

An economic analysis of groundnut (*Arachis hypogea*) production in Hong Local Government Area of Adamawa State, Nigeria

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Abstract. The study was to analyze the economics of groundnut production in Hong Local Government Area of Adamawa state, Nigeria. Data were collected from 100 respondents using simple random sampling technique. However, both descriptive (frequency, percentage and mean) and inferential statistics was used for analyzing the data generated from the study. Gross margin analysis was used to estimate cost and returns from groundnut production for the study. The findings revealed that male farmers dominated groundnuts farming in the study area which constituted 57% of the respondents and the study further revealed that they had acquired one form of formal education or the other. The result also shows that Groundnut production was profitable in the study area as demonstrated by the results which gave total revenue (TR), Gross margin (GM) and Net farm income (NFI) per hectare as ₦90, 843.75, ₦31, 363.75 and ₦29, 003.75 respectively. The study therefore recommends that for profit maximization, farmers should procure their inputs requirement from a competitive market and should make use of the available organic manure to minimize cost of production where available. Government and private sector should strengthening their partnership and finance researches that will lead to excellent and effective processing and storage of the product as well as organizing outgrowers to same as source of certified seeds for multiplication and dissemination to farmers.

Keyword: Economic, Analysis, Groundnut, Production, Adamawa State, Nigeria.

INTRODUCTION

A major economic problem in Nigeria is the provision of food. This is as a result of population growth, poverty and predominant use of the traditional bush fallow system with shortened periods etc, is leading to declining agricultural production, Adinya, (2001). This method of production, usually well adapted to the local environment, involved risks but ensured food for the family in all but exceptional years, Adinya *et al*, (2010). By far, the most difficult problem is how to provide a good livelihood for the rural people through increased productivity (Kuye *et al*, 2004). United Nations Development Program (UNDP)

(1999) revealed that the development of agriculture in Nigeria is not meeting the demand of its teeming-population, despite the country's endowment with abundant and diversified range of natural, human and capital resources and oil revenue, has remained one of the poorest countries in Africa. The transformation of agriculture from low productive traditional inputs to high productivity modern inputs is a major problem facing agricultural development in Sub-Saharan African countries including Nigeria, Ibrahim *et al*, (2006).

Nigerian Government therefore, in trying to meet up

with the teeming demand and ensure food security in the country have developed several policies, projects and programmes to ensure increase food productivity to meet the demand of it increasing population. These programmes include River Basin Development Authority, Land Use Decree, World Bank Assisted Agricultural Development Programme, National Fadama Development Project, Root and Tuber Expansion Programme and the Special Programme on Food Security, Panwal *et al*, (2006). However, none of these programmes has been able to adequately solve the food problems. Since the desire objectives have not been achieved and productivity of food crops has remained low. The low output realized by smallholder farmers is an indication that resources needed in the production of crops are not at optimal levels, (Nweze, 2002; Panwal *et al*, 2006; Adinya *et al*, 2008). This study therefore, would analysis the economic production of groundnut in Hong Local Government Area of Adamawa State, Nigeria.

Groundnut is the 13th most important food crop of the world. It is the world's 4th most important source of edible oil and 3rd most important source of vegetable protein Taru, *et al*, (2010). It is one of the most popular commercial crop in Nigeria which accounted for 70 percent of the total Nigeria export earning between 1956 and 1967 but declined between 1955 and mid 1980s due to combine effect of drought and disease Misari, *et al*, (1980). According to Taru, *et al*, (2008), major groundnut zones in Nigeria are the Sudan and northern Guinea Savanna where the soil and agro climatological conditions are favorable. It requires 500 to 1600 mm of rainfall, which may last for 70 to 200 days of rainy season in the Sudan savanna.

Groundnut (*Arachis hypogaea* L.) belongs to the genus *Arachis* in family *leguminosae* (*Fabaceae*) which has replaced the traditional bambara groundnut (*Vigna Subterranean*) in many areas of the country (Ashley, 1993; Dauna 2012). Groundnut seeds contain high quality edible oil (50%), easily digestible protein (25%) and carbohydrates (20%). It is grown on 26.4 million ha worldwide with a total production of 36.1 million metric tons, and an average productivity of 1.4 metric tons/ha (FAO 2009). Groundnut is grown in nearly 100 countries with China, India, Nigeria, U.S.A, Indonesia and Sudan as major producers. Developing countries accounted for 96 percent of the global groundnut area and 92 percent of the global production. Asia accounts for 58 percent of the global groundnut area and 67 percent of the global ground production with annual growth rate of 1.28 percent for area, 2.00 percent for production and 0.71 percent for productivity.

Globally, 50 percent of groundnut produce is used for oil extraction, 37% for confectionary use and 12% for seed purposes. Hence, Nigeria produces 41% of the total groundnut production in West Africa (Abalu and Etuk, 1986; Hamidu *et al*, 2006). It is an important component of Nigerian diet and about 5 percent of the estimated 58.9 g of crude protein available per head per day, is

contributed by groundnut (Abulu, 1978). According to Echekwu and Emeka, 2005, groundnut contains 25% protein and more than 40% oil. its flour is used as an ingredient in soup, confectionaries and pudding. Groundnut cake is often deep fried or dried to make a snack called *Kuli-Kuli*. Hamidu *et al* (2006). Similarly, Groundnut haulms also provide excellent hay for livestock (Taru *et al*, 2010). Okolo and Utoh (1999) estimated that Nigeria's cultivated area under groundnut cultivation is about 1.0 to 2.5 million hectares annually and yield in the range of 500 -300kg/ha while the seed yield in Northern Nigeria is about 3000kg/ha.

Despite its importance; there is still the insufficiency of the crop due to some problem, that hinder its productivity This problem is attributed to rapid urbanization, low per capital income, poor storage, inadequate transportation and marketing facilities as well as non-challent attitude to agriculture among others (FMA, (1984) Gulati 2000). Eyo, (2004) further noted that, small operators in the Nigerian agricultural sector face pure competition both at production and marketing stages. However, this study is design to sought answers to the following questions:

- i) What are the socio-economic characteristics of groundnut farmers in the study area?
- ii) What are the cost and returns associated with groundnut production in the study area?

HYPOTHESIS

Ho: The socioeconomic characteristics of groundnut farmers do not affect groundnut production in the study area.

Ho: There is no relationship between cost of production and the output of groundnut farmers in the study area

METHODOLOGY

Study Area

The research study was conducted in Hong Local Government Area of Adamawa state, it lies between latitude 7-11°N and latitude 11-14°E. It has an estimated population of 169,183 which are predominantly groundnut farmers, NPC (2006).

Source of Data and Sampling Procedures

Simple random sampling technique was used in the selection of respondents for the study. A total of 100 respondents were drawn from eight (8) village areas existing in the Local Government. From these village areas, a total of 68 communities considered for the study. These village areas include; Gaya, Garaha, Shangu, and

Hong, Kala`a, Bangshika, Pella and Fachi. Based on the communities selected, questionnaires were structured, developed and administered for the collection of the primary data that was used for the study.

Conceptual and Analytical Framework

Gross margin analysis was used to estimate cost and returns from groundnut production.

The model is expressed thus as follows; Fabusoro and Agbonlahor (2002); Umoh, (2006); Gerei et al., (2013).

$$\text{Gross margin GM} = \text{GI} - \text{TVC} \quad (1)$$

Where:

GM = Gross margin

GI = Gross income

TVC = Total variable cost

$$\text{NFI} = \text{GM} - \text{TFC} \quad (2)$$

Where:

NFI=Net farm income

TFC= Total fixed cost.

RESULTS AND DISCUSSION

Socio-Economic Characteristics of Groundnut Farmers

The results obtained from the study as depicted in Table 1 below reveals that, majority of the respondents about 57 percent numbering 57 were relatively young and fall within the age range of 30 to 40 years while about 45 percent constituting 43 falls within the age range of 41 and above. The preponderance of the young farmers in farming profession depicts the fact that, their productivity is expected to be high since they are active, energetic and can easily adopt agricultural innovations. It also indicates that farmers who are older are relatively less efficient in food crop production and vice versa. Thus, because food crop production in the study area is relatively labour intensive, especially weeding and harvesting operations, younger farmers tend to be more productive. Also, the younger farmers are likely to be more progressive and, hence more willing to adapt new practices, thus leading to higher efficiencies in food crop production.

Similarly, male farmers dominated groundnut production with 57 respondents constituting about 57 percent while the female respondents were 43 accounting for 43 percent. This reveals that, more men are likely to be engaged in groundnut than women due to its economic and commercial value hence, leaving women with other food crops for home consumption and other household activities. This is in line with the study of Kaaria et al., (2007) and World Bank, (2009) which

shows that, in Africa, when a crop is perceived as commercial, men are more likely to take over from women.

The result obtained from the study also shows that, all the respondents have acquired one form of formal education or the other which is a vital component in technology adoption in agriculture. Education has been discovered to be highly related to effectiveness of work and economic function, (Meskel, 2006). This implied that with the preponderance of educated farmers, the adoption of farming technique may not be difficult as they are more likely to learn with ease and disseminate information and or innovations.

The survey results obtained shows that, about 74 percent of the respondents accounting for about 74 respondents cultivated land of about 1 hectare and below while the about 7 percent constituting 7 respondents cultivated lands between 1 to 2 hectares. Similarly, the remaining 19 percent cultivated lands that ranges between 2.1 hectares to 5 hectares. These disparity in the size of lands cultivated as small and large indicates that, groundnut farming in the study area is mainly small scale and subsistence

The farmers have average household size of 7 persons and with mean farming experience of 11.5 years. The farming experience would to large extent affect farming decision and farming experience has positive relationship with technical efficiency, (Adewumi and Okunmadewa, (2001). This implies that, the experienced a farmer, the more efficient the farmer might be in the use of productive resources.

Average Cost and Returns of Groundnut Production

Table 2 below is the average cost and returns of groundnut production per hectare in the study area. The results revealed that the total output of groundnut produced in the study area was 956.25kg and the value of the groundnut produced was ₦90, 843.75, the profit obtained was ₦29,003.75.

The gross margin analysis for groundnut production shows that the total cost per hectare was ₦59, 480.00 which accounted for 96% of the total cost of groundnut production. The average fixed cost was ₦2, 360.00 (4%) of the total cost of production. Thus, the total cost of groundnut production per hectare was ₦61, 840.00. The total revenue (TR), Gross margin (GM) and Net farm income (NFI) per hectare were ₦90, 843.75, ₦31,363.75 and ₦29,003.75 respectively.

The result revealed that for every one naira invested, the groundnut producers make a profit of ₦0.47. Thus, groundnut production is a profitable venture in the study area and therefore attractive. However, the Profit analysis used for this study is expressed as:

$$\text{GM} = \text{TR} - \text{TVC}$$

$$\text{Profit} = \text{GM} - \text{TFC}$$

Where;

Table 1. Socio-economic characteristics of groundnut farmers.

Category	Frequency	Percentage	Mean
Age (years)			
<30-30	19	19	
31-40	38	38	38.5
41-50	29	29	
51 and above	14	14	
Total	100	100	
Gender			
Male	57	57	
Female	43	43	
Educational level			
Primary	29	29	
Secondary	53	53	
Tertiary	18	18	
Total	100	100	
Farm size			
<1	74	74	
1-2	7	7	
2.1-3	5	5	
3.1-4	3	3	1.01
4.1-5	4	4	
>5	7	7	
Total	100	100	
Farming experience			
<5	2	2	
6-10	8	8	
11-15	7	7	11.5
15-20	16	16	
21-25	14	14	
26-30	11	11	
>30	42	42	

Source: Field survey, 2012

TR = Total Revenue from production of groundnut = N90, 843.75

TVC = Total Variable = N 59,480.00

GM = Gross Margin = TR + TVC = N90, 843.75 + N 59, 480.00 = N150, 323.75

Profit= GM - TFC = N 150, 323.75 – N 2, 360.00 = N 47,963.75

Problems of Groundnut Production

Table 3 below is the problems associated with groundnut production in the study area. The result shows that the major problems affecting groundnut production in the study area were high cost of labour (N700/Manday), High

cost of ploughing (N10, 000/ha), high cost of fertilizer (N7, 000/50kg), drought, inadequate credit and storage facilities.

CONCLUSION

The study concludes that groundnut production is profitable in Hong Local Government Area of Adamawa State. Most of the farmers were male, with average household size of 7 persons and all the respondents were found to be literate having one form of formal education or the other. The result from the analysis shows that, the total cost of groundnut production per hectare was N61, 840.00. The total revenue (TR), Gross

Table 2. Average cost and returns of groundnut production per hectare.

Variables	Value (₦)
Variable cost	59,480.00
Fixed cost	2,360.00
Total cost of production	61,840.00
Returns	
Total output	956.25 kg
Price/kg	95.00
Total revenue	90,843.75
Gross margin (TR-TVC)	31,363.75
NFI (GM-TFC)	29,003.75
Return to naira invested	0.47

Source: Field survey 2012

Table 3. Problems associated with groundnut production.

Types of problem	Frequency	Percentage	Rank
High cost of labour (₦700/manday)	90	24.52	1
High cost of ploughing (₦10,000/ha)	72	19.62	2
High cost of Fertilizer (₦7000/50 kg)	62	16.84	3
Drought	36	9.81	4
High cost of herbicide (₦800/L)	50	13.62	5
Pest and disease	31	8.46	6
Inadequate credit	26	7.08	7
Total	367	100	

Source: Field survey, 2012

margin (GM) and Net farm income (NFI) per hectare were calculated to be N90, 843.75, N 31,363.75 and N 29,003.75 respectively. The major problems that were identified as a challenge affecting groundnut productivity in the study area were: pest and diseases, high cost of fertilizer, high cost of ploughing, inadequate credit facilities, high cost of herbicides, high cost of labour and drought.

The study therefore recommends that, government and the private sector should make available and affordable soft micro credits or loans to the farmers at good time for the production activities. Government and research institutions should provide improved agricultural inputs and seeds that are drought and pest resistant, short production period etc. Government should also initiate robust investment climate policies and programmes that would reduce cost of production and maximize profit. Government and private sector should strengthening their partnership and finance researches that will lead to excellent and effective processing and storage of the product as well as organizing out growers to same as source of certified seeds for multiplication and dissemination to farmers. Government should in addition identify suitable and reliable market and link the

producers with marketers, processors, distributors vis-a-viz moderating their activities.

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