundnuts processors with no interest.

REFERENCES

Anon (1993). *Peanut oil solvents rated. Food Eng.* **34(8):** 91 – 92.

Asiedu J.J. (1989). *Processing tropical crops. A technological approach,* 1st Edition Published by Macmillan Education Ltd.

Duke J.A. (1981). *Handbook of Legume of world economic importance.* New York Plenum press.

Food and Agricultural Organization FAO (1986). Monthly Bulletin Statistics. Vol. 9 July/Aug. Rome.

National Population Commission, NPC (2006). *Nigerian population census*

Olukosi J.O. and Erhabor, O.J. (1988). *Introduction to Farm Management Economics. Principles and Applications.* Agitab Publishers Ltd Zaria, Nigeria. pp 102 – 207.

Rahman, S. (2003). *Profit Efficiency among Bangladeshi Groundnut Farmers.* Proceeding of 25th Conference of International Association of Agricultural Economics (IAAE).

Talawar, S., Robert, E.R. and Virginia, N. (2003). *World Geography of Groundnuts Distribution Production, Uses and Trade.* ;www.lanra.uga.edu/ peanut/ publiacation/wgs.cfm.

Upland Development Programme in Southern Mindanao (UDP, 2001). *A summary of report on the marketing efficiency on key commodities in southern Mindanao. Marketing series* No109 pp. 1-4.

Woodroof, J.G. (1973). *Peanut Production, Processing and Products.* AVI publishing Company, Connecticut, USA