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ANALYSIS OF MARKETING EFFICIENCY OF SOME SELECTED AGRICULTURAL PRODUCTS IN ZANGO LOCAL GOVERNMENT AREA OF KATSINA STATE, NIGERIA

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ABSTRACT

Agricultural marketing plays a significant part in extending the market for farm products in Nigeria. Marketing efficiency is a vital objective in agriculture and food marketing. The paper examines the marketing efficiency of Millet, Groundnut, and Sesame in the Zango Local Government Area of Katsina State, Nigeria. A multi-stage sampling technique involving two different stages was adopted and used to select two hundred and eighty-three (283) grain marketers in three (3) major weekly periodic markets in the study area. Quantitative data were collected from sampled grain marketers using well-structured questionnaires. Data were analysed using descriptive statistics and marketing margin. The study's findings indicated that the majority of respondents were male. It was predominantly composed of energetic individuals aged 30 to 34. The results showed that the majority of respondents were married and possessed a tertiary education. The findings also indicated that most individuals had household sizes of 6 to 10 persons. The results further revealed that the marketing efficiencies of the selected crops were 0.129, 0.043, and 0.090, respectively, using Shepherd's (1956) model of marketing efficiency, which states that marketing efficiency ≥ 1 indicates efficient and ≤ 1 indicates inefficient. Based on this, it can be concluded that agricultural product marketing in the study area is inadequate. The following recommendations were made: crop marketers should develop innovative marketing tactics, including value addition to commodities, to enhance their profit margins. The government should regulate crop marketers' trading activities to ensure business efficiency.

Keywords: Marketing, agricultural marketing, marketing margin, marketing efficiency

INTRODUCTION

Cereals and oilseeds, within the field crop segment, are the most critical determinants of an agricultural economy (Gaurav, 2022). Agriculture accounts for 21% of Nigeria's Gross Domestic Product (GDP) and employs approximately 70% of the workforce. It is the primary driver of Katsina State's economy, generating income for the majority of its populace (FRN, 2018). Marketing encompasses all economic operations related to the movement of commodities and services from the first stage of agricultural production to the final consumer (Nizamuddin & Mohammad, 2012). Agricultural marketing refers to all business activities involved in the transfer of farm products from the point of initial production to final customers. The marketing of farm products is distinctive due to the specific attributes of many farm goods (Mussema, 2006; Angela *et al*., 2020). The marketing margin is a widely used tool for analysing and assessing the effectiveness of the marketing system. Marketing margins and marketing costs indicate the efficiency or inefficiency of the marketing system.

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Efficiency is a vital objective in agriculture and food marketing. The efficient and effective distribution of agricultural products from producers (farmers) to consumers can enhance the availability, accessibility, and affordability of sufficient food (Pabuayon et al., 2014). Marketing efficiency is characterised as the efficacy or proficiency with which a market structure executes its assigned functions (Kalita, 2017). The marketing efficiency of agricultural products can be categorised into two types: operational efficiency and price efficiency (Kohl & Uhl, 2002; Fafchamps *et al.,* 2005; Yohana & Yan, 2020). Operational efficiency pertains to marketing operations that can enhance or optimise the ratio of marketing output to input. It assesses the profitability of marketing entities (traders, manufacturers, or processors) relative to their operational expenses. Price efficiency underscores the marketing system's capacity to allocate resources and synchronise all agricultural production and marketing activities effectively to fulfil customer demand and ensure satisfaction (Faftchamps *et al.,* 2005; Yohana & Yan, 2020). A market is deemed efficient if it demonstrates indicators such as higher prices for agricultural products, profitability for all marketing institutions involved, heightened consumer satisfaction, and a greater share of consumer prices allocated to farmers to stimulate production. The efficacy of millet, groundnut, and sesame marketing in the research area is assessed by calculating gross margins (GMs).

Grain products in Katsina State are a significant commodity, generating substantial demand and supply for both rural and urban consumers. The urban environment of Katsina typically receives its supply from numerous rural markets located across the state's local government areas. In contrast, the rural areas often obtain these products directly from farms where they are produced (Garba, 2017). All businesses require marketing functions both before and after production; agriculture is no different, as it is essential to its sustainability. Marketing activities are required to strike a balance between supply and demand (Ikpeazu & Moguluwa, 2017).

Several studies were undertaken on various facets of agricultural product marketing. For instance, Maharazu (2023) performed a study analysing the marketing performance of onions among participants in Kaduna and Katsina States, Nigeria. The research employed a survey design, ~~d~~descriptive statistics, marketing margin analysis, and multiple regression techniques for evaluation. The findings indicate that transportation issues, inadequate road infrastructure, elevated spoilage rates, significant price volatility, subpar market conditions, and deceitful practices by intermediaries are adversely impacting the marketing system. Similarly, Angela et al. (2020) conduct an economic analysis of the marketing margin for bananas and plantains in Enugu State, Nigeria. The research employed a marketing margin model and descriptive statistical techniques for analysis, revealing that inadequate capacity building, insufficient financing, excessive taxation, and elevated transportation costs were significant impediments to banana and plantain marketing in the studied region. Furthermore, Lawal et al. (2020) examined the marketing efficiency of pineapple in Kano State, Nigeria. The research employed marketing margin analysis and market efficiency to evaluate the data, and the results revealed that pineapple marketing is lucrative in the examined region.

Garba (2020) examined the profitability of tomato marketing in Katsina Local Government Area; the study's evaluation revealed that the data were collected through a survey. Descriptive statistics, agricultural budgeting, marketing margin, and marketing efficiency were employed for the study. The study indicated that young, physically capable individuals primarily engaged in tomato marketing. The results also indicated that limitations stemmed from insufficient government support. Aminu, Ojo, and Shittu (2019) conducted a study on the marketing efficiency of fresh tomatoes in the Ijebu North Local Government Area of Ogun State, Nigeria. Data were gathered from 80 tomato marketers

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via a survey. Budgetary analysis, marketing efficiency evaluation, and multiple regression analysis were employed for examination. The tomato marketing system was deemed inefficient. (Bello *et al.,* 2019) did a study on the profitability of groundnut marketing in the Katagum Local Government Area, Bauchi State, Nigeria. The analysis of the collected data employed gross margin and descriptive statistics. Their findings indicated that groundnut marketing was competitive. They also identified the high cost of transportation, price volatility, fragmented production, seasonal production patterns, and insufficient capital as significant restraints for groundnut marketers.

Most prior studies focus primarily on the marketing of individual crops and have inadequate sample sizes. Therefore, given the research gap, this study aims to investigate the marketing efficiency of agricultural products in the Zango Local Government Area of Katsina State, Nigeria, focusing on three key commodities: millet, groundnut, and sesame, and using a sufficient sample size.

MATERIAL AND METHODS

Study Area

Zango Local Government Area (Figure 1) is situated in the northeastern region of Katsina State, North-West Nigeria, approximately between latitudes 12°50'N and 13°0"N, and longitudes 8°26'E and 8°44'E. It is bordered to the north by the Niger Republic, to the east by Baure Local Government, to the south by Jigawa State, and to the west by Sandamu and Mai'adua Local Governments (Tukur & Akobundu, 2014).

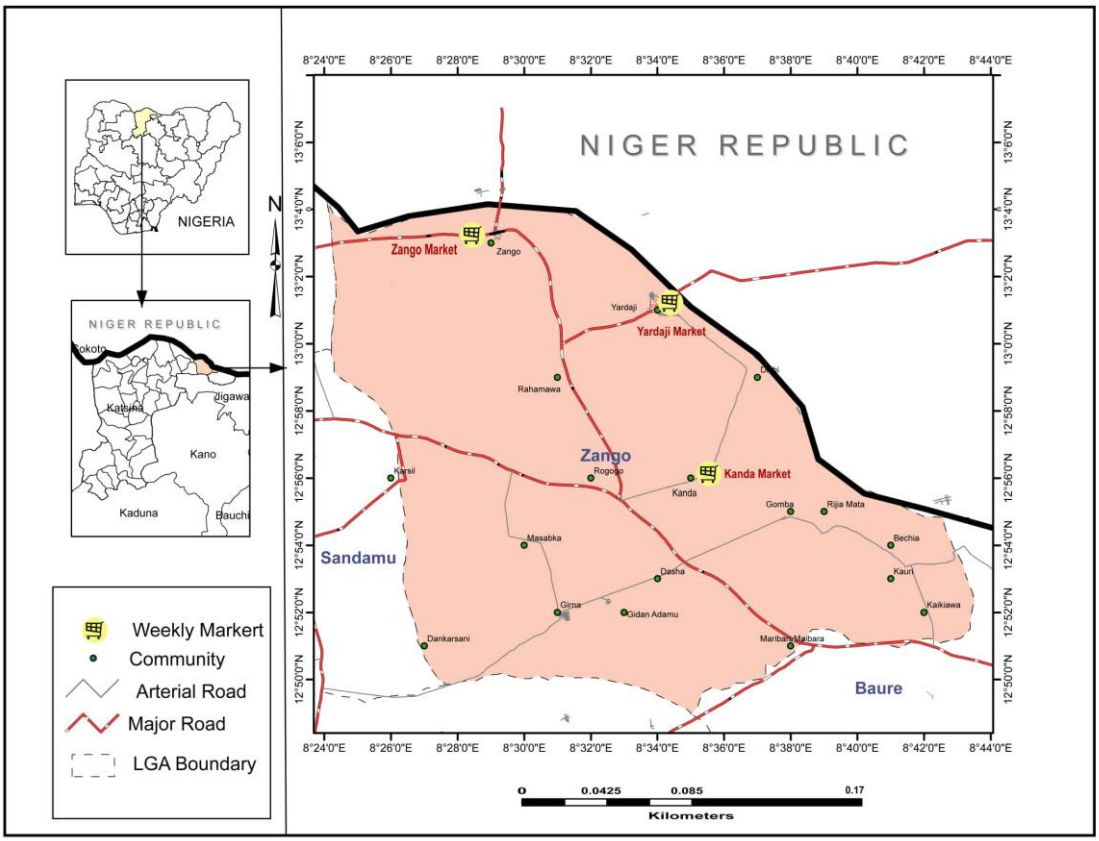

Figure 1: Map of Zango local government showing the study area
Source: adapted from Google Earth Imagery

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Data Collection

This study employed a two-stage sampling strategy to choose 283 agricultural marketers in the study area. The initial phase entails deliberately selecting one primary market from each of the three villages, corresponding to the three districts within the Local Government Area, for a total of three markets. The second stage entails the random selection of marketers for Millet, Groundnut, and Sesame within the designated markets. Based on data from the Association of Crop Marketers, the research area has 966 registered crop marketers. The necessary sample size for each specified market was calculated using Slovin's (1960) formula to ascertain the proportion of responders. The registered crop trader population is 966; hence, the sample size was determined using Slovin's (1960) formula with a confidence level of 0.05.

Therefore: $$n = \frac{N}{1 + Ne^2} \qquad Eq.....3.1$$

n = sample size

N = population size

e = margin of error or significance level (5% = 0.05)

$$N = 966$$

$$n = \frac{966}{1 + (966) \times (0.05)^2}$$

$$n = \frac{966}{1 + (966) \times (0.0025)}$$

$$n = \frac{966}{1 + 2.415}$$

$$n = \frac{966}{3.415}$$

$$\therefore n = 283$$

Consequently, using the aforementioned formula, the computed sample size is 283 crop marketers, representing the total number of respondents.

Data Analysis

The data collected in this study were analysed using descriptive statistics, including frequency distributions and graphs. Moreover, the marketing efficiency model (Shepherd model of marketing efficiency) is used to capture the specific objective.

Marketing efficiency model (Shepherd model of marketing efficiency)

Marketing efficiency (ME) reflects the benefit accruing to marketers relative to the price consumers are willing to pay for the goods or services delivered by the marketing system (Alabi et al., 2020). This model was often adopted in the current research to measure the marketing efficiency of marketed agricultural products in the study area.

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The marketing effectiveness of millet, groundnut, and sesame crops was measured with the use of the following formula presented by Shepard (1965):

$$ME = \frac{V}{I} - 1 \quad Eq.....2.1$$

Where,
ME = Index of Marketing Efficiency
V = Value of goods sold or consumer price, and
I = Total marketing cost or marketing cost per unit

For a marketer to be efficient in marketing their crops, ME ≥ 1 indicates efficiency, and ME ≤ 1 indicates inefficiency (Longwel *et al.,* 2016).

RESULTS AND DISCUSSION

Socio-Demographic Characteristics of the Respondents

This subsection analyses the socio-economic attributes of grain marketers, encompassing gender, age, marital status, household size, and educational attainment. The analysis of these factors allows the study to derive conclusions about the attributes of agricultural marketers in the research area.

Table 1 indicates that 77.7% of respondents were male and 22.3% were female. This indicates that males were the predominant players in the marketing and distribution of millet, peanuts, and sesame within the study area. This aligns with the findings of Katanga et al. (2016), who stated that the majority of cowpea marketers were male because the business required regular excursions from home to the market, which contradicted the cultural and religious norms of the research area.

Table 1: Sex Distribution of the Respondents

Sex	Frequency	Per cent (%)
Male	220	77.7
Female	63	22.3
Total	283	100.

Source: Field Survey, 2024

Figure 2 illustrates the age distribution of the respondents. Approximately 24.7% of the responders are aged 30-34 years, while 20.8% are aged 35-39 years. Likewise, 2.8% of respondents are under 20 years of age, while the majority are aged 30-34. This indicates that the marketing and distribution of millet, groundnut, and sesame in the study area are conducted by a dynamic and vigorous age group capable of managing the demands of transitioning between markets. This coincided with Garba's (2020) conclusions in his study of the profitability of tomato marketing in the Katsina Local Government Area, Katsina State, Nigeria. The survey indicated that the majority of tomato marketers in the study area are aged 15 to 35.

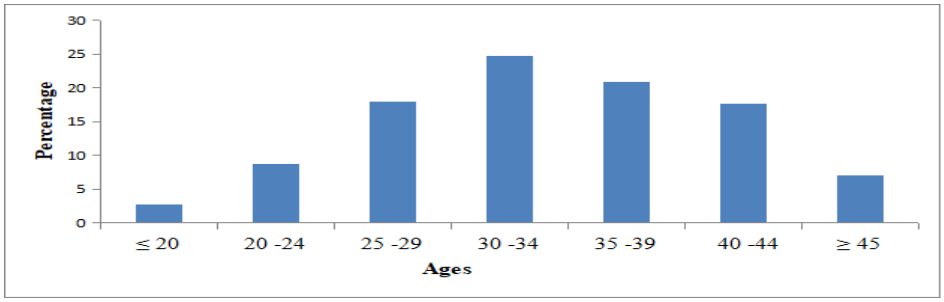

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Figure 2: Age Distribution of Respondents
Source: Field Survey 2024

Figure 3 illustrates that around 60.1% of respondents were married, 14.1% were single, 8.1% were widowed, and 17.7% were widowers. This suggests that the majority of respondents are married, implying that married marketers bear greater economic and social responsibilities and engage in marketing and distribution to fulfil their demands. This result aligns with those of Nwankwo et al. (2023), who found that the majority of marketers in their research region were married. This study corroborated the findings of Chukwunonso (2021), which indicated that a majority (95.4%) of the respondents were married.

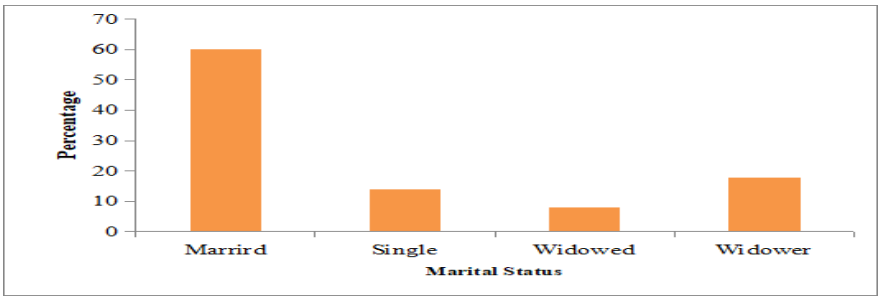

Figure 3: Marital Status of Respondents
Source: Field Survey 2024.

The results on educational level indicate that 39.9% of grain marketers had primary education, whereas 24.7% received Qur'anic instruction. 21.2% had completed secondary education, while 5.3% of grain merchants possessed no formal education. This indicates that the majority of respondents (94.7%) possess some form of formal education and are expected to have the foundational knowledge necessary to enhance their marketing and distribution efforts in the research area. These findings corroborate the conclusions of Aliyu et al. (2020), who indicated that a significant proportion of cowpea marketers possess some level of literacy and may be amenable to new and enhanced innovations and marketing policies that could augment output, in contrast to those lacking formal education.

Figure 3 illustrates the respondents' household sizes. The findings indicate that 25.4% of respondents had 6-10 household members, 18% had 1-5 household members, and only 4.9% had 26 or more household members. The results indicate that the majority of respondents have between 6 and 10 household members. These results align with those of Aliyu et al. (2020), who indicated that the majority (83%) of marketers in their study location had family sizes ranging from 1 to 11 individuals.

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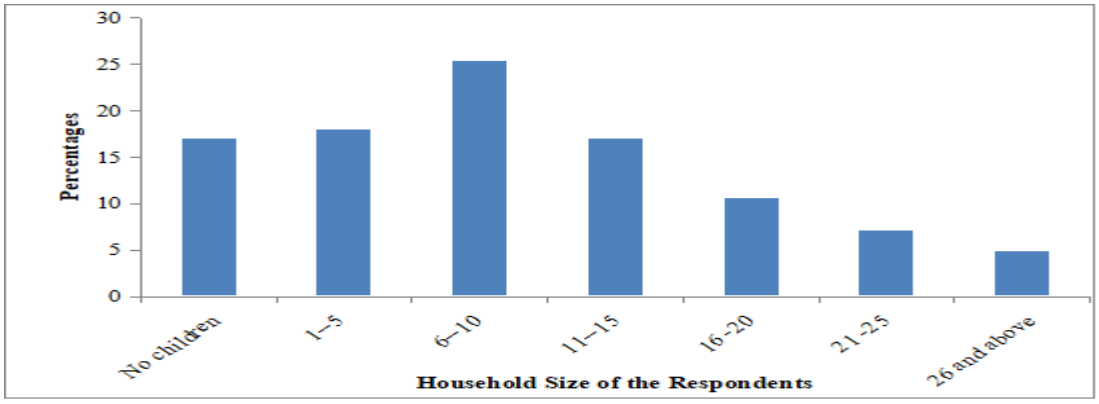

Figure 3: Household Sizes of the Respondents

Marketing Efficiency of the selected crops in the study area

Marketing efficiency is an important means of improving crop marketers' income levels and enhancing market performance. It is expressed as a ratio; an increase in the ratio indicates an increase in efficiency, and vice versa.

Table 4: Marketing margin and Marketing Efficiency of the selected crops in the study area in naira

Crops	Purchase price or Marketing cost	Selling price	Marketing margin	Shepherd's marketing efficiency (V/I)-1	Level of efficiency
Millet	₦62,000	₦70,000	₦8,000	0.129	Inefficient
Groundnut	₦115,000	₦120,000	₦5,000	0.043	Inefficient
Sesame	₦110,000	₦120,000	₦10,000	0.090	Inefficient

Source: Field Survey 2024

The above 4 disclose the estimates of the marketing efficiency of the selected agricultural products using Shepherd's (1956) marketing efficiency model.

Table 4 above shows the marketing efficiency values of the selected products across the selected markets studied. Millet had a marketing efficiency value of 0.129, which is (inefficient) according to the stated model. Groundnut also had a value of 0.043 (inefficient), and Sesame had a value of 0.090 (inefficient). The Groundnut crop had the lowest marketing efficiency value among the selected products, indicating that agricultural product marketing in the study area was inefficient.

CONCLUSION AND RECOMMENDATIONS

Based on the findings of this study, the marketing of the selected crops (millet, groundnut, and sesame) in the study area appears inefficient. Crop marketing in the research area is predominantly conducted by males, most of whom are married. Based on the findings, it is recommended that females engage in marketing the selected crops to complement their male counterparts. Crop marketers should develop innovative marketing tactics, including value addition to commodities, to enhance their profit margins. The government should regulate crop marketers' trading activities to ensure business efficiency.

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