



Productivity and Profitability of Groundnut Production (*Arachis hypogea* L.) in Lafia Local Government Area, Nasarawa State, Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/ARJA/2017/30705

Editor(s):

(1) Tancredo Souza, Centre for Functional Ecology, Department of Life Sciences, University of Coimbra, Portugal.

Reviewers:

(1) Elisha Kwaku Denkyirah, University of Ghana, Ghana.

(2) Ani Dorothy Patience, Federal University of Agriculture Makurdi, Benue State, Nigeria.

(3) Prosper Inyasi Massawe, Selian Agricultural Research Institute, Tanzania.

(4) Ramazan Dogan, Uludag University, Uludag, Turkey.

Complete Peer review History: <http://www.sciencedomain.org/review-history/18873>

Original Research Article

Received 26th November 2016

Accepted 27th February 2017

Published 2nd May 2017

ABSTRACT

This study assessed the economics of groundnut production in Lafia Local Government Area of Nasarawa State. Structured questionnaire was used to generate primary data for the study. Descriptive statistics, gross margin analysis, and double-log production function were employed in the analysis. Results revealed that majority of the respondents (57.5%) were relatively young and fell within the active age (25 – 45). Male respondents marginally dominated groundnut production at 51.7% and majority (78.3%) were married. Results further revealed that significant (78.3%) number of the respondents had below 10 inhabitants in their households. Educationally, 50.8% of respondents were educated. The net farm income per hectare was ₦14,355 and with a return on invested determined at 0.81 implying that for every naira invested, the farmers makes 81 kobo (₦0.81) and the cost –benefit ratio was calculated at 1.81 indicating that groundnut production is a viable and beneficial enterprise in the area. The double-log production function showed that the coefficient of multiple determinants (R^2) was 0.536 which means that 54% of the variables were accounted for by the explanatory variable included in the model, while the F-value was 6.890. It

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was observed that; labour, seed, fertilizer and farm-size were significant while herbicide was not. Major constraints faced by the farmers were inadequate capital, high cost of labour, transportation, fertilizer, problem of pest and disease, poor storage facilities. Despite these constraints, the farmers made profit. Therefore, groundnut production could be one of the poverty alleviating enterprise, if well-articulated. It is recommended that: Storage facilities should be provided so that surplus groundnut can be stored to avoid spoilage, improve varieties of groundnut should be developed and made available to the farmers so that their yield can increase, and Farmers should form themselves into social groups so that they can create an organized market for their produce.

Keywords: Productivity; profitability; groundnut; production; Nigeria.

1. INTRODUCTION

Groundnuts (*Arachis hypogea* L) originated from Latin America. It was later introduced into African continent from Brazil by the Portuguese in the 16th century [1]. It is a member of the genus *Arachis* in the family *leguminosae fabaceae* which has replaced the traditional Bambara groundnut (*Vigna subterranean*) in many areas of the country [2]. Groundnut is the 13th most important cash crop and 4th oil seed crop of the world. Groundnut seeds (kernels) contain 40-50% fat, 20-50% protein and 10-20% carbohydrates [3]. Groundnut seeds are nutritional source of vitamin E, niacin, folic acid, calcium, phosphorus, magnesium, zinc, iron, riboflavin, thiamine and potassium [3]. As a leguminous crop, it has high nutritional potentials and is an important cash crop for peasant farmers in poor tropical countries including Nigeria, China, India, USA, and Myanmar who are leading groundnut producing countries in the world [4].

The total world groundnut output in 2008 was estimated at 34.8 million metric tonnes out of which, Nigeria accounted for about 3.8 million metric tonnes [5]. The crop is also being called different names in many local languages, namely, peanut earthnut, goober peas, monkey nut, pygmy nut and pig nut. Similarly, despite its names and appearances, it is not considered as nut but rather a legume with high oil and protein content. The crop is grown on 26.4 million hectares worldwide with a total output of 37.1 million metric tonnes and an average yield of 1.4 metric tonnes/ha. [6] reported that developing countries constitutes 97% of the global area and 94% of the global production of groundnut. It further reported that the production of the crop is concentrated in Asia and Africa, where the crop is mostly grown by small-scale farmers under rain fed environment with scarce inputs. Nigeria is considered the third largest producer of groundnut in the world after China and India with

an output of 16,114,231 6,933,000 and 2,962,760 million metric tonnes respectively in 2011.

Groundnut production, processing, marketing and trade provide a major source of employment, income and generation of the country's foreign exchange before Nigeria independence (before 1960), The groundnut sub-sector provided the key opportunity for the agro-industrial development of Nigeria and contributed substantially to the commercialization, monetization and integration of the natural resources of the rural sector. Though, in spite of the availability and productive land potentials and other related material and human resources, output per hectare from groundnut production has been on the decline over the years. Studies have shown that, there is a shortfall of over 90% of groundnut requirement for domestic consumption and by companies involved in processing and marketing [7]. In order to reverse this scenario and for Nigeria to regain her feet, government has embarked on the diversification of the economy with agriculture featuring most, all with a view to improving productivity and efficiency of resource utilization among groundnut farmers through various economic studies relating to their productivity, profitability, determinants, socioeconomic variables among others.

In some cases, groundnut plant is being referred to as "multipurpose crop" and that makes it an excellent cash crop for both domestic markets foreign trade to generate foreign exchange for several developing and developed countries [8]. In his submission, [9] revealed that the agro-ecological zone of groundnut are the Sahel (12° to 13°N), Sudan (10° to 13°N), Northern half of the Northern Guinea Savannah (6° to 11°N) and most part of the Southern Guinea Savannah (6° to 8°N). The major zones of groundnuts are the Sudan and Northern Guinea Savannah where the soils and agro-climatic conditions are

generally favourable. The crop is essentially a tropical plant which requires a long and warm growing season. The most favourable climate for groundnut production is a well-distributed rainfall of at least 500mm, with adequate sunshine and relatively warm temperature. It requires an optimum temperature of between 25° and 30°C for its optimum growth and development [10]. And does well on sandy – loam soil, with pH range of 5-7 and soil should be rich in calcium and phosphorus which are essential for pod formation [11]. It has the bunch, erect and creeping type. The popular varieties in Nigeria are Kano local, Kano 50, Castle cary, Samnut 21, Samnut 22, and Samnut 23 (rosette resistant varieties). Annual output of unshelled nuts in 1992 was estimated at 22.6 million metric tonnes and Nigeria ranked third among the major producers [12].

Groundnut is grown on 26.4 million hectares of land worldwide, with a total production of 37.1 million metric tons and an average yield of 1.4 metric tons /hectare. Developing countries constitute 97% of the global area and 94% of the global production of this crop [3]. In Nigeria, the crop is presently grown throughout the country with the exception of the riverine and swampy areas. Groundnut occupies between 1.5 and 2 million hectares of the country's land [13]. In Nigeria, the leading producing states include Adamawa, Bauchi, Benue, Borno, Gombe, Jigawa, Kaduna, Kano, Katsina, Kebbi, Nasarawa, Niger, Plateau, Sokoto, Taraba, Yobe, and Zamfara States [14].

In the Northern part of Nigeria, apart from being consumed whole, edible groundnuts are processed into or included as an ingredient in a wide range of other products which includes; groundnut paste which is fried to obtain groundnut oil (*mang gyada*), groundnut cake (*kulikuli*), salted groundnut (*gyada maigishiri*), a gruel or porridge made with millet and groundnut (*kunun gyada*), groundnut candy (*kantun gyada*) and groundnut soup (*miyar gyada*) [15]. [16] stated that groundnut is market in different forms. It can be sold as fresh, dry pods, dry grains and other kinds of products from processed groundnuts such as groundnut cake.

Groundnut is a cash crop providing income and livelihoods to the farmers. It also contributes to nutrition of farm families through consumption of energy and protein. Rich groundnut kernel provides nutritious fodder (haulms) to livestock

[17]. Groundnut kernels are consumed directly as raw, roasted or boiled. Oil extracted from the kernels is used as culinary oil. The cake obtained after pressing out the oil is used in feeding livestock. Also the leaves and straws are used in feeding livestock in their green and dry forms. The uses of groundnut plant make it an excellent cash crop for domestic markets as well as foreign trade in several developing and developed countries [3]. At a certain time, Groundnut export has been the major source of the Nigerian foreign exchange and contributed significantly to the development of the nation's GDP.

1.1 Problem Statement

Groundnut is one of the cash crops produced in Nigeria. At a certain period between 1960 and 1964, it contributed significantly to the country's Gross Domestic Product (GDP) (56 percent) and thereafter declined to 47 percent between 1965 and 1969 and further to about 35 percent in year 2003-2004. The overall agricultural production situation deteriorated thereby creating wide gap between demand and supply of food and makes the industries to import agricultural raw materials. Government on its part shifted its attention from agriculture to the oil industry, resulting to decline in the production efficiency in Agricultural sector. The performance of Agricultural sector has remained below expectations; there is a wide gap between demand and supply of food in the country. In spite of the abundant land and other resources in Nigeria, yield per hectare of groundnut has been on the decline over the years. Therefore output of groundnut has been declining resulting in the disappearance of the popular groundnut pyramids in the 1960s. Shortages of groundnut are experienced for both domestic and foreign markets farmers have lost stability of income as a result of poor output of groundnut. There is a shortfall of over 90 percent of groundnut requirement by companies involved in processing. Therefore, there is a need to reverse the foregoing scenario with a view to improving the productivity and efficiency of resources used among groundnut producers. It is on this strength, the research was therefore designed to provide answers to the following questions.

1. What are the socio-economic characteristics of groundnut farmers in the area?
2. What are the costs and returns in groundnut production in the area?

3. What are the influences of input costs on the output (yield)?
4. What are the constraints to groundnut production in the area?

1.2 Objectives of the Study

The specific objectives are to: Determine the socio-economic characteristics of groundnut farmers, determine the costs and returns in groundnut production in the area, examine the influence of production input cost on output, and determine the constraint to groundnut production in the area.

1.3 Justification for the Study

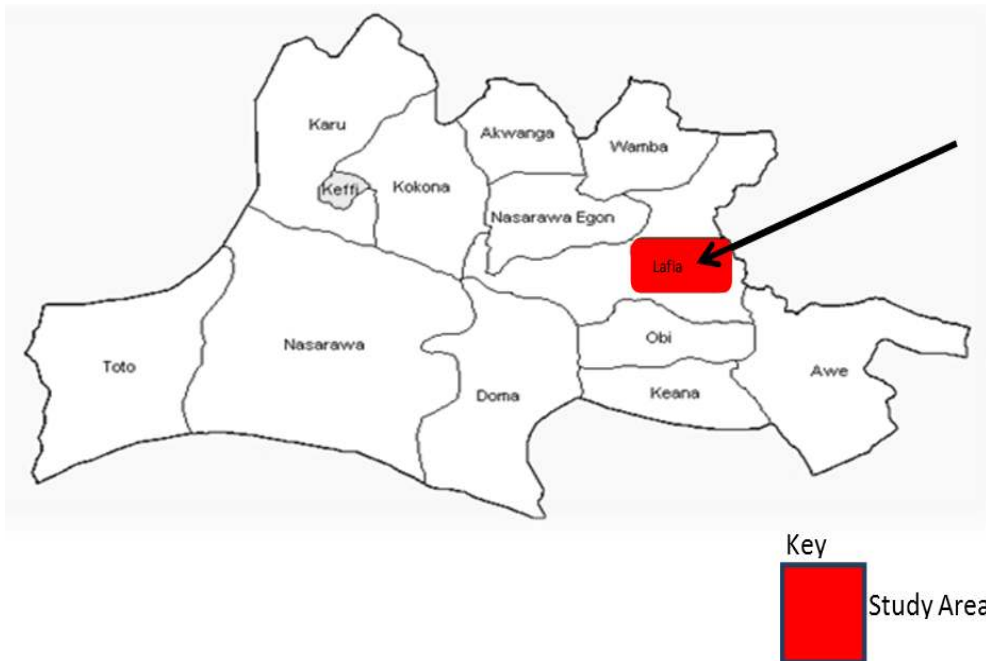
The study is designed to find out the input-output-relationship in groundnut production. It will also bring out the inputs that have significant influence in groundnut production. Policies can be designed to make the inputs available to the farmers at affordable prices. The information provided by the analysis will as well be useful to the farmers in their resource allocations. The outcome will also be useful to farmers who have never engaged in groundnut production as it will show case to such farmers, extend of profitability for groundnut production and encourage them

to get engage in the enterprise for greater prosperity.

2. METHODOLOGY

2.1 The Study Area

The study was conducted in Lafia Local Government Area (LGA) of Nasarawa state, Nigeria. The LGA is located between latitude 7° 9' N and longitude 7° 9' E of the equator and occupies an area of about 2733km² [18]. It is bounded to the North by Nasarawa-Eggon LGA, to the South by Obi LGA to the West by Doma LGA and to the East by Quan'Pan LGA of Plateau State. The population of the area is about 330,712 inhabitants [19]. The area experiences rainfall from late April to October with dry season commencing from November to April. It has an average annual rainfall of 1,288 mm and annual temperature ranging from 22.7°C and 36.8°C. The soil is loamy in nature and favorable for crop production. The major ethnic groups in the area include Kanuri, Hausa/Fulani, Alago, Migili, Akye, Eggon, Gwandara and Rindre. The main crops grown in the study area include Rice, Cowpea, Groundnut, Yam, Maize, Cocoyam, Beniseed, Sweet potatoes, Millet, and Cassava. The tree crops are orange and cashew.



Map of Nasarawa State showing the study area [18]

2.2 Sample Size and Sampling Technique

This study employed multi-stage sampling techniques in the selection of respondents. In the first stage, six wards out of the ten wards in the local government were purposively selected. In the second stage, two villages each were chosen from each of the selected six wards based on their prominence in groundnut production and in proportion to the size of the wards selected as first sampling frame. In the final stage, a list consisting of the names of groundnut farmers in each of the twelve villages was obtained and numbered. This formed the second sampling frame. Thereafter and at random, farmers were chosen from each of the twelve villages giving a total of 120 farmers which formed the sample size for the study in a ratio proportional to the size of their population.

2.3 Data Collection

Primary data were used for the study. The data were collected with the use of structured questionnaire. Information that was collected was on the farmers' socio-economic characteristics such as age, marital status, education, farm size and house hold size. Information was also collected on farm inputs such as labour, land, capital, seeds, and fertilizers and costs of inputs and output.

2.4 Methods of Data Analysis

Both descriptive and inferential statistics were used to analyze the data. Descriptive statistics such as mean, frequency count and percentages were used to achieve objective (i) and (iv). Double-log Production function was used to achieve objective (iii). Gross margin was adopted to achieve objective (ii). Straight line depreciation method was used for the purpose of this study and a salvage value of zero (0) was assumed. Also, the average lifespan of land cannot be estimated nor measured, only its productivity in terms of nutrient lost can depreciate while for the farm implements and equipment, it was estimated at three years

• Model Specification

The general form of the production function are given below

$$Y = f(X_1, X_2, \dots, X_n, U).$$

Double- log equation:

$$\log Y = \log a + \beta_1 \log X_1 + \beta_2 \log X_2 + \beta_3 \log X_3 + \beta_4 \log X_4 + \beta_5 \log X_5 + \log e$$

Where,

- Y= Output of groundnut (N)
- X_1 = Seeds (N/ha)
- X_2 = Farm size (N/ha)
- X_3 = Labour (N/ha)
- X_4 = Herbicides (N/ha)
- X_5 = Fertilizer (N/ha)
- U= Error term

2.5 Gross Margin Analysis

Objective (ii) was achieved with the use of gross margin. The model is presented as below;

$$\begin{aligned} GM &= TR - TVC \\ NFI &= TR - TC, \\ TC &= TVC + TFC \\ ROI &= NFI/TC \\ BCR &= TR/TC \end{aligned}$$

Where:

- GM = Gross margin
- NFI = Net farm income
- TC = Total cost
- ROI = Return on investment
- BCR = Benefit cost ratio
- TVC= Total variable cost
- TR= Total revenue

3. RESULTS AND DISCUSSION

Table 1 reveals that majority of the respondents (57.5%) were relatively young and fell within the age range of 25-45 years, about 36.7% of them were within the age range of 46-65 years, and only 5.8% of the responded were above 66 years.

Large proportions of the farmers were young and were supposed to be physically able and mentally sound to learn new technologies than older farmers and their productivity is expected to be high since they are active, energetic and can easily adopt new agricultural innovations. Farmers who are older are relatively less efficient in groundnut production. This is because groundnut production is labour intensive especially, with respect to land cultivation, weeding and harvesting operations. Younger farmers tend to be more productive.

This shows that male farmers dominated groundnut production with 62 respondents (51.7%) while the female respondents were 58 and accounted 48.3%. This reveals that, more men engaged in groundnut production than

women, this is as a result of its economic and commercial value for which the men are looking for fast and quick returns.

Table 1. Socio economic characteristics of respondents

Categories	Frequency	Percentage
Age		
25-35	26	21.7
36-45	43	35.8
46-55	32	26.7
56-65	7	10.0
66 above	7	5.8
Total	120	100
Gender		
Male	62	51.7
Female	58	48.5
Total	120	100
Marital status		
Single	10	8.3
Married	94	78.3
Widow	10	8.3
Widower	4	3.3
Devoiced	2	1.7
Total	120	100
Household size		
1-10	94	78.3
11-20	24	20.0
21 above	2	1.7
Total	120	100
Educational status		
No formal education	17	14.2
Primary education	20	16.7
Secondary education	22	18.3
Tertiary education	61	50.8
Total	120	100
Farm experience		
1-20	33	27.5
21-40	58	48.3
41-60	31	25.8
61 above	3	2.5
Total	120	100
Farm size		
0.5-2.5	86	71.7
2.5-4.5	27	22.5
4.6-5.5	7	5.8
Total	120	100

Source: Field survey, 2016

It is observed from Table 1 that 78.3% of the respondents were married, and so more married couples were engaged in groundnut production than others. This may be attributed to the fact most of the small scale farmers tends to marry early. Also, it is generally seen that in African

setting, especially the sub-sahara and Nigeria in particular, men and women compete for livelihood and feels that the higher the number of household members, the more the availability of family labour and invariably the higher the volume of crops being produced. This finding is in line with [20] who reported that greater percentage of married respondents also implies that the farmers would be more focused in their farming activities, since they are aware that they have responsibility and obligation to execute as compared to the unmarried individuals.

Table 1 shows that 78.3% of the respondents had below 10 persons in their households while the remaining 21.7% had over 10 persons. Large household size ensures readily available family labour with reduced cost required for groundnut production [21].

The distribution of the respondents according to their educational attainment shows that 14.2% of them had no formal education. About 16.7% had primary school education while 50.8% of the rest had secondary school or more level of education? Education is highly related to effectiveness of work and economic function, [22]. This implied that with the level of educated farmers, the adoption of modern farming techniques may not be difficult as they are more likely to learn with ease.

From Table 1, 27.3% of the respondent had farming experience of below 20 years with 44.2% had experience of 21-40years while the rest (25.5%) had experience of over 41 years. Farming experience affects farming decision and could have positive relationship with technical efficiency [23]. This implies that the more experienced a farmer, the more efficient the farmer might be in the use of productive resources. Experience in farming is important because as the farmer advances in age, he becomes more aware of his mistakes and accomplishments. Though his productivity may likely decline over time.

Table 1; shows that 71.7% of groundnut famers had farm size of less than 2.5ha; with 22.5% of the farmers having land holdings of 2.6-4.5ha, while the remaining 5.8% had farm size of above 4.6ha. It is generally believed that small scale farmers as those farmers with landing holdings of less than 5.99ha. This result clearly indicated that majority of the groundnut farmers in the study area operated as small scale entrepreneurs.

3.1 Gross Margin Analysis

Table 2 represents cost and returns on production of groundnut in the study area and was determined on a per hectare basis. The costs (variable and fixed) include all the expenses encountered in the groundnut production process. These include cost of variable inputs namely, labour, seed, herbicides, fertilizer, transportation, while the fixed cost includes, cutlasses, hoes, tractor services and wheelbarrow. On the other hand, revenue was computed by considering the money realized by selling the groundnut. Revenue was computed by considering the money realized by selling the groundnut. The total variable cost (TVC/ha) was estimated at ₦16,970 which represented the total farming cost, while the depreciated cost on fixed items (TFC/ha) was ₦732, the total revenue per hectare was computed at ₦32,057, though, farmers yield were observed to vary from one farmer to another and from one location to the other on the average. The return on investment (ROI) which is equally the net farm income per Naira invested was determined to be ₦14,355. This implies that groundnut production is profitable in the study area. The result agreed with the finding of [24] who carried out a research on the production analysis of groundnut production in Adamawa State. It is also in line with what was obtained by [25] in a study of production analysis of groundnut in Ezeagu Local Government Area of Enugu State, Nigeria. He

reported that groundnut production is a profitable investment with a gross margin of ₦8,466/ha and a marginal profit of ₦6,067/ha. Even though, the respondents had profit, but overall, it is seen that the returns is low which might possibly be due to high cost of production. For the farmers to make meaningful gain in the business, examination of such cost of items like labour, seeds etc might help in revealing areas of possible wastage that need to be avoided in future. The share of labor in the total variable cost is estimated at 55.11% and followed by the cost of seeds which as well accounted for about 27.34% of the total operating cost. Labour and seed accounted for about 82.45% of the total operating expenses. This indicates that much need to be done to reduce these costs through either innovation for a labour saving devices, effective application of agro-chemicals and encouraging farmers to multiply and use part of their seeds obtained from their farms for subsequent farming seasons.

Economically, net farm income might not be a true measure of enterprise because it may not be a good reflection of the amount of inputs involved in the farming business. In order to have a clearer picture of the performance of any enterprise, it is therefore necessary to examine other measures of financial analysis such as, returns to the various factors of production inputs and other financial ratios namely, gross, operating and fixed ratios which are also computed in Table 2.

Table 2. Cost and returns analysis in groundnut production per hectare

Variable	Variable cost ₦	% of variable cost (M)
a). Total revenue	32,057	
b). Variable cost		
i. Labour	9,353	55.11
ii. Seed	4,640	27.34
iii. Fertilizer	852	5.02
iv. Herbicide	1,431	8.43
v. Transportation	694	4.09
Total variable cost	16,970	
c). Fixed cost (depreciated cost of fixed items)	732	
d). Total costs (TC) = TVC +FC	17,702	
GM/ha = TR - TVC (32057-16970)	15,087	
Net farm income: GM-FC (15087-732)	14,355	
Net farm income per Naira invested (NFI/TC)	0.811	
Benefit costs ratio (BCR) = TR/TC	1.81	
Gross ratio = TFE/GI (TVC + FC/GI)	0.55	
Operating cost ratio = TOC/GI (16,970/32,057)	0.53	
Fixed ratio = TFC/GI (732/32057)	0.023	

Source: Field survey, 2016

Gross ratio generally helps in measuring the overall financial success or otherwise of a farm. The gross ratio (GR) from the table is obtained by dividing the total farm expenses (TFE) by the gross income (GI) and this was computed to be 0.55. The ratio reveals that the total farm costs was about 55% of the gross income. Therefore, as a rule, a less than one ratio is always desirable for any investment. This means that the lower the ratio, the higher the return per Naira invested. While a higher but less than one ratio is tolerable for large farms because of the heavy involvement of capital. On the other hand, a greater than one ratio is considered not healthy for any investment, this might possibly indicate over utilization of certain production resource. If such a situation occurs, the respondents should be able to look out for ways of reducing cost and increasing gross income.

Table 2 also captured the operating cost ratio (OCR) for the respondents in the study area and it was calculated by dividing the total operating cost (TOC) by the gross income (GI) and from the analysis it was found to be 0.53 (53%). This established the proportion of the gross income that goes to service the operating expense of the respondents and this is directly related to the farm variable input usage. As a rule, an operating ratio of one means that the gross income just defray the expenses incurred on the variable inputs used on the farm. In this case, the respondents need to re-examine their operating inputs because, their farming activities could survive only in the short run with a possibility of getting out of business if necessary considerations and adjustments are not taken to remedy the utilization of the variable resources either by reducing the costs or increasing gross income of the respondent's farms.

The fixed ratio of the respondents is an indication of the percentage of the gross income accruing to the fixed resources which is considered to be

an *ex ante* (before production period and not after) decision tool. From the analysis of the results as indicated in Table 2, the fixed ratio of the respondents was obtained by dividing the total fixed costs (TFC) by the gross income (GI) and this was observed to be 0.023. This ratio shows that the fixed expenses of the respondents were 2.3% of the gross income. By rule, if the fixed ratio is nearer to one, it indicates that some of the fixed resources are either left idle or under-utilized.

3.2 Regression Analysis

The result of the production function analysis shows that the double log regression model was chosen as the lead equation because it has the highest coefficient of multiple determination of 0.536 and F-ratio of 6.890. Labour, farm size, fertilizer, and seed had positive coefficient indicating direct relationship with the productivity. And fertilizer was positive but not directly influenced the output. Farm size has coefficient of 0.133 which was significant at 5%, this implies that increase in farm size will increase the output of the respondent. The analysis also shows that the coefficient of seed 0.368 was significant at 10% which has positive relationship with the output. The coefficient of labour is 0.130 which was significant at 1% and contributed positively to the output of groundnut production. And herbicides were significant but did not influence the output of groundnut in the area.

3.3 Problems Associated with Groundnut Production in the Study Area

This research revealed that, groundnut production has been associated with so many constraints namely: poor marketing outlet; poor storage facilities and inadequate capital. The greatest problems facing groundnut farmers was lack of capital. With the high cost of labour associated to the cultivation of groundnut, money

Table 3. The influence of production input cost on the output

Input	Coefficient	Standard error	t-value
Constant	1.847	.779	2.372**
Seed	.368	.099	3.717***
Labour	.130	.114	1.139*
Herbicides	.001	.011	.071
Fertilizer	.015	.009	1.575*
Farm size	.133	.059	2.246**
R ² = 0.536			
Adj R ² = 0.458			
F-value = 6.890			

Source: Field survey, 2016 *** Significant at 1%, ** significant at 5%, * Significant at 10%

to pay for labour becomes very essential. [26] reported that small scale farmers do not have adequate capital to expand their production level to take advantage of profitable packages of technologies to boost productivity. The study implied that the groundnut producers could have increased their capacity if technology information packages and capital in short term is made available to them.

Also high cost of agro-chemicals such as herbicides/pesticides requires high capital and most farmers could hardly afford the needed capital to procure them in order to have good production of groundnut. There is also a problem of pest and disease among the constraint's this could be attributed to the fact that most farmers do not keep to the agronomic practices of growing groundnut. For example they did not consider the importance of date of planting or delayed in planting which could result in poor yield of groundnut production in the study area.

Marketing of groundnut was also identified as a problem because most farmers sell their products immediately after the harvesting period which lead to excess supply and hence reduced prices. Poor storage facilities complicate these problems because farmers do not have access to effective storage facilities and are left with no option and choice than to market their produce immediately after harvest and this lead to low prices and colossal loss of revenue than when preserve and sold at a later time.

Table 4. Constraints faced by groundnut farmers

Variables	Frequency	Rank
Inadequate capital	106	1
High cost of labour	80	2
Poor storage facilities	72	3
Problem of pest and diseases	70	4
Poor marketing outlet	69	5
High cost of herbicides	44	7
High cost of fertilizer	36	8
Government policy	23	9
Total	500*	

Source: Field survey, 2016 *Multiple responses

4. CONCLUSION

Major findings revealed that majority of the farmers were young, married and had formal education. They had many years of farming

experience even though most of them operated on small scale holdings. Farm size, labour, seed and fertilizer were significant determinants of groundnut production in the area, while farm size, labour, seed and fertilizer had positive coefficients, herbicides was positive but do not influenced the output of groundnut. Revenue generated per hectare was estimated at ₦32,057 and total variable cost determined at ₦16,970 with gross margin estimated at ₦14,355. The return on Naira invested (ROI) was as well estimated at ₦0.81. Major constraints to groundnut production were inadequate capital, poor storage facilities, high costs of; labour, herbicides, fertilizer, and weak government policy. Despite these challenges, the farmers made appreciable profit. Therefore, groundnut production could help in the government efforts at alleviating poverty.

5. RECOMMENDATIONS

Based on the outcomes of the study, the following recommendations are made to improve groundnut production in the area.

- i. Commercial banks and other financial institutions should be encouraged to make credit facilities available and affordable to the farmers.
- ii. Agricultural machineries/equipment services should be provided for the farmers to reduce labour input in view of its high cost in groundnut production.
- iii. Simple and improved storage facilities should be provided so that surplus of groundnut can be stored to avoid spoilage
- iv. Improved varieties of groundnut should be developed and made available to the farmers so that their yield can increase.
- v. Farmers should form themselves into cooperative societies so that they can pool their resources together and form a formidable force for cost effective inputs acquisition and in the effective marketing of their groundnut.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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