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Evalauation Of Sesame Production Among Small Scale Farmers For Sustainable Livelihood In Agaie Lga Niger State, Nigeria

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Abstract

This study evaluate sesame production among small-scale farmers for sustainable livelihood in Agaie Local Government Area of Niger State. It also assessed the socio-economic characteristics of sesame producers, income realized, livelihood benefited from sesame production and the constraints faced by sesame producers as well as offering useful suggestions. Data were collected through the use of structured questionnaires supplemented with oral interviews that were randomly distributed in Agaie LGA. A total of one hundred and eight (108) respondents were randomly interviewed. Analytical tool used was descriptive statistics. The findings revealed that (30%) of the respondents in the study area were within the age of 26-35 years with male respondents scaling (60%) of the total population, (50%) grow sesame and other crops with (35%) of sampled population who had 11-20 years of farming experience. (40%) produced 100-500Kg/ha and about (50%) earning the sum of 1000-2000 per Kg of sesame sold and (30%) earning between ₦ 10000 – 100000 as total income realized per hectare. Majority of the respondents (80%) report that sesame production contributes to their household food security whereby (45%) of the respondents live in semi-permanent or permanent housing, while (30%) with climate change, soil degradation with (25%), pest and diseases (20%), lack of technology (15%) and (10%) labour related cost were the primary constraints identified. The study recommended that provision of extension services, access to market and adoption of proven and improved technologies for sesame production should be provided by the government and Non-governmental organization, for sustainable livelihood.

Keywords: Evaluation, Sesame, Production, Farmers, Livelihood, Sustainable.

Introduction:

Sesame *(Sesamum indicum L.)* is one of the world's oldest oilseed crops, dating back 3000 years to India (Badmus, 2021). The fruit of the sesame plant is a dehiscent capsule that bursts when ripe, releasing tiny seeds. The height of the plant varies depending on soil moisture content and variety. One of the most important traits for sesame varieties is their degree of dehiscence, since minimizing harvest loss is essential to getting the most out of the seed that is available. Depending on the variety, the hull—which can be white, brown, or black—protects the seed core. Sesame seeds yield 48–55% oil, more than oilseeds (canola seeds, for example, yield 44% oil) and proteins, including amino acids (Patrick *et al*., 2020). For sesame seeds in the first, second, and third grades, the international standard for oil content is 52%, 48%, and 45%, respectively. All grades of sesame are permitted to have a moisture content of 6-8% (Abebe, 2022). Based on the color of the seed coat, sesame is usually divided into two major market segments: white sesame and black sesame. Sesame production on 9,983,165 hectares of land was estimated to have reached 5,531,948 tonnes worldwide in 2017. Sesame is primarily produced in Asia (56.4%), with Africa (39.3%) and America (4.4%) following closely behind. According to FAOSTAT (2020), Nigeria (192,295.96 tonnes) is ranked eighth out of the ten (10) major producing countries in the world. India (665,566.67 tonnes) is the largest producer of sesame, followed by China (616,004.96 tonnes). Around 57% of the world's sesame production, or over 6 million tonnes, was produced in Africa and 40% in Asia in 2019, according to FAO (2020). The value of the global sesame market, according to one industry report (Mordor Intelligence, 2020), was estimated to be around USD 6.5 billion (N$97.5 billion) in 2018. This indicates a positive trend, with value rising in line with rising demand as consumer health consciousness causes consumption patterns to change. The broad objective of the study was to evaluate the production of sesame among small scale farmers for sustainable livelihoods in Agaie Local Government Area, Niger state, Nigeria. The specific objectives were to:describe the socio - economic characteristics of the respondents.**;** determine the livelihoods benefit derived from sesame production.; identify constraints faced by the respondents in the study area.

Material and Methods: Selection of the study area and sample: The study was carried out in Agaie LGA of Niger State, three stage sampling technique were used; first stage purposive selection of Agaie local government area due its prevalence in sesame production. Second stage, purposive selection of three (3) wards and at the third stage, random selection of farmers from three (3) villages of each ward to give a sum total of 108 sampled farmers for this study.

Table 1: Sample distribution of the respondents in the study area

Wards	Sample frame	Sample size (10%)
Ward 1		
Boku	211	21.1
Emi Sheshi	163	16.3
Etsu Audu	80	8.0
Ward 2		
Baro	206	20.6
Eyatsu	68	6.8
Koroba	57	5.7
Ward 3		
Wadata	157	15.7
Magaji	74	7.4
Kusoti	64	6.4
Total	**1080**	**108**

Source: field survey, 2024

Method of Data Collection: Primary source of data was used for this study. Data were collected using a well-structured questionnaire and supplemented with oral interviews. Demographic information such as age, occupation, educational attainment, farming experience were collected. Moreover, livelihood benefited from sesame production, information on the constraints faced by producer were collected.

Method of Data Analysis: Descriptive statistics such as frequency count and percentage was employed to achieve objective one and three (i & iii); Livelihood index was used to achieve objective two (ii) of the study.

Socio-Economic Characteristics of the Respondents: The concentration of respondents between 26-35 years old and 36-45 years old suggests a workforce in its prime productive years. This aligns with studies such as by Abdulmajeed, N., Kasim, M., & Uthman, R. (2023). which found that younger farmers tend to be more adaptive to modern agricultural technologies and practices, potentially leading to increased productivity and efficiency, higher proportion of male respondents (60%) were involved in sesame production in the study area which reflects traditional gender roles in agriculture, consistent with findings of Tayo, S., Saheed, S., & Ahmed, U. (2022), who reported that men are typically more involved in farming activities, particularly in regions where gender norms limit women's participation. However (50%) of the respondent are married which reduce the labour cost, household size, its was indicated that (45%) of the respondents in the study area had a household size between 6-10, this results is in line with the study by Bello (2023) who noted that high household size reduce labour cost in any agricultural activities. Education level, the results indicate that majority of the respondents in the study area had Non formal education, formal education is breakthrough for farmer to accept and adopt new innovation. This results is in line with study by Adeolu and Fatai (2021) who noted that formal education in agricultural enterprise increase income and sustained livelihoods.

Table 2: Socio-Economic Characteristics of the Respondents

Characteristics	Frequency	Percentage (%)
Age		

18-25	23	20%
26-35	35	30%
36-45	25	25%
46-55	15	15%
56 and above	10	10%
Sex		
Male	60	60%
Female	40	40%
Marital Status		
Married	54	50%
Single	39	35%
Divorced	10	10%
Widowed	5	5%
Educational Level		
Non Formal Education	15	15%
Primary	23	20%
Secondary	35	30%
Tertiary	25	25%
Post-graduate	10	10%
Household Size		
1-5	43	40%
6-10	50	45%
11 and above	15	15%
Years of Farming Experience		
Less than 5 years	15	15%
5-10 years	33	30%
11-20 years	40	35%
Above 20 years	20	20%

Source: Field Survey 2024

Livelihood benefit derived from sesame production: The livelihood benefits of sesame production are complex, as they span multiple dimensions including food security, employment, economic stability, and asset accumulation. However, as reflected in the analysis below, the contribution of sesame production to the overall livelihoods of households may be limited, as indicated by a Livelihood Index (LI) score of 0.28. This score suggests that while some benefits exist, there are significant areas of concern that need to be addressed

Food Security and Household Needs: However, in this study, only 75% of households reported that sesame contributed to food security, with less than 50% reporting that their food needs were fully met. This aligns with studies by Awwal, U. M., Ibrahim, S., & Adamu, A. U. (2023, who found that while sesame farming can contribute to improved income,

Employment in Sesame Production: According to the analysis, 40% of households employed 1-3 people in sesame farming, but only 15% employed more than 3, indicating that sesame production may not generate substantial employment opportunities. This is consistent with findings from Adedeji and Niniola (2023), who argued that smallholder agriculture, including sesame farming, often provides limited employment beyond family labor

Economic Impact and Asset Acquisition: 45% of households reported significant improvements and 35% saw slight improvements. However, the relatively low Livelihood Index score indicates that these improvements are not translating into broader, more sustainable economic development. Study by Patrick et al. (2020) indicates that the benefits of cash crop production in Sub-Saharan Africa are often concentrated among better-off households with access to land and capital.

Table 3: Livelihood benefit derived from sesame production

Indicators	Frequency (%)	Normalized Value	Weighed Value
Contribution to Household Food Security	75	1.000	0.0417
Household food needs met (>25%)	15	0.007	0.0032
Household food needs met (26-50%)	30	0.308	0.0128
Household food needs met (51-75%)	35	0.385	0.0160
Household food needs met (76-100%)	20	0.154	0.0064
Employment in sesame production (<1 person)	25	0.231	0.0096
Employment in sesame production(1-3 people)	40	0.462	0.0192
Employment in sesame production(>3 people)	15	0.0077	0.0032
Reduction in household property	65	0.846	0.0353
Impact on household economic situation (Imroved significantly)	40	0.462	0.0192
Impact on household economic situation (Improved slightly)	35	0.385	0.0160
Impact on household economic situation (No impact)	15	0.077	0.0032
Impact on household economic situation (Worsened slightly)	10	0.000	0.000

Source: Field Survey, 2024

Constraints Faced by Respondents: The major challenges identified are climate change (30%), soil degradation (25%), pests and diseases (20%), and lack of technology (15%). These issues significantly impact sesame production, as climate change affects crop yields and resilience, soil degradation reduces fertility, and pests and diseases can devastate crops (Awwal, *et al*., 2023).

Table 4: Constraints Faced by Respondents

Characteristics	Frequency	Percentage (%)
Major Challenges in Sesame Production		

Climate change	35	30%
Soil degradation	25	25%
Pests and diseases	23	20%
Lack of technology	15	15%
Other (e.g labor cost)	10	10%

Source: Field Survey, 2024

Conclusion and Reccommendations: This study underscores the significance of sesame production as a vital livelihood strategy for small-scale farmers in Agaie Local Government Area of Niger State. While farmers demonstrated remarkable resilience and adaptability, the findings highlight pressing challenges that imperil the long-term sustainability of sesame cultivation. To address these concerns, policymakers, agricultural extension services, and stakeholders must prioritize climate-resilient agricultural practices, soil conservation measures, integrated pest management, and accessible technology.

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