



MIDDLEMEN IN THE SESAME VALUE CHAIN: THEIR CONTRIBUTION AND COST TO SMALLHOLDER FARMERS IN BAUCHI STATE, NIGERIA

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ABSTRACT

The study examined middlemen's contribution to sesame (*Sesamum indicum* L.) marketing in Bauchi State, Nigeria. A multi-stage sampling procedure was used in selecting 204 sesame farmers and 60 sesame marketers. Data were collected using a structured questionnaire and analyzed using descriptive statistics. The results showed that respondents had an average age of 40 years; majority farmers (84.8%) and marketers (80.0%) were married. Majority (89.7%) farmers and most (96.7%) marketers were male, with the average household size of 7 persons. About 63% of the sesame farmers had a land size range of 1-4 hectares. Less than half (41.2% and 30.3%) of the farmers and marketers had 6-10 years of experience, and 43.1% and 41.7%, respectively, had at least secondary education. Most (73.0%) sesame farmers did not belong to any cooperative society, compared with marketers, 91.7% of whom belonged to various cooperative societies. Almost half (47.1%) of the farmers owned their land through inheritance; 42.6% sourced sesame price information from middlemen, with an average annual income of ₦798,248.04. The major factors that influenced farmers to trade through middlemen were high transportation costs, middlemen being better informed about market prices, and middlemen shortening the transaction period, with mean scores of 4.31, 4.18, and 3.91, respectively. Poor pricing (70.1%), exploitative practices by middlemen (63.2%), low profit margins (58.3%), and prolonged, deceptive bargaining (47.5%) were the major constraints sesame farmers faced when dealing with middlemen in the study area. The study concluded that middlemen's major contributions to sesame marketing were facilitating sales, fair scaling, and paying better prices to a few. The study recommends government marketing interventions in sesame marketing activities, including price appreciation, reduced marketing costs, and the formulation and implementation of marketing policies aimed at improving infrastructure.

Keywords: Middlemen, Contribution, Marketing, Sesame

INTRODUCTION

Agricultural traders play a critical role in food security and the overall economic development of the agricultural sector across low- and middle-income countries (Reardon, 2015). The presence of middlemen as marketing institutions in farming communities is strategic, but their role is often contested: while some studies report negative effects (Ali and Peerlings, 2011), several others find middlemen to play a positive role in linking smallholder farmers to markets (Gabre-Madhin, 2001; 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 produce reaches consumers at the appropriate time and place, and this demands high efficiency in marketing and supply chain management. Middlemen maintain contact with buyers, negotiate prices, deliver produce, provide credit, oversee storage and grading, and arrange transportation (Agbebi and Fagbote, 2012; Rubayet and Jony, 2016), thereby linking smallholder farmers to traders and final markets (Abebe *et al.*, 2016; Hasan and Bai, 2016).

In the Nigerian market, many producers do not sell directly to final consumers but rely on intermediaries such as wholesalers, retailers, and agent middlemen to move products to consumers (Ekwochi, 2019). This reliance stems from the greater efficiency intermediaries offer through their contacts, experience, specialization and scale of operation (Kotler, 2018). Middlemen are frequently accused of inflating prices and creating artificial scarcity, but such allegations alone are not sufficient grounds for conclusion, which is part of the motivation for this study.



Sesame (*Sesamum indicum* L.), the focus crop of this study, is one of the most widely cultivated and highly prized oil crops in the world (Oplinger *et al.*, 1990). This study was therefore carried out to:

- i. Describe the socioeconomic characteristics of the respondents'
- ii. Identify the marketing channel of sesame farmers
- iii. Examine the contribution of middlemen in sesame marketing
- iv. Describe the challenges faced by sesame farmers in marketing with middlemen

METHODOLOGY

The Study Area

The study was carried out in Bauchi State, Nigeria, located in the North-East geo-political zone between latitudes 9°30' and 12°30' North and longitudes 8°45' and 11°0' East. The State comprises three agricultural zones and 20 Local Government Areas (LGAs), covers about 49,259 km², and had a population of 4,653,066 as at the 2006 census (NPC, 2006), estimated at about 9,000,000 in 2022 at a 3.86% annual growth rate. The State is home to diverse ethnic groups, including the Hausa, Fulani, Jarawa, and Sayawa (BSEEDS, 2016). Bauchi State lies within the tropical continental climate belt and spans two vegetation zones: the Sudan savannah in the north and the Northern Guinea savannah in the south. The climate is characterised by a single rainy season and a prolonged dry season. Rainfall begins in April or May in the south and in June in the north, and ends in October, giving a growing period of about five to six months in the southern zone and three to four months in the northern zone. Mean annual rainfall declines along a north–south gradient, from roughly 1,300 mm in the southern LGAs to about 700 mm in the far north. Mean monthly temperatures range from about 25 °C to 40 °C, with the highest values recorded between March and May. Soils are predominantly ferruginous tropical and sandy to sandy-loam in texture, and are generally well-drained (BSADP, 2015; BSEEDS, 2016).

These conditions suit sesame production. Sesame is a short-duration, drought-tolerant crop that matures within 90–120 days and performs best under warm conditions of 25–30 °C on well-drained, light-textured sandy-loam soils, with moderate, well-distributed rainfall of about 500–800 mm during the growing season. The crop is intolerant of waterlogging and of heavy rainfall at maturity, and requires a dry period for ripening and harvesting (Oplinger *et al.*, 1990). The rainfall regime, temperature range, soil texture, and reliably dry harvest window that characterise the Sudan and Northern Guinea savannah zones of Bauchi State therefore closely match the crop's agro-ecological requirements, which accounts for its prominence in the study area's cropping systems.

Sampling Procedure

A multi-stage sampling procedure was used to select respondents. In the first stage, all three agricultural zones of Bauchi State were selected. In the second stage, two LGAs and one rural market were purposively selected from each zone, based on the level of sesame production and marketing, giving six LGAs and three markets. In the third stage, two communities were randomly selected from each LGA, giving 12 communities. In the fourth stage, 204 sesame farmers and 60 sesame marketers were proportionally (10%) and randomly selected from each community and market (Table 1), following the sampling proportion used by Gizaki *et al.* (2014) in a similar study of the Bauchi State sesame value chain.

The sampling frame was 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%)
(a). Farmers	Western	1. Kirfi	156	16
		2. anka	162	16
	Alkaleri	1. adara	213	10
		2. lkaleri	101	21
		3. utuk		
		4. utuk		
	Central	1. Ningi	247	25
		2. ama	190	19
		3. asaru		
		4. asaru		
	Darazo	1. 1.	98	10
		2. ade	176	18
		3. abarin		
		4. abarin		
	Sub-total		632	63
(b). Marketers	Western	1. Alkaleri	150	15
		2. Alkaleri		
	Central	1. Gadar Maiwa	250	25
		2. Gadar Maiwa		
	Northern	1. Sakwa	200	20
		2. Sakwa		
	Total		600	60

Source: Reconnaissance survey (2020)

Method of Data Collection

Primary data were collected through structured questionnaires administered to farmers and marketers with the aid of field enumerators. Farmers were interviewed on their socioeconomic characteristics (age, sex, marital status, household size, farm size, farming experience), their willingness to trade through middlemen, and the problems they face in marketing sesame. Marketers were interviewed on the sesame marketing channel and their own socioeconomic characteristics. Data collection was carried out manually by three enumerators, one per zone, with a 100% retrieval rate, between September and November 2022.

Methods of Data Analysis

Descriptive statistics (frequency, percentage, range and mean score) were used to achieve all four objectives of the study. Mean scores were used to determine the extent of farmers' willingness to trade through middlemen.

Descriptive statistics

Data were analysed using descriptive statistics. Frequencies, percentages and ranges were used to address objectives (i), (ii), (iii) and (iv). Mean scores derived from a five-point Likert-type scale (5



= strongly agree, 4 = agree, 3 = undecided, 2 = disagree, 1 = strongly disagree) were used to determine the extent of farmers' willingness to trade through middlemen and to rank the reasons for doing so. Items with a mean score of 3.00 or above were treated as influential. Questions on the contribution of middlemen and on marketing constraints permitted multiple responses; percentages for these items are therefore expressed as a percentage of cases ($n = 204$) and sum to more than 100.

RESULTS AND DISCUSSION

Socio-economic Characteristics of the Farmers and Sesame Marketers

Age, sex and marital status of the respondents

The results in Table 2 showed that 32.4% of sesame farmers were within the age range of 28-37 years and 30.4% fell between 38-47 years, with a mean age of 40 years; this is consistent with Ikwuakam and Lawal (2015) and Samuel *et al.* (2020), who reported similarly young, active farmer populations in the sesame sector, implying that respondents are largely youthful and economically productive. Among marketers, 66.7% were within the 28-47 age bracket, also with a mean age of 40 years. Most farmers (89.7%) and marketers (96.7%) were male, consistent with Babalola *et al.* (2013) and Samuel *et al.* (2020), which may reflect the greater physical demands of sesame production and men's relatively greater access to productive resources and information (Fasoranti, 2006).

Table 2: Distribution of Respondents Based on their Age, Sex and Marital Status

Variable	Farmers (n = 204)		Marketers (n = 60)		Mean
	Frequency	Percentage	Frequency	Percentage	
Age					
18-27	27	13.2	6	10.0	40 years
28-37	66	32.4	20	33.3	
38-47	62	30.4	20	33.3	
48-57	30	14.7	14	23.3	
58-67	18	8.8			
68 and above	1	0.5			
Sex					
Male	183	89.7	58	96.7	
Female	21	10.3	2	3.3	
Marital status					
Single	22	10.8	12	20.0	
Married	173	84.8	48	80.0	
Divorced	6	2.9			
Widowed	3	1.5			

Source: Field survey (2022)

Most respondents were married (84.8% of farmers, 80.0% of marketers), which agrees with Olukotun *et al.* (2012) and Samuel *et al.* (2020), and reflects the responsibility married respondents carry in providing for their households.

Household size, land size and farming experience of the respondents

Table 3 showed that sesame farmers had a mean household size of 7 persons, with 38.3% falling in the 1-4-person range and 32.8% in the 5-8 person range, broadly comparable to Kumera *et al.* (2020) and Adole (2016). Larger households can supply more family labour for farming operations, though this benefit diminishes where most members are outside the productive age range (Makama *et al.*, 2011). Marketers had a slightly larger mean household size of 8 persons. The results also showed that 62.7% of farmers cultivated 1-4 hectares, with a mean of 4.0 hectares, indicating that sesame production in the study area is predominantly small-scale, consistent with the small-scale threshold of 0.1-5.0 hectares proposed by Samuel *et al.* (2020), Makama *et al.* (2011) and Oladimeji *et al.* (2014) in other sesame-growing states. This limits the potential for economies of scale and mechanization, and constrains adoption of improved technology (Imoh and Essien, 2005; Sani *et al.*, 2014).



Table 3: Respondents Based on Household Size, Farm Size and Farming Experience

Variable	Farmers (n = 204)		Marketers (n = 60)		Mean
	Frequency	Percentage	Frequency	Percentage	
Household size					
1-4	78	38.3	8	13.3	8
5-8	67	32.8	28	46.7	
9-12	36	17.6	16	26.7	
13-16	11	5.4	7	11.7	
17 and above	12	5.9	1	1.7	
Land size					
1-4	128	62.7			4
5-8	51	25.0			
9-12	20	9.8			
13-16	3	1.5			
17 and above	2	1.0			
Farming experience [years]			Marketing experience (years)		
1-5	72	35.30	23	38.33	8
6-10	84	41.18	18	30.3	
11-15	26	12.75	11	18.33	
16-20	14	6.86	7	11.67	
21-25	3	1.47	1	1.67	
26-30	5	2.45			

Source: Field survey (2022)

In addition, the results revealed that 41.2% of farmers and 30.3% of marketers had 6-10 years in the trade farming experience, with an overall mean of 8 years, indicating a reasonably experienced respondent base; more years in farming typically improves awareness of new production techniques (Amaza and Olayemi, 2002), consistent with the comparable experience levels reported by Sani *et al.* (2014) and Adole (2016).

Respondents' educational level, membership of association and major occupation

The results in Table 4 showed that 43.1% of farmers and 41.7% of marketers had attained secondary education, while 21.6% of farmers and only 5.0% of marketers had tertiary education; 28.3% of marketers had no formal education. Literacy levels among respondents were generally higher than those reported by Kumera *et al.* (2020) in Ethiopia, where over 88% of sesame farmers were illiterate or had only primary education. Higher literacy improves farmers' ability to access, process and apply information on agricultural innovations (Zbinden and Lee, 2005).



Table 4: Respondents Educational Level, Membership of Association and Major Occupation

Variables	Farmers (n = 204)		Marketers (n = 60)	
	Frequency	Percentage	Frequency	Percentage
Educational level				
Primary education	23	11.3	14	23.3
Secondary education	88	43.1	25	41.7
Tertiary education	44	21.6	3	5.0
Qur'anic education	32	15.7	1	1.7
No education	7	3.4	17	28.3
Adult and literacy education	10	4.9		
Membership of association				
No	149	73.0	5	8.3
Yes	55	27.0	55	91.7
Major occupation				
Crop farming	120	58.8	1	1.7
Agro marketing	36	16.2	59	98.3
Livestock producers	17	8.3		
Agro processors	1	0.5		
Artisans	16	7.8		
Civil servant	17	8.3		

Source: Field survey (2022)

Most farmers (73.0%) did not belong to any cooperative society, in contrast to marketers, 91.7% of whom did, consistent with Samuel *et al.* (2020) and Adole (2016). This suggests most farmers in the study area are not benefiting from the pooled resources, efficiency gains and improved bargaining power that cooperative membership can offer. On major occupation, 58.8% of farmers were primarily crop farmers, while 98.3% of marketers were primarily engaged in sesame marketing; the remaining farmers were distributed across livestock production (8.3%), agro-processing (0.5%), artisan work (7.8%) and civil service (8.3%).

Income of sesame marketers and farmers

Table 6 showed that majority (77.9%) of farmers earned between ₦50,000 and ₦1,040,000 annually, with a mean annual income of ₦798,248.04, while 43.3% of marketers earned between ₦100,000 and ₦1,000,000, with a mean of ₦1,460,000. These figures are broadly consistent with Samuel *et al.* (2020), though considerably higher than the income levels reported by Odoemenem and Otanwa (2011) for farmers in Benue State. Given an average household size of 7 persons, a household relying solely on this income over a four-month cropping season would fall below the \$1-per-day poverty line, a shortfall likely linked to high input, pest, disease and transportation costs constraining farmer 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		
Marketers (₦)	(n = 60)	
100,000 - 1,000,000	26	43.3
1,100,000 - 2,000,000	10	16.7
2,100,000 - 3,000,000	6	10.0
3,100,000 - 4,000,000	3	5.0
4,100,000 - 5,000,000	7	11.7
Mean = 1,460,000		

Source: Field survey (2022)

Sesame Farmers' Willingness to Trade through Middlemen

The results in Table 7 showed that majority (65.2%) of the farmers were willing to trade through middlemen, while 34.8% were not. Farmers often lack the market position to determine sale prices for their own produce (Oguoma *et al.*, 2010), leaving middlemen, who buy cheaply and sell at a mark-up, as the main gatekeepers of the profit generated in the value chain.

Table 7: Sesame Farmers' Willingness to Trade through Middlemen (N = 204)

Willingness to trade through middlemen	Frequency	Percentage
No	71	34.8
Yes	133	65.2
Total	204	100.0

Source: Field survey (2022)

Perceived Reasons Farmers Trade through Middlemen

Table 8 showed that high transportation cost, middlemen being better informed about market price, and middlemen shortening the transaction period were the most influential reasons farmers trade through middlemen, with mean scores of 4.31, 4.18 and 3.91, respectively. This is consistent with Mashindano and Kihenzile (2013) and Tan (2016), who found that high transaction costs linked to poor marketing services similarly constrained smallholder sesame farmers in Tanzania.

Table 8: Reasons Farmers Trading through Middlemen (n = 204)

Reasons	Mean	Standard deviation
Middlemen are better informed about market price	4.1888	1.10664
High transportation cost	4.3147	1.20690
Middlemen shorten transaction period	3.9161	1.26989
Middlemen reduce the search cost with friction	3.9021	1.43554
Middlemen offer good price	3.1469	1.78790
Poor bargaining power	3.2937	1.66502

Source: Field survey (2022)

Sesame Marketing Channel

Table 9 shows that the dominant marketing channel in the study area was producer→village collector→wholesaler→exporter, reported by 90.0% of marketers, followed by producer→wholesaler→exporter→importer (6.7%) and producer→cooperatives→union→importer

(3.3%). This channel structure differs from the more fragmented set of channels reported for Abuja by Baba *et al.* (2019), suggesting channel structure varies by location.

Table 9: Distribution Based on Sesame Marketing Channel (n = 60)

Marketing channel	Frequency	Percentage
Producer-village collector-wholesaler-exporter-importer	54	90.0
producer-wholesaler-exporter-importer	2	3.3
producer-cooperatives-union-importer	4	6.7

Source: Field survey (2022)

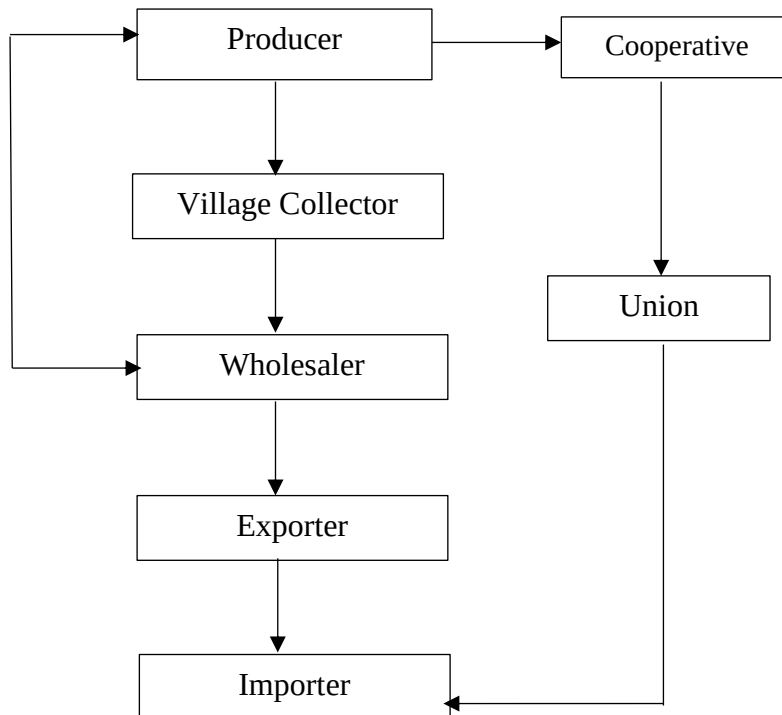


Figure 1: Sesame Marketing Channel in Bauchi State

Contribution of Middlemen in Sesame Marketing

Table 10 shows that middlemen contribute to sesame marketing chiefly by making sales less stressful for farmers (26.0%), making it easier to sell produce (25.5%), and providing fair scaling (21.5%). This supports the findings of Sani *et al.* (2011) and Agbebi and Fagbote (2012), who similarly found middlemen in Nigeria to play useful roles in agricultural value chains.

Table 10: Contribution of Middlemen in Sesame Marketing (n = 204)

Contribution	*Frequency	Percentage
Easy to make sales of sesame produce	52	25.5
Fair scaling	44	21.5
Paying better price	8	3.9
Less stressful	53	26.0
Minimize losses	7	3.4
Make it easy to get cash loan	1	0.1
Linking smallholder farmer 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 Marketing of Sesame through Middlemen

Table 11 shows that poor pricing (70.1%), exploitative practices by middlemen (63.2%), low profit margin (58.3%) and prolonged, deceptive bargaining (47.5%) were the leading constraints faced by sesame farmers, ranked 1st to 4th in order of severity. Other constraints included delayed payment (39.2%), inadequate market information (34.3%), inadequate grading (19.6%), late cash disbursement (15.7%), high interest on loans (14.7%) and transportation (14.2%). These findings are broadly consistent with Kumera *et al.* (2020), who identified market information gaps and price instability as leading sesame market problems for farmers in Ethiopia.

Table 11: Constraints Faced by Farmers in Marketing Sesame through Middlemen (n = 204)

Constraints	*Frequency	Percentage
Exploitative practice of middlemen	129	63.2
Prolonged, deceiving and deceit 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 loan	30	14.7
Late cash disbursement	32	15.7
Inadequate grading	40	19.6
Total	769	

* Multiple Response

Source: Field survey (2022)

These results align with Agbebi and Fagbote (2012) and Abebe *et al.* (2016), who similarly found that farmers dealing directly with buyers, without middlemen, tend to secure better contract terms, quality inputs, and higher prices, while middlemen activity is more favourable to low-resource farmers who need a guaranteed, if lower-margin, outlet for their produce.

This is consistent with the view that limited direct market participation is a key driver of rural poverty in Nigeria (Gani and Adeoti, 2011), and that reducing farmers' dependence on middlemen, where feasible, can help raise farm incomes (Unah, 2018).

CONCLUSION AND RECOMMENDATION

The study concludes that middlemen's major contributions to sesame marketing were facilitating sales, ensuring fair scaling, and paying better prices, among others. Middlemen were also highly resourceful in linking and facilitating sesame marketing for smallholder farmers. Based on these findings, it is recommended that:

- Government marketing interventions involving price appreciation and/or reduction in marketing costs can improve the sesame marketing system, supported by the infrastructure and standards needed for produce to be sold at competitive global prices.
- Government should formulate and implement policies to improve infrastructure such as roads, and establish a market information outfit to disseminate price and market information to farmers in a timely manner.
- Government, in partnership with private stakeholders, should ensure adequate supply of farm inputs and access to credit at appropriate interest rates for market participants, to improve competitiveness among farmers, wholesalers and retailers.

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