Nigerian Agricultural Policy Research Journal (NAPReJ) Vol. 12. Issue 01. Website:
Agricultural Policy Research Network (APRNet)
ISSN 2536-6084 (Print) & ISSN 2545-5745

Factors Influencing Sesame (*Sesamum Indicum L*) Farmers to Trade through Middlemen in Bauchi State, Nigeria

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Abstract
*The research was carried out to determine the factors influencing sesame (Sesamum indicum **L.**) farmers to trade through middlemen in Bauchi State, Nigeria. A multi-stage sampling procedure was used to select 204 sesame farmers. Data were analyzed using descriptive and inferential statistics. The results revealed an average age of 40 years; the majority, 84.8% of farmers, were married. The majority, 89.7%, were males with an average household size of 7 persons. About 63% of the sesame farmers had a land size range of 1-4 hectares. Almost half of the farmers (41.2%) have between 6-10 years of experience, with a minimum of secondary education of 43.1%. Most (73.0%) of the sesame farmers did not belong to any cooperative society. Many (47.1%) of the farmers owned their lands through inheritance; 42.6% of the farmers sourced information on sesame price from middlemen, and had with average annual income of ₦798,248.04. The results of Probit regression analysis of variables that influenced farmers to trade through middlemen showed that better price, environmental factors, and market information were all significant at P≤0.05, and access to market at P≤0.01. The result further revealed that middlemen make sales less stressful (26.0%), help facilitate commodity trading (24.0%), and fair scaling (21.0%) were the major contributions of the middlemen. However, Poor pricing (70.1%), exploitative practice of the middlemen (63.2%), low profit margin (58.3%), and prolonged, deceiving, and deceitful bargaining (47.5%) were the major constraints faced by the sesame farmers in dealing with middlemen in the study area. The study concluded that sesame farmers were young, agile, and economically productive; middlemen were found to be highly resourceful, though they posed a serious challenge in the marketing channel of sesame. The study recommended marketing intervention by the government in sesame marketing activities, such as price appreciation, reduction in the cost of marketing, formulating and implementing marketing policies and rules by entities targeted at improving infrastructure, such as roads, and providing marketing information outlets for sustainable improvement the marketing efficiency.*

Keyword: Factors, Middlemen, Marketing, Influence

Introduction
Marketing agricultural products presents several difficulties. Farmers' literacy is low, market knowledge is hard to come by, and numerous distribution channels drain the wallets of both farmers and customers. The majority of small farmers still rely on the local moneylenders, who are leeches and charge exorbitant interest rates. Government assistance for farmers is still in its infancy. The benefits farmers should receive are being eaten away by excessive vultures (Roop, 2018).

Agricultural marketing is initiated right from farm inputs and supplies up to the time when a product reaches the ultimate consumer. It is a process that starts with the farmer's decision to produce farm commodities involving all aspects of marketing structure or system, both financial and institutional, with economic consideration including product assembling, preparation for the market, distribution, and use by the final consumer (Safiyanu *et al.*, 2019).

ISSN 2536-6084 (Print) & ISSN 2545-5745

The presence of middlemen as marketing institutions in farmer societies is very strategic. However, their existence often creates controversy. Although several studies have shown the negative role of middlemen (Ali and Peerlings, 2011), many other studies have proven the role of the middlemen to be positive (Pollnac, 1978; Gabre-Madhin, 2001; Koo and Lo, 2004; Pokhrel and Thapa, 2007; Enete, 2009; Rustinsyah, 2011; Ferrol-Schulte *et al.,* 2014; Sulistyowati *et al.,* 2014; Abebe *et al.,* 2016). An effective marketing system is required to ensure the availability of produce to consumers at the appropriate time and place. Along with this system, the nature of the agricultural produce demands high efficiency in terms of marketing and supply chain management (Kumar *et al.,* 2004). This creates a space for the involvement of individuals or groups known as middlemen, justified in terms of meeting these efficiency objectives.

Middlemen are marketing intermediaries that do not add anything tangible to the produce but who still receive a fee for expediting the exchange (Agbebi and Fagbote, 2012); their presence in the supply chain often results in produce being sold to consumers at higher prices than would otherwise be the case (Bryceson, 1993). It is well known that middlemen abound in the agricultural trade in many developing countries. Their efficiency and social role have been discussed for decades, and the opinions diverge. Some regard middlemen as purely exploitative and maintain that by bypassing the middlemen, the leakage of benefit would be reduced along the supply chain (Masters, 2008; Frandsen *et al.,* 2009). Others point out that middlemen are indispensable and perform important functions, including selling sesame to the processing industry, grading it, and selling to the world market (Crona *et al.,* 2010; Arya *et al.,* 2015). Additionally, the middlemen reduce the time and effort needed by farmers to market their produce. The farmers often cannot perform these tasks on their own due to limited education and knowledge in the fields of trade and negotiation. The farmers may also rely on financial guarantees provided by the middlemen during the farming period, while acknowledging these functions, others again emphasize the power asymmetry between farmers and middlemen. The farmers have limited information about prices, and they often have to accept the price offered by the buyers. Hence, the middlemen can strongly influence the ex-vessel price, the price that farmers receive when selling their harvest, and the price in the downstream markets tends to be defined by the price in the upstream markets.

Middlemen maintain contact with buyers, negotiate prices, and deliver produce; provide credits or collections; look after the servicing of produce; provide inventory storage, grading, and arrange transportation (Agbebi and Fagbote, 2012; Rubayet and Jony, 2016). By carrying out these functions, middlemen play an important role in linking smallholder farmers to traders and the final markets (Abebe *et al.,* 2016; Hasan and Bai, 2016). The activities of middlemen in developing countries such as Nigeria could be viewed in terms of improving the efficiency of farmers' marketing activities. Farmers seek support from middlemen to sell their produce (Ellis *et al.,* 1997; Fuentes, 1998; Lyon, 2000). The term 'intermediary' is used commonly in business sectors, including agriculture, and has both positive and negative connotations (Monieson, 2010). Mejía and García-Díaz (2018) revealed that in the long run, intermediaries could reduce the profitability of producers/farmers. Intermediaries are often considered to reduce the efficiency of distributing agricultural products by lowering prices at the level of farmers (Tapsavi, 2009; Ranjan, 2017).

The farmer's engagement with middlemen as a form of economic exchange in a rural community is strongly influenced by the reciprocities that exist in a social relationship structure. In this context, it can be associated with the term relationship marketing (Morgan and Hunt, 1994; Parry and Westhead, 2017). Relationship marketing is the mutual beneficial exchange between the seller and the buyer (Morgan and Hunt, 1994).

Both consumers and farmers gain immensely from the roles of intermediaries, who ensure that there is a seamless flow of farmers' goods in the market by matching supply and demand. Rapid technological

advancements could improve the marketing system. Technological advances, especially information technology, have been proven to improve the welfare of farmers in various developing countries (Knoche, 2010). Distribution is the flow of goods from the producer to the final consumer or user through channels that are made up of middlemen.

Sesame (*Sesamum indicum L.)* is one of the cultivated plants in the world and a highly prized oil crop (Oplinger *et al.*, 1990). Ethiopia is among the top 10 producers of the crop (FAOSTAT, 2020) and the major crop to generate hard currency for the country (Taffesse *et al.*, 2011). The crop is mainly produced for the international market, that close to 95% of the total volume for export and engaging more than 736,000 households in the production and marketing of the crop (Central Statistical Agency (CSA), 2018). Sesame is an important cash crop and plays a vital role in the livelihood of many people in Nigeria, It is a source of income for the people. However, several challenges hampered the development of the sesame sector along the market channel. Therefore, the study was initiated to identify the factors influencing sesame farmers to trade through middlemen in the marketing of sesame produce in Bauchi State, Nigeria.

It is undeniable that middlemen play important roles in the distribution channel by acting as a link between producers and consumers. However, many think that middlemen cause more harm than good in the distribution channel by hiking the prices of products and services in a bid to maximize profit (Vaishnavi, 2018). Moreover, middlemen have been accused of causing artificial scarcity and the resulting artificial inflation, and hence propose the elimination of middlemen from the supply chain (Vaishnavi, 2018). Nevertheless, these allegations are yet to be verified and hence cannot be generalized. Also, these allegations could be dependent on other factors. More so, these allegations are not enough to propose the elimination of middlemen from the channels of distribution, considering that their role is inevitable in the process of distributing goods and services to the ultimate consumers. It is against this backdrop that the study was carried out to determine the factors influencing farmers to trade through middlemen in the marketing of Sesame Produce in Bauchi State, Nigeria.

Objectives of The Study

i. Describe the socio-economic characteristics of sesame farmers in the study area.
ii. Determine the factors influencing farmers to trade through middlemen;
iii. Describe the contribution of middlemen in sesame marketing, and
iv. Describe the constraints associated with the marketing of agricultural produce through middlemen

Research Methods

The study Area

The study was carried out in Bauchi State, Nigeria. The State is divided into three (3) Agricultural zones and is located in the North-east geopolitical zone of Nigeria, and was created in 1976. The state is located between latitudes 9°30' and 12°30' North of the equator, and between longitudes 8°45' and 11°0' East of the Greenwich meridian. It is bounded to the east, west, north, and south directions by Yobe, Gombe, Taraba, Plateau, Kaduna, Kano, and Jigawa states. There are 20 Local Government Areas (LGAs) in the State. Bauchi State covers about 49,259 Km^2 with a population of 4,653,066 according to the National Population Commission (NPC, 2006), which is estimated to be 9,000,0000 people in 2022 at a 3.86% annual increase rate. The State is heterogeneous, with predominant tribes like Hausa, Fulani, Jarawa, Sayawa, among others (BSEEDS, 2016).

Bauchi State is one of the States in the northeast of Nigeria that has two distinctive vegetation zones, namely, the Sudan savannah and the Sahel savannah. The Sudan savannah type of vegetation covers

ISSN 2536-6084 (Print) & ISSN 2545-5745

the southern part of the State. The Sahel type of savannah, also known as semi-desert vegetation, becomes manifest from the middle of the State as one moves from the State's south to its north. This type of vegetation comprises isolated stands of thorny shrubs. On the other hand, the southwestern part of the State is mountainous as a result of the continuation of the Jos Plateau, while the northern part is generally sandy (Bauchi State Agricultural Development Program, BSADP, 2015). The vegetation types as described above are conditioned by the climatic factors, which in turn are determined by the amount of rainfall received in the area. For instance, the rainfall in Bauchi state ranges between 1,300 millimetres per annum in the south and only 700 millimetres per annum in the extreme north. This pattern is because in the West Africa sub-region, rain generally comes from the south as they are carried by the south-western winds. There is therefore a progressive dryness towards the north, culminating in the desert condition in the far north. Also, the case in Bauchi State. Consequently, rains start earlier in the southern part of the State, where rain is heaviest and lasts longer. Here, the rains start in April with the highest record amount of 1,300 millimetres per annum. In contrast, the northern part of the state receives the rain late, usually around June or July, and records the highest amount of 700 millimetres per annum. In the same vein, the weather experienced in the south and the north varies considerably. While it is humidly hot during the early part of the rainy season in the south, the hot, dry, and dusty weather lingers up to the north. In addition to rainfall, Bauchi State is watered by several rivers.

Sampling Procedure

A multi-stage sampling procedure was used in selecting the respondents for the study. In the first stage, all stratified Agricultural zones of Bauchi state were selected. In the second stage, two local governments from each agricultural zone were purposively selected, making a total of six local governments. Purposive sampling was based on the level of production and marketing of sesame in these local governments. In the third stage, two communities were randomly selected from each local government, making a total of 12 communities for the study. In the fourth and final stage, 204 sesame farmers were proportionally 10% and randomly selected from each community to get a sample size for the study (Table 1). A proportion of 10% was used based on previous research conducted by Gizaki *et al.* (2014) on the characteristics of the sesame value chain development programme in Bauchi state, Nigeria.

The sample frame is the list of sesame farmers obtained from the Bauchi State Agricultural Development Programme (BSADP).

Table 1 Sample Size Selection Procedure

Zone	LGAs	Communities	Sampling frame	Sample size (10%)
Farmers	Kirfi	1. Wanka	156	16
Western		2. Badara	162	16
	Alkaleri	1. Alkaleri	213	10
		2. Futuk	101	21
Sub-total			**632**	**63**
Central	Ningi	1. Sama	247	25
		2. Nasaru	190	19
	Darazo	1. Sade	98	10
		2. Gabarin	176	18
Sub-total			**711**	**72**
Northern	Zaki	1. Katagum	135	14
		2. Sakwa	90	9
	Gamawa	1. Gadiya	260	26
		2. Udubo	200	20
Sub-total			**685**	**69**
Total			**2028**	**204**

Source: Reconnaissance survey (2020)

Method of Data Collection

The study used primary data, which was collected from the administration of a structured questionnaire to the respondents (farmers) with the aid of field enumerators. Farmers were interviewed to generate data about their socioeconomic characteristics, such as age, sex, marital status, household size, farm size, farming experience of the respondents, etc. Moreover, factors influencing farmers to trade through middlemen, the contribution of middlemen in sesame marketing, and the problems faced by farmers in marketing sesame in the study area were captured. Data collection was done manually with the help of three enumerators, one from each zone, with a 100% retrieval rate between September 2022 to November 2022.

Method of Data Analysis

The collected data were analyzed with the use of both descriptive and inferential statistics. Descriptive statistics were used to achieve objectives I, II, and IV. On the other hand, probit regression analysis was used to achieve objective III.

Descriptive statistics

Descriptive statistics (frequency, percentage, range, and mean score) were used to achieve objectives i, II, and IV.

Probit regression model

Probit regression using STATA 14 software was used to achieve objective III, which is to determine the factors influencing farmers' decisions to trade through middlemen in the study area. The model in its general form is specified as:

The explicit of the model is written as:

$$Z= \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_nX_n + \varepsilon \quad (1)$$

where;

Y = Trade through middlemen (Yes=1, otherwise =0);

X_1 = Age (years)

X_2 = Sex (1= male, 2= female)

X_3 = Education level (1 = primary, 2 = secondary, 3 = tertiary, 4 = adult education, 5 = no education, 6 = Quranic education)

X_4 = Income (Naira)

X_5 = Market information (1 = from co marketers, 2= from markets officials, 3= from media houses)

X_6 = Better price (1 = yes, 0 = otherwise)

X_7 = Access to market (1= yes, 0= otherwise)

X_8 = Environmental factors (1 = climate, 2 = weather, 3 = location, 4 = drought, 5 = flooding)

X_9 = Sanitary factors (1 = sorting, 2 = grading, 3 = standardization)

X_{10} = Tax issues (1= yes, 0 = otherwise)

X_{11} = Input support (1 = yes, 0 = otherwise)

β_0 = Intercept terms;

$\beta_1 - \beta_{11}$= Regression coefficients of $X_1 - X_{11}$, respectively.

ε = Random disturbance term.

Result and Discussion

Socio-economic Characteristics of the Farmers and Sesame Marketers

Age, sex, and marital status of the respondents

The results from Table 2 reveal the age of the sesame farmers in the study area, in which 32.4% were within the range of 28-37, and 30.4% fell between 38-47 years. The mean age of respondents was found to be 40 years. Respondents that fall between the age brackets of 48-57, 18-27, 58-67, and above 67 years constitute 14.7%, 13.2%, 8.8%, and 0.5%, respectively. This is in line with Ikwuakam and Lawal (2015), who reported that most (47.8%) sesame farmers were within the age range of 31-40 years. This

means that the respondents are young and full of strength to carry out farming activities. This also has implications for the sustainability of sesame farming and respondents' vibrancy in sourcing and having access to input. The result is similar to Samuel *et al.* (2020) who found that, majority (77.8%) of the sesame farmers in Yobe State were aged between 21-60 years with a mean age of 38.5 years. This implies that they are predominantly youths and hence agile and economically productive. The finding also agrees with those of Sani *et al.* (2014), Oladimeji *et al.* (2014) and Adamu and Bakari (2015) reported that the most active farmers' age group engaged in agricultural production was within 21- 40 years and are more willing and able to take risk in expectation of profit more than the older ones. In another finding, Kumera *et al.* (2020) reveal that sesame production is dominated by the active age group (18-49 years) (67.8%).

Table 2 further indicates that most (89.7% and 96.7%) of the farmers were males, while only 10.3% of them were females in the study area. This agrees with Babalola *et al.* (2013), who reported that all (100%) of farmers were males. The finding is in line with Samuel *et al.* (2020 who reported that the majority (66.67%) of sesame farmers were males and 33.9% were females, implying that sesame production was dominated by males. The reason could be attributed partly to the fact that, since mostly men have more physical strength than their female counterparts, they engaged more in strenuous activities. This study coincides with that of Fasoranti (2006), who reported that men have more access to resources and information required to produce crops more efficiently than their female counterparts. Similarly, Oladimeji *et al*. (2014) and Adamu and Bakari (2015) reported that sesame farming was dominated by males rather than females.

Table 2 Distribution of respondents based on their Age, Sex, and Marital Status (n = 204)

Variable	Frequency	Percentage	Mean
Age			
18-27	27	13.2	
28-37	66	32.4	
38-47	62	30.4	40 years
48-57	30	14.7	
58-67	18	8.8	
68 and above	1	0.5	
Sex			
Male	183	89.7	
Female	21	10.3	
Marital status			
Single	22	10.8	
Married	173	84.8	
Divorced	6	2.9	
Widowed	3	1.5	

Source: Field survey (2022)

The result of the marital status of both farmers, as indicated in Table 3, showed that most of the farmers (84.8%) were married in the study area. About 10.8% of the farmers were singles. This corroborates the finding of Olukotun *et al.* (2012) that most maize farmers in Soba LGA were married. The result disagrees with the finding of Ewebiyi *et al.* (2012), who reported that the majority (61.1%) of the farmers in the Odeda LGA area of Oyo state were single. This is very unusual for the typical Hausa community, as early marriage is a common practice. A similar result was found in Samuel *et al.* (2020), who found that the majority (77.2%) of respondents were married, 12.4% were single, implying that sesame farming is dominated by married people. This is because married people have to bring food to the house to feed their families. Widows, divorcees, and widowers also have to farm, for they do not have someone to feed them. This agrees with Tijani *et al.* (2010), who reported that 60% of the farming households were married.

ISSN 2536-6084 (Print) & ISSN 2545-5745

Household size, land size, and farming experience of the respondents

Table 3 depicts the household size, farm size, and farming experience of the respondents. About 38.3% of the sesame farmers have a household size ranges 1- 4 person and 32.8% have 5 – 8 persons while farmers with household size ranges between 9-12, 13-16 and 17 persons and above constitutes 17.6%, 5.4% and 5.9%, respectively with a total mean of 7 persons. The result is similar to Kumera *et al.* (2020), who reported an average household size of 5 persons in Ethiopia. Similarly, Solomon (2008) and Banmeke (2003) reported that a large household size assists in farm and other household activities. Makama *et al.* (2011) also reported that an increase in household size increases the availability of family labour for farming operations; however, if the bulk of the members in the household are within the unproductive age, the level of production deteriorates. Adole (2016) also reported similar results with a mean household size of eight persons in the Batsari Local Government Area of Katsina State, Nigeria.

Table 3 further revealed the land size of the sesame farmers in the study area, in which more than half (62.7%) of the sesame farmers have a land size range of 1-4 hectares. This indicates that sesame farming in the study area is practiced on a small-scale basis. Farmers who have farm sizes ranging between 5-8 and 9-12 hectares constitute 25.0% and 9.8%, respectively. The mean land size was estimated at 4.0 hectares. The result corroborates with Samuel *et al.* (2020) who reported that the average farm size of sesame farmers in Yobe State was 2.4 hectares, with the majority (81.67%) of them cultivating 0.5-3ha. This implies that most of the farmers had small farm holdings. This shows that farmers in the study area will not be able to enjoy economies of scale in production. The larger the farm size of the household, the higher the expected level of output. According to Olayide *et al*. (1980), small-scale farmers are those who cultivate land of 0.1 to 5.0 hectares of land. Therefore, the majority of the respondents in the study area are classified as small-scale farmers. This may not encourage a mechanized system of farming, and thus, production may continue to remain at the subsistence level. This finding is in line with the findings of Ajeigbe *et al.* (2010), Makama *et al.* (2011), Oladimeji *et al.* (2014), and Adamu and Bakari (2015), which report that the majority of the agricultural production is in the hands of smallholder farmers. Imoh and Essien (2005) also reported that farm size affects the adoption of technology and determines whether a farmer will use improved seed or not. Relatively small farm size could constitute a major constraint to technology usage (Sani *et al.*, 2014).

Table 3: Respondents Based on Household Size, Farm Size, and Farming Experience (n = 204)

Variable	Frequency	Percentage	Mean
Household size			
1-4	78	38.3	
5-8	67	32.8	8
9-12	36	17.6	
13-16	11	5.4	
17 and above	12	5.9	
Land size			
1-4	128	62.7	
5-8	51	25.0	4
9-12	20	9.8	
13-16	3	1.5	
17 and above	2	1.0	
Farming experience [years]			
1-5	72	35.30	
6-10	84	41.18	8
11-15	26	12.75	
16-20	14	6.86	

21-25	3	1.47
26-30	5	2.45

Source: Field survey (2022)

On the farming experience of sesame farmers, experience represents the technical skills or knowledge acquired in practicing a particular trade, and it is measured in years. The results in Table 3 indicated that about 41.2% and 30.3% of the farmers had years of experience ranging between 6-10 years. Those with 1-5, 11-15, and 16-20 years constitute 35.3%, 38.3%, 12.7%, 18.3%, 6.8%, and 11.7% of the sesame farmers, respectively. This shows that the farmers were experienced farmers with a mean of 8 years. The result is in line with Sani *et al.* (2014), who reported that most (37.22%) of the cowpea farmers in Bichi, Kano State have farming experience of 6 – 10 years, with a mean of 13 years. It could be inferred that sesame farmers in the study area are well-experienced in sesame farming, which depicts a good signal for higher farmers' profit. This finding agrees with that of Abu *et al*. (2011) and Adole (2016), who reported that the average farming experience of sesame farmers in Nasarawa State and Benue State was 12.8 years and 15 years, respectively. Oladimeji *et al.* (2014) and Adamu and Bakari (2015) also reported similar results in their findings in Yobe and Taraba States, respectively. Amaza and Olayemi (2002) reported that the higher the number of years spent in farming by a farmer, the more he becomes aware of new production techniques.

Respondents' educational level, membership of association, and major occupation

Table 4 shows that most of the sesame farmers (43.1%) have attained secondary school level in the study area. About 21.6% of the farmers have a tertiary education. This indicates that the literacy level among the farmers is high. This disagrees with Kumera *et al.* (2020), who reported that more than 88% of the sesame farmers in Ethiopia were either illiterate or had attended only primary school education. Only 6% of the respondents completed secondary school education. This indicated that the respondents had one form of education or the other, which indicated that most of the respondents were literate. This implies there is potential for increased sesame profit since education would enable farmers to have access to information on new agricultural innovations. As reported by Zbinden and Lee (2005), education is important in determining the farmers' ability to access, process, and implement information on agricultural technologies, while the lower level of literacy might be associated with a low level of adoption of technologies in pre and postharvest activities to produce more and reduce losses.

Table 4: Respondents' Educational Level, Membership of Association, and Major Occupation (n = 204)

Variables	Frequency	Percentage
Educational level		
Primary education	23	11.3
Secondary education	88	43.1
Tertiary education	44	21.6
Qur'anic education	32	15.7
No education	7	3.4
Adult and literacy education	10	4.9
Membership of the association		
No	149	73.0
Yes	55	27.0
Major occupation		
Crop farming	120	58.8
Agro marketing	36	16.2
Livestock producers	17	8.3
Agro processors	1	0.5
Artisans	16	7.8
Civil servant	17	8.3

Source: Field survey (2022)

Table 4 further depicts that most (73.0%) of the sesame farmers did not belong to any cooperative society. Only 27.0% of the farmers belong to a cooperative society. The result is in line with Samuel *et al.* (2020), who found that the majority (77.2%) of sesame farmers in Yobe State, Nigeria, do not participate in cooperative associations. This result implies that most of the sesame farmers in the study area do not enjoy the benefits accrued to co-operative societies through a pooling of resources together for a better expansion, efficiency, and effective management of resources, and for-profit maximization. The finding is similar to that of Adole (2016), who reported that 73.9% of the sesame farmers in Benue State, Nigeria, do not participate in cooperatives.

The results in Table 4 also revealed the major occupation of both the sesame farmers in the study area, in which the majority (58.8%) of the farmers were crop farmers, while only 16.2% of the farmers engaged in agro marketing. Farmers that venture into livestock production, agro-processing, artisans, and civil service work constitute 8.3%, 0.5%, 7.8%, and 8.3%, respectively.

Sesame farmers' land ownership and sources of information on sesame price.
From the result in Table 5, about 47.1% of the sesame farmers acquired their lands through inheritance, while 27.0% through purchase. Similarly, 14.7%, 5.9%, and 2.0% acquired their farmlands through rent, lease, and other sources, respectively. Only 3.4% cultivate on community land in the study area. The results agreed with those of Adole (2016), who reported that, among the different forms of land ownership in Benue State, land owned through inheritance was the most dominant, and this accounted for 59.44% of total farmlands. Farmers who obtained their farmland by purchase constituted 22.78%, while 17.78% acquired their farmland through lease/rent. This is similar to that of Rahman (2003), who reported that land acquisition by inheritance and purchase tends to promote security, motivation, and good management to farmers for the efficient utilization of resources than land acquired through lease or hire. Alfa-n (2014) also reports that most (42%) of the watermelon farmers in Kano State, Nigeria, acquired their land through inheritance, 16% through lease, 23% purchased their land, while 10.5% obtained theirs through gift.

Table 5: Farmers' Land Ownership and Sources of Information on Sesame Price (n = 204)

Variables	Frequency	Percentage
Land ownership		
Inheritance	96	47.1
Purchase	55	27.0
Communal	7	3.4
Rent	30	14.7
Leased	12	5.9
Others	4	2.0
Sources of price information		
Input suppliers	23	11.3
Middlemen	87	42.6
Cooperative societies	35	17.2
BSADP	6	2.9
Processors	1	0.5
Phone calls	8	3.9
Traders in the market	31	15.2
Media	5	2.5
Personal observation	8	3.9

Source: Field survey (2022)

Table 5 further revealed the various sources of farmers' information about sesame price, in which 42.6% got their information from middlemen and 17.2% from cooperative societies. Furthermore, 15.2%, 11.3%, 3.9%, 2.9%, 2.5%, and 0.5% got their information from traders in the market, input suppliers, media, personal observation, BSADP, and processors, respectively. Kumera *et al.* (2020) reported a

similar finding that sesame traders' sources of information in Ethiopia were 55% through cell phone, 10% from other traders in their residence, and 35% from the media.

Income of sesame marketers and farmers

The result from Table 6 further revealed that, most (77.9%) of the sesame farmers had an annual income range of ₦50,000 – 1,040,000 while 13.7%, 6.4%, and 1.5% had between ₦1,040, 000 – 2,030,000, ₦2,030, 000 – 3,020, 000 and ₦4,010,000 – 5,000,000 respectively in the study area. The mean annual income was estimated at N798,248.04. The result is similar to Samuel *et al*. (2020), who reported that 37.8% of sesame farmers in Yobe State, Nigeria, earned above ₦ 500,000.00 annually from sesame. This implies that sesame farmers are high-income earners. The result is contrary to that of Odoemenem and Otanwa (2011), who found that farmers earn less than ₦ 300,000 annually in Benue State, Nigeria. Similarly, the distribution of annual farm income among sesame farmers in Yobe State, Nigeria, as reported by Samuel *et al.* (2020), showed that most (31.11%) of the farmers earned ₦151,000.00 – ₦200,000.00 as annual farm income, with a mean of ₦153,143.20 (approximately $3.5). If farming households (average 7 members) without another source of income were to depend solely on the farm income for a minimum cropping season of 4 months, individual members of the household would be living below the poverty line of $1 per day. This implies that the farmers earned low annual farm income when compared to the standard poverty line of one dollar per day. The low farm income could be a result of constraints associated with sesame farming, such as high cost of fertilizer, pest and disease, high cost of transportation, and lack of improved seed varieties, which can reduce farmers' profit.

Table 6: Distribution Based on the Sesame Marketers' Annual Income

Farmers	**(n = 204)**	
Income range	**Frequency**	**Percentage**
Income (₦)		
50,000 - 1,040,000	159	77.9
1,040,000 - 2,030,000	28	13.7
2,030,000 - 3,020,000	13	6.4
3,020,000 - 4,010,000	1	0.5
4,010,000 - 5,000,000	3	1.5
Mean = 798,248.04		

Source: Field survey (2022)

Factors that influenced farmers to trade through middlemen

The Probit regression analysis of variables influencing farmers to trade through middlemen in the study area is presented in Table 7. It shows that access to market, better price, environmental factors, and market information were significant ($p< 0.01$ and $p<0.05$) factors influencing farmers to trade through middlemen. Market information significantly influences farmers' choice to trade through middlemen, with a coefficient of 0.8255 and a p-value of 0.049, significant at the 5% level. The positive impact suggests that farmers with access to market information are more likely to use middlemen, possibly due to their role in aggregating and conveying market intelligence (Kamau et al., 2017). The availability of a better price has a positive coefficient of 0.7010 and is statistically significant ($p = 0.046$) at the 5% level, indicating that farmers are more inclined to trade through middlemen when they perceive that it leads to higher prices. This is consistent with findings by Singh and Tiwari (2022), who observed that price premiums offered by middlemen can incentivize farmers to bypass direct market routes. Market access is highly significant at the 1% level ($p = 0.000$) with a coefficient of 1.7553. This strong positive association indicates that farmers with market access are much more likely to rely on middlemen, potentially due to logistical support provided by intermediaries, which is essential for rural farmers facing limited infrastructure (Ali and Adams, 2021). Environmental factors also positively influence farmers' decisions to trade through middlemen, with a significant coefficient of 0.7002 ($p = 0.031$). This finding suggests that environmental uncertainties, such as climate variability, can drive farmers to depend on middlemen to manage market risks (Ahmed et al., 2020). The model's log likelihood is -

79.543, and the likelihood ratio (LR) chi-square of 120.40 is statistically significant ($p < 0.001$), indicating a good model fit. With a pseudo-R-squared of 0.4308, the model explains approximately 43% of the variation in the decision to trade through middlemen. The model highlights the importance of improving market access, providing better price incentives, and supporting environmental risk mitigation. Policymakers and agricultural development programs should focus on improving market information systems, enhancing rural infrastructure, and offering tools to reduce environmental risks. By doing so, farmers could potentially reduce their reliance on middlemen, maximize direct profits, and strengthen their bargaining power in the market.

Table 7: Factors Influencing Farmers to Trade through Middlemen (n = 204)

Variables	Coefficient	Std error	Z	p> /z/	Dy/dx
Age (X_1)	-0.0748516	0.1043164	--0.72	0.473	-0.083535
Sex (X_2)	0.3638477	0.3536206	1.03	0.304	0.3761206
Educational level (X_3)	0.056085	0.0741906	0.76	0.450	0.0513777
Income (X_4)	2.4600008	5.9200008	0.42	0.678	3.0000000
Market information (X_5)	0.8255273	0.4185044	1.97	0.049**	0.8700729
Better price (X_6)	0.7009684	0.3508628	2.00	0.046**	0.7253094
Access to market (X_7)	1.755285	0.3204924	5.48	0.000***	1.742271
Environmental factors(X_8)	0.7001536	0.3241447	2.16	0.031**	0.6757401
Sanitary factors (X_9)	0.4757705	0.3734107	1.27	0.203	0.4979282
Tax issues (X_{10})	-0.6468341	0.4133	-1.56	0.118	-0.705903
Input support (X_{11})	-0.3443671	0.3348521	-1.03	0.304	-0,468569
Log likelihood	-79.542921				
LR chi2 (11)	120.40				
Prob>chi2	0.000***				
Pseudo R^2	0.4308				

***=significant at 1% **=significant at 5% Source: Field survey (2022)

Contribution of Middlemen in Sesame Marketing

Table 8 shows the distribution of the respondents according to the contribution of the middlemen in sesame marketing. Table 8 reveals that middlemen play significant roles in sesame marketing, such as making it less stressful to the farmers, making it easy to sell, and fair scaling, as revealed by 26.0%, 25.5%, and 21.5% of the sesame farmers, respectively. The findings are in agreement with (Sani *et al*. 2011, Agbebi and Fagbote, 2012; Abebe *et al.*, 2016) who in their various studies on the role of middlemen in Bauchi and Ondo State revealed that middlemen in Nigeria play vital roles by providing agrochemicals for sale and contribute to the agricultural value chain.

Table 8: Contribution of Middlemen in Sesame Marketing (n = 204)

Contribution	*Frequency	Percentage
Easy to make sales of sesame products	52	25.5
Fair scaling	44	21.5
Paying a better price	8	3.9
Less stressful	53	26.0
Minimize losses	7	3.4
Make it easy to get a cash loan	1	0.1
Linking smallholder farmers with consumers	8	3.9
Help facilitate commodity trading	49	24.0
Total	**222**	

* Multiple Response
Source: Field survey (2022)

Constraints faced by Farmers in the Marketing of Sesame through Middlemen

Table 9 revealed the problems faced by the sesame farmers while marketing through middlemen. The Table depicts that, poor pricing (70.1%), exploitative practice of the middlemen (63.2%), followed by low profit margin (58.3%) and prolonged, deceiving and deceit bargaining (47.5%) were the major problems face by the sesame farmers and were ranked 1st, 2nd, 3rd and 4th in order of severity. Among other problems revealed by the sesame farmers were delayed payment, inadequate market information, inadequate grading, late cash disbursement, high interest on loans, and transportation, constituting 39.2%, 34.3%,19.6%, 15.7%, 14.7%, and 14.3%, respectively. According to Kumera *et al*. (2020), the role of middlemen in the supply chain (29.3%) and the lack of market information and price instability (33.3%) were the major sesame market problems farmers faced in Ethiopia.

Sani *et al*. (2011) reveal that agrochemical marketers were faced with numerous constraints like high cost of agrochemicals, transportation and delay in supply, sales of adulterated chemicals, sales of expired agrochemicals, and the marketers not giving the right information to farmers. The use of agrochemicals leads to an increase in farmers' output (Sani *et al.*, 2011), and licensed marketers should register with the government to control problems of adulteration and sale of expired agrochemicals to farmers (Sani *et al.*, 2011).

Table 9: Constraints faced by Farmers in Marketing Sesame through Middlemen (n = 204)

Constraints	*Frequency	Percentage
The exploitative practice of middlemen	129	63.2
Prolonged, deceiving, and deceitful bargaining	97	47.5
Low profit margin	119	58.3
Poor pricing	143	70.1
Delayed payment	80	39.2
Transportation	29	14.2
Limited/ poor market information	70	34.3
High interest on the loan	30	14.7
Late cash disbursement	32	15.7
Inadequate grading	40	19.6
Total	**769**	

* Multiple Response
Source: Field survey (2022)

The more middlemen increase in number, the less the profit of the farmers and other institutions involved. This finding from Agbebi and Fagbote (2012) was supported by Abebe *et al*. (2016) in their study that farmers without middlemen had more profit than farmers with middlemen. With this submission, it is evident that the activities of middlemen affect farmers' profit negatively, though they bridge the gap between the farmers and the market. Furthermore, Abebe *et al.* (2016) reported that farmers who do not deal with middlemen make more profit because they access better contract specifications, quality inputs, and receive higher prices for their products. The authors similarly suggested that the activities of middlemen are favorable to rural farmers with low investment, as they provide a market for their produce when needed, but at a low margin. On the other hand, farmers with better resources gain more from a direct relationship with wholesalers without the involvement of the middlemen.

A significant amount of the literature has tried to explain the cause of poverty among rural farmers, some of which are reported here. Gani and Adeoti (2011) observed that the lack of direct market participation, among other factors, is the main cause of poverty among rural farmers in Nigeria. Unah (2018) also reported that poverty among rural farmers will be alleviated if farmers adopt technological tools in their operation that will allow them to cut off their interaction with the middlemen, as much as possible, who impoverish the farmers.

ISSN 2536-6084 (Print) & ISSN 2545-5745

The middlemen are the gatekeepers, and the majority of the profit garnered in the production/ marketing value chain is made by the middlemen. The middlemen buy the farm produce cheaply and sell at a high cost in the market to buyers (Oguoma *et al.,* 2010).

Conclusion and Recommendation

Majority of the respondents (farmers) were predominantly youth and hence agile and economically productive to carryout farming activities and are more willing and able to take risk in expectation of profit, middlemen were found highly resourceful in linking and facilitating sesame marketing for the smallholder farmers and exploitative practice of the middlemen, low profit margin, prolong, deceiving and deceit bargain were the major constraints in marketing through middlemen. It is recommended, therefore, that formulating and implementing policies by the government targeted at improving infrastructure, such as roads, and providing a market information outlet that disseminates information timely manner to farmers are essential for improving marketing efficiency of sesame and the Creation of a regulated market. In the management of these markets, a farmer representative serves as a member, and this gives him a sense of belonging in the market, which makes the market environment more conducive for completing the transactions.

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