



## Short Communication

# Profitability of Sesame Production in Some Selected Local Government Areas of Katsina State, Nigeria

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### ABSTRACT

#### Keyword:

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The study analyzed the economics of sesame production in Katsina State, Nigeria. Farmers in Katsina State are mostly small-scale farmers and are often faced with the problem of low productivity and profitability. Despite the economic importance of sesame seed, export potentials and world demand, sesame producers are yet to achieve a significant increase in their output and income. Primary data were collected from 90 selected sesame producers using a multistage sampling technique across Katsina State and interviewed using a structured questionnaire. Gross Margin (GM) model was used for data analysis. The results revealed that sesame producers in Katsina State incurred an average Total Variable Cost (TVC) of ₦117,942.28 with the cost of labour amounting to ₦46,611.50 which accounts for about 39.52% of the TVC of production. The result also revealed a positive gross margin of ₦118,469.29/Ha with a Return per Naira Invested (RNI) of ₦2.00. It was concluded that sesame production is an important and profitable enterprise in Katsina State based on a positive GM and RNI of ₦2.00. The study recommends that there should be more investment in the sesame production enterprise by the sesame farmers to increase output and profit. Effective extension services should be put in place by KTARDA to educate sesame farmers on improved production techniques while community-based organizations should be strengthened for accessing agricultural loans as a group.

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### INTRODUCTION

The agricultural sector is one of the most important sectors of developing countries of the

world. The growth of this sector is, however, not in consonance with its strategic importance in various countries (Ogbonna *et al.*, 2012).

Generally, agricultural production in West Africa is characterized by smallholder type production experiencing low inputs and output, ageing farmers and farms, diseased plagued farms and inefficient use of resources (Leonard *et al.*, 2011). Increased integration of smallholder farmers into markets at local, regional and national levels becomes an issue of paramount significance. In Nigeria, the growth of the agricultural sector has declined with the contribution to the national economy dropping from 34% in 2003 to 25.49% in 2016 (National Bureau of Statistics (NBS), 2016).

The prevalent climatic and soil conditions in the Sudan savanna favourably support sesame production (CGIAR, 2011). Sesame is an important component of Nigeria's agricultural export. About 70% of sesame produced in the country is being traded overseas. Sesame benefits from a high price and a domestic/international market. It is an important oilseed crop believed to have originated in tropical Africa. Since its introduction into Nigeria after the 2nd World War, it has been regarded as a crop of significant importance compared to groundnut and other cash crops in the North (National Agricultural Extension and Research Liaison Services (NAERLS), 2010).

In Nigeria, sesame seed which is mostly grown in the semi-arid part of Nigeria is cultivated on over 80,000 ha across most of the Northern states for food and oil. Benue and Nasarawa states are the highest producers with an annual average output of not less than 40,000 MT (Nwalem, 2015). About 300,000 tons of sesame seeds were produced from about 26 States with the largest producing States being Jigawa, Nasarawa, Benue and Taraba States. The other States producing sesame include; Kano, Kebbi, Bauchi, Kogi, Plateau, Adamawa, Kwara, Cross-River, Ebonyi, Niger, Gombe, Katsina, Yobe and Borno States (Agro-Nigeria, 2016). Thus, increasing international demand for

sesame seeds provides Nigeria with an opportunity to increase its production to meet the demand for the commodity. Out of 90 million hectares of arable land in Nigeria, about 3.5 million hectares is suitable for sesame production but only about 300,000 hectares of the land is being used in the production of a sesame seed (Tunde-Akintunde *et al.*, 2012).

By investing more in sesame seed production, the Nigerian government could increase annual revenue from sesame seed export from ₦21 billion to about ₦86 billion annually (Ciuci, 2013). Regardless of these potentials in the agricultural sector, Nigeria's food and cash crop production subsector remained underdeveloped due to its dependence on small-scale farmers who use unimproved technologies that generate only small income to them (World Bank, 2014).

Sesame producers in northern Nigeria are mostly small-scale farmers and often faced with the problem of low productivity as reported by Usman *et al.* (2010) that sesame yields in Jigawa State can be increased by 48% with better management practices given the existing technology. There is, therefore, a vast potential in northern Nigeria for increased production of the crop to meet the high international demand. Also, several post-harvest practices encourage the inclusion of foreign materials mainly sand which impairs the quality of output thereby reducing the market value of the commodity and hence, the income of the producer (Golob, 2009).

However, sesame producers are often not exploiting the full potential of the enterprise where the export sector is being dominated by only a few major exporters. Studies conducted on sesame enterprise in the region were mostly concentrated in a few States and focused mainly on productivity and profitability (Usman *et al.*, 2010; Makama *et al.*, 2011). As a smallholder crop, there is little information on productivity and profitability, especially in Katsina State. A clearer interpretation of the

sesame farmers' competitiveness and opportunities is very essential. Despite the economic importance of sesame, export potentials and world demand, sesame producers in Nigeria are yet to achieve a significant increase in their output and income probably due to the problems of low yield and productivity (Kudi, 2005). Sesame production is one of the age-old farming activities engaged by farmers in Northern Nigeria. Information is required for this industry to be given more attention by policymakers to exploit the full potential of the enterprise to improve the productivity, income and profitability of the producers. The study was therefore conducted to analyze sesame production to estimate the costs and returns associated with sesame production in Katsina State.

#### **METHODOLOGY**

The study was conducted in the Katsina State of Nigeria. Katsina State lies between latitudes 12° 47' N - 13° 00' N and longitudes 8° 41' E - 10° 41' E. It covers a total land area of about 24,971.215 square kilometres with an estimated population of 5,801,584 people as of the 2006 national census (the Federal Republic of Nigeria, 2012); with a projected population of 7,251,980 as of 2017 at an annual growth rate of 3.34%. The State is bordered by Kaduna State to the South, the Niger Republic to the North, Zamfara State to the West, and Kano and Jigawa States to the East. The climate of the State is the tropical continental climate. The mean maximum temperature ranges from 27°C in the rainy season to 37°C in April/May. August marks the peak of the rainy season while February for the dry season (KTARDA, 2007, Nigerian Meteorological Agency, 2012). The average annual rainfall ranges between 550 mm in the north to 1000 mm in the southern part of the State and the pattern of rainfall is highly variable (Abaje *et al.*, 2014). The soil is sandy in nature and the vegetation is the Sudan savanna type.

The State is currently made up of 34 Local Government Areas which were agriculturally classified into three zones by Katsina State Agricultural and Rural Development Authority (KTARDA, 2007). Agriculture is one of the major occupations in the area. Farming and petty trading are the main pre-occupation of the people where the major crops grown in the State includes millet, sorghum, soybean, cowpea, sesame, maize and rice.

#### **Sampling Procedure**

Based on the prevalence of sesame production enterprises, major producing locations were identified and three locations were selected purposively. Batagarawa, Batsari and Jibia were selected purposively as locations for the study. A reconnaissance survey reveals that there are 302 sesame farmers in Batagarawa, 305 in Batsari and 301 in Jibia. Across all the locations, 30 sesame producers were randomly selected as respondents for the study using quota sampling making a total sample size of 90 sesame producers. This is because there is homogeneity in sesame production methods across the State. The main objective was to analyze the profitability of sesame producers in the area. Primary data were obtained through the use of a questionnaire which was administered to the selected respondents with the help of trained enumerators. The data was analyzed using the Gross Margin model.

#### **Gross Margin**

According to Olukosi and Erhabor (2005), Gross Margin (GM) is the farm budgetary tool used in assessing the profitability of an agricultural enterprise. Gross Margin was used to determine the costs and return of sesame production because fixed capital forms a negligible portion of the farming enterprise. It is mathematically expressed as follows:

$$GM = GFI - TVC$$

Where;

GM = Gross Margin

GFI = Gross Farm Income (₦)

GFI = Total Value of Sesame Output,  
expressed as follows

GFI = Quantity of Sesame Output (Q) \* Unit  
Price of Sesame Output (Py)

$$GFI = Q * Py$$

TVC = Total Variable Cost of Sesame  
Production (₦)

TVC = Total Variable Cost of Sesame  
Production, expressed as follows:

$$\sum V_i X_i = V_1 X_1 + V_2 X_2 + V_3 X_3 + V_4 X_4$$

$$TVC = V_1 X_1 + V_2 X_2 + V_3 X_3 + V_4 X_4$$

Where,

$V_1$  = Quantity of sesame seeds used (kg).

$X_1$  = Unit price of sesame seeds used (₦).

$V_2$  = Quantity of fertilizer used (Kg).

$X_2$  = Unit price of fertilizer used (₦).

$V_3$  = Amount of labour used (man-days).

$X_3$  = Unit price of labour employed (₦).

$V_4$  = Amount of Chemicals used (litres).

$X_4$  = Unit price of Chemicals used (₦).

Gross Margin was used due to the negligible amount of fixed capital in sesame production in the study area.

The Return per Naira Invested was calculated using the expression;

$$RNI = GM / TVC$$

Where,

RNI = Return per naira invested

GM = Gross Margin from production

TVC = Total variable cost of production

## RESULTS AND DISCUSSION

**Table 1:** Costs and Return Associated with Sesame Production/ha in Katsina State

Variables	Quantity	Unit Price (₦)	Total (₦)	%TVC
Cost Component				
Seed (kg)	15.067	317.72	4,787.28	4.06
NPK (kg)	268.61	91.67	24,623.33	20.88
Urea (kg)	53.89	90.21	4,861.42	4.12
FYM (kg)	677.96	21.11	14,311.74	12.13
Pesticides (Litre)	6.0	878.20	5,269.22	1.54
Labour (Man-day)	101.00	461.50	46,611.50	39.52
Transportation			6,627.86	5.62
Storage			10,850.00	9.20
TVC			117,942.28	100.00
Returns				
Average Yield (Kg)			907.53	

Average Price(₦/kg)	260.50
Gross Revenue (₦)	236,411.57
Gross Margin (₦)	118,469.29
RNI (₦)	2.00

The results in Table 1 revealed the cost of the average quantity of seeds used per hectare to be ₦4,787.28 which constituted about 4.06% of the total variable cost (TVC) of production while the cost of NPK fertilizer was ₦24,623.33 which was about 20.88% of the TVC of production. Other variable costs include costs of Urea, FYM, pesticides and labour. The cost of labour includes the cost of land preparation, the cost of harrowing/ridging, cost of planting, the cost of fertilizer application, the cost of harvesting/threshing and the cost of winnowing. Therefore, the total cost of labour incurred per hectare in sesame production was estimated to be ₦46,611.50 which constitutes about 39.52% of the TVC of sesame production in the study area. Therefore, the total variable cost (TVC) incurred per hectare in sesame production was estimated to be ₦117,942.28.

Revenue is the return to production which is the value of output. From the results, the total output in this enterprise is the quantity of sesame seed produced. Table 1 depicts a positive Gross Margin which is a requirement for the financial viability of the enterprise. The result from the Table revealed a gross income of ₦236,411.57 and a Gross Margin (GM) of ₦118,469.29 which implies that the sesame production enterprise in the study area was profitable. The Return per Naira Invested (RNI) was ₦2.00 implying that for every naira invested, there will be a profit of ₦2.00 which also signify profitability.

## CONCLUSION

Based on the findings of this study, it was concluded that sesame production is an important and profitable enterprise and worthwhile investing in the Katsina State of Nigeria with a positive gross margin of ₦118,469.29 and a return per naira invested of

₦2.00. Thus, providing a source of livelihood to sesame producers and marketers.

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