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Analysis of Costs and Return of Groundnut Production (*Arachis hypogaea* L.) on Household Poverty Alleviation in Southern Part of Taraba State, Nigeria

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Abstract

This study analyzed the costs and returns associated with groundnut production in the southern part of Taraba State, Nigeria, with the aim of assessing its profitability and identifying production constraints. Data were collected from 177 groundnut farmers using structured questionnaires. Analytical methods included descriptive statistics and gross margin analysis. The results revealed that 66.7% of respondents were male, with a mean age of 41 years, and 58.8% possessed tertiary education. Most farmers (66.1%) had over 10 years of farming experience, and 79.7% cultivated less than 3 hectares of land. Groundnut production was found to be profitable, generating an average gross revenue of ₦248,786.00 and a gross margin of ₦159,865.62 per hectare. The major variable costs were attributed to seeds (29%), transportation (24%), herbicides (19%), labor (14%), fertilizer (10%), and miscellaneous expenses (5%). Key production challenges identified included high interest rates (85.9%), climate change (75.1%), and rising production costs (67.8%). The study concludes that groundnut farming in the region is economically viable. It recommends that the government subsidize critical

inputs such as seeds and herbicides, and invest in improved storage infrastructure to reduce post-harvest losses and enhance profitability for smallholder farmers.

Keywords: Groundnut Production; Cost and Return Analysis; Profitability; Smallholder Farmers; Taraba State; Agricultural Input Subsidy

INTRODUCTION

Agriculture plays a vital role in the economies of many developing nations, particularly in sub-Saharan Africa, where it contributes significantly to GDP, employment, and food security (Food and Agriculture Organization, 2022). In Nigeria, agriculture accounts for about 24% of Gross Domestic Product and serves as the primary source of livelihood for the majority of the rural population (World Bank, 2021). Groundnut (*Arachis hypogea L.*) is one of the key crops in this sector because of its nutritional, oil, and economic potential. It is grown in many parts of the country, including Taraba State (Akinmoladun *et al* (2020); Taphee *et al* (2015). Groundnut farming supports livelihoods through income generation, employment, and by-product uses (Sharma & Dev,(2018)

Poverty remains a significant challenge in rural Nigeria. Many households live below the poverty line due to limited access to productive resources such as land, credit, extension services, and markets, alongside environmental vulnerabilities (Ukwuaba & Nwachukwu, (2021). Southern Taraba State exhibits high poverty levels, attributed to low agricultural productivity, infrastructural deficits, and restricted market and credit access (Folarin *et al.* (2020). Understanding how groundnut production contributes to reducing poverty in this area is therefore important. Studies in Northern Taraba, for example, showed that groundnut production has yielded positive profitability and contributed to improved household income (Taphee *et al.,* 2015). Other studies Audu, *et al* (2017) highlight that farm size; input use, education, and extension access are among the socio-economic factors affecting output and poverty outcomes.

This study therefore examines three specific objectives: describe the socio-economic characteristics of groundnut farmers in Southern Taraba; estimate the cost and returns of groundnut production; and identify the major constraints associated with groundnut production.

MATERIAL AND METHODS

Study Area

The study was conducted in Southern Taraba State, Nigeria. The region consists of five (5) Local Government Areas which are: Wukari, Takum, Ussa, Ibi and Donga. It lies between latitudes $8^{0}30^{0}$N and $9^{0}30^{0}$E of the equator and between longitudes $8^{0}30^{0}$N and $10^{0}30^{0}$E of the Greenwich Meridian. The area covers an area of 14,099Km^{2} land mass with a population of about 687,077 people at 2006 (NPC, 2006). The National Population Commission had projected an annual growth rate of 3.5% which brought the population figure to 1,233,080.294 people as at 2023. The area shares boundaries with Gassol, Bali, Kurmi, Gashaka and Karim-lamido Local Government areas to the North, Nasarawa state and plateau state to the North-west, Benue state to the south-west and Republic of Cameroon to the South-East. It has a tropical wet and dry seasons, well drained alluvial soils and characterized by both savannah and rain forest vegetation. Its dry season last for a minimum of four months (December to March) while the wet season spans early March to late November in the south. The area has mean annual rainfall to 180mm.

Majority of its inhabitants depending on subsistence agricultural practices mainly in food and cash crops like Sorghum, yam, maize, sesame, rice, cassava among others at a small-scale level, fresh water fishing and forestry. Livestock keeping is a minor occupation of the population of the area dealing on poultry, goats, rabbits, cattle, pig and fish farming. Other activities include local and regional trading in agricultural products, civil service, livestock, palm oil processing, rice milling and other small-scale industries. Ethnic groups include; Jukun, Chamba, Kuteb, Tiv, Fulani, Hausa, Yoruba, Igbo among others (Rukwe *et al.,* 2019).

Sampling Procedures

Multi-stage sampling techniques were employed to select respondents for this study. The first stage sampling involved the purposive selection of three (3) out of the five Local Government Areas in Southern Zone of the State based on their predominance in groundnut production.. Second stage sampling was the purposive selection of three wards from each of the three LGAs. Finally, a random selection of 20 groundnut farmers from each ward, making a total of 180 groundnut farmers. However, only 177 questionnaires were returned and used for the analysis.

Data Collection

Primary data were collected through the use of structured questionnaires distributed to the ground nut farmers. Data collected were based on the farmers socioeconomic characteristics, production input costs and return as well as constraints faced by the farmers in groundnut production in the study area.

Analytical Techniques

Descriptive statistics was used to describe the socioeconomic characteristics and constraint faced by the groundnut farmers in the study area and gross margin analysis was used to analyze the profitability of groundnut production.

Gross Margin Analysis

Gross margin analysis was used to estimate the costs and return of groundnut production in the study area. The model is expressed as follow:

GM= TVC-TR

Where;

TVC= Total Variable Cost

GM =Gross Margin

TR = Total Revenue

RESULTS AND DISCUSSION

Socio-Economic Characteristics of Groundnut Farmers

Table 1 reveals that groundnut production in Southern Taraba is predominantly male-driven, with 66.7% of respondents being men, reflecting the gendered nature of resource access in rural agriculture (Girei *et al.,* 2013). Most farmers (94.4%) were between 21 and 60 years of age, with a mean age of 41, indicating a youthful and economically active population capable of embracing new technologies (Madaki *et al*., 2016). Marital status analysis shows that 61.6% were married, suggesting that groundnut production is largely practiced within stable households, where family labor contributes significantly to farming activities Olayiwola & Oniga, 2024). Educational attainment was relatively high, with 58.8% having tertiary education, implying strong potential for innovation adoption and better farm decision-making(Olayiwola & Oniga, 2024). Additionally, the average household size

was approximately 8 persons, with 52% of households having between 6–10 members, providing adequate family labor for various production tasks and supporting reduced reliance on hired labor, which can enhance profitability (Olayiwola & Oniga, 2024; Jaji *et al.*, 2023).

Table 1: Socioeconomic characteristics of Groundnut Farmers

Socioeconomic Characteristics	Frequency	Percentage	Mean
Gender			
Male	118	66.7	
Female	59	33.3	
Age			
1-20	9	5.1	
21-40	78	44.1	
41-60	89	50.3	
61-80	1	.6	41
Marital Status			
Single	41	23.2	
Married	109	61.6	
Divorced	7	4.0	
Widowed	20	11.3	
Education Level			
Primary School	18	10.2	
Secondary school	50	28.2	
Tertiary	104	58.8	
Others	5	2.8	
Household Size			
1-5	49	27.7	
6-10	92	52.0	
11-15	36	20.3	8

Source: Field Survey 2025.

Cost and Return Analysis of Groundnut Production

Table 2 represents the cost and returns per hectare for groundnut production in Southern Taraba State. Among the variable costs, seeds represented the largest proportion, accounting for 29%, followed by transportation at 24%. Herbicide contributed 19%, while labor made up. Fertilizer costs 10%, and miscellaneous expenses represented the remaining

5% of the total variable costs. Madaki *et al* (2016) similarly noted that seed costs often form the largest share among variable inputs for groundnut farmers in Borno State.

The total gross revenue per hectare was ₦248,786.00, while the total variable cost amounted to ₦88,920.90. This resulted in a gross margin of ₦159,865.62, suggesting that groundnut farming in the study area is profitable. The gross margin, which is the difference between gross revenue and total variable cost, highlights the economic viability of the enterprise

This aligns with the findings by Madaki et al. (2016), Jaji et al (2023)., and Girei et al (2013), who reported that groundnut farming is a profitable venture in the areas they studied.

Table 2: **Costs and Return per hectare of Groundnut production in Southern Taraba States.**

Item	Unit prize (₦)	Quantity per hectare	Naira/ Hectare	Percentage
Revenue	25000/bag	497.57kg(10bags)	**248,786.00**	
Variable cost				
Cost of seed	635.06	40kg	25,402.48	29
Cost of fertilizer	8520.76	1 bag	8,520.76	10
Cost of herbicide	5653.66	3 liters	16,961	19
Cost of labor			12741.14	14
Cost of transportation			21,181.90	24
Miscellaneous			4,113.10	5
Total Variable Cost			**88,920.38**	
Gross Margin			**159,865.62**	

Source: Field Survey 2025

Constraints Associated with Groundnut Production

Table 3 reveals that the three most pressing challenges faced by groundnut farmers are high interest rates on borrowed money (85.9%) drought and climate change (75.1%) High production costs (67.8%).These issues can hinder farmers' ability to maximize yields and income, thus reducing groundnut farming's potential to alleviate household poverty.

High interest rates significantly limit access to affordable credit, which is essential for purchasing quality inputs and investing in improved technology. Taphee *et al* (2015)

found that limited access to credit and high input costs were major limiting factors in achieving profitable groundnut farming.

When farmers are trapped in cycles of debt, any income earned from production is often diverted toward loan repayments, rather than improving their household welfare.

Drought and climate change affect the quantity and quality of groundnut yields. As groundnut is a rain-fed crop in most parts of Taraba and Nigeria, erratic rainfall leads to crop failure, reducing household food availability and income Devereux (2007).

High production costs, including the cost of inputs like fertilizer, labor, and machinery, eat into profit margins. When production is not cost-effective, smallholder farmers see little economic return, reinforcing poverty.

Table 3: Constraints Associated with Groundnut Production

Challenges	*Frequency	Percentage	Rank
High interest rates on capital	152	85.9	1st
Drought and climate change	133	75.1	2nd
High production costs	120	67.8	3rd
Inadequate capital	91	51.4	4th
Fluctuating prices	89	50.3	5th
High cost of seeds	81	45.8	6th
Inadequate extension service	59	33.3	7th
Pest infestations	24	13.6	8th
Poor soil quality	24	13.6	8th
Market access issues	10	5.6	9th

Source: Field Survey, 2025.

CONCLUSION

Groundnut production in Southern Taraba is profitable and plays a key role in alleviating poverty among smallholder households. Socio-economic characteristics such as farm size, education, gender, and experience are important in shaping farmers' capacity to benefit, while cost drivers such as seeds, transport, herbicides weigh heavily. To enhance the role of groundnut farming in poverty alleviation, the following are recommended:

1. Provide training for farmers: Since most farmers are educated but operate small farms, training on improved practices can help them increase productivity and income from limited land.

2. Subsidize inputs and improve storage: Inputs like seeds and herbicides are costly; subsidizing them, and providing storage facilities will reduce expenses and losses, boosting profits.

3. Offer low-interest loans: High interest rates limit access to credit; affordable loans will help farmers invest in better inputs and cope with climate-related challenges.

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