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KNOWLEDGE AND UTILIZATION OF MARKET-ORIENTED AGRICULTURAL EXTENSION SERVICE AMONG FARMERS IN OYO STATE, NIGERIA

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ABSTRACT

Market-oriented agricultural extension services (MOAES) are pivotal in transforming subsistence farming into a profitable and sustainable venture, thereby reducing rural poverty. This study investigates the knowledge and utilization of market-oriented agricultural extension services among farmers in Oyo State, Nigeria. The study employs a two-stage cluster sampling technique to select 106 farmers from four agricultural zones in Oyo State. Data was collected through structured questionnaires and interview schedules on knowledge, accessibility, utilization, and satisfaction with MOAES provided. The public extension (61.6%) was the primary provider of market-oriented agricultural extension services, with low knowledge and satisfaction. Utilization of the services on types of crops to grow, food safety standards, and sourcing of farm inputs were moderate. Overall utilization of MOAES by 55.7% of the farmers was low. Constraints were poor linkage ($\bar{x}$=1.90), limited access to credit for input purchases ($\bar{x}$=1.84), and inadequate price information for various inputs ($\bar{x}$=1.68). Significant relationships existed between farmers sex (X^2=3.259), marital status (X^2=0.186), educational level of MOAES (X^2=8.055). Strengthening the capacity of extension agents and focusing on value addition are recommended.

Keywords: *market-oriented agricultural extension service, market-oriented farming, utilization of agricultural extension service*

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INTRODUCTION

Market-oriented agricultural extension is vital in enabling the commercialization of subsistence farming and reducing rural poverty (Gwary et al., 2019). It can be stated that all endeavors of extension agents are to enhance producers' market orientation and market participation (Gebremedhin et al., 2012). This effort encompasses the help and support given to the farmers by the extension agents on sourcing farm inputs, adopting suitable technologies and production practices, providing market information, linking producers to buyers, facilitating the organization of farmers' groups and co-operatives, and improving the management skills of farmers (Gebremedhin et al., 2012). However, Kahan (2013) argued that more than these advisory services are needed to link producers to buyers. Therefore, there is a need to complement them with other crucial commercial services. These services include collection, sorting, grading and packaging, research and product development, logistics, insurance and financial services, ICT, and veterinary service (Elias et al., 2016; Piabuo et al., 2019).

Market-oriented agricultural extension services are pivotal in addressing the marketing challenges faced by smallholder farmers (Naumova-Mihajlovska & Daniloska, 2018; Nwafor et al., 2018). To fully transition from subsistence farming into market-oriented farming and benefit from new market opportunities, farmers need knowledge of input and output marketing provided by extension services (Gebremedhin & Tegegne, 2012). Market-oriented extension services should focus on providing required market-related services, promoting profitable commodities, and helping farmers adopt new innovative practices and improved production technologies (Gebremedhin et al., 2012). In Mali, shea butter is a significant source of income for its local farmers and a means of income diversification for rural women (Baoua et al., 2013). The Malian government established village shea service centers that served as hubs to support these farmers, providing market-related services and information to the producers (Naughton et al., 2017). This helps maintain the quantity and quality of shea kernels and butter the local farmers produce for export. Furthermore, the centers train rural women in shea butter storage and processing (Baoua et al., 2013). This led to Mali being one of the world's leading exporters of shea butter (FAO, 2018).

The public agricultural extension system needs to improve its efforts in equipping farmers with the knowledge necessary for farmers to participate in

the market and see themselves as an integral part of the value chain (Ladele et al., 2017; Bakari et al., 2021). They help farmers get the best seeds, adopt new and improved technologies, train them in produce handling, packaging, and processing, and facilitate access to finance (Umeh et al., 2018; Abugu et al., 2013). Aside from these market-oriented agricultural extension services provided by the government through states' ADP, other programs are also targeted at improved production, financial access, and market linkage by the Nigerian government, including the Anchor Borrowers Scheme and Growth Enhancement Support Scheme (Oyelami and Ladele, 2017). Furthermore, many private organizations are also offering market-oriented agricultural extension services to smallholder farmers (Gebremhedin et al., 2012; Kahan, 2011; Ladele et al., 2017).

However, FAO (2018) reported that 88% of Nigerian farmers are smallholder farmers. This implies that most Nigerian farmers are still operating at a semi-subsistence level despite all the extension services and development programs provided by the government and other organizations to enhance these farmers' market orientation and participation. Operating on a subsistence level has many adverse effects on farming households and a country's economy. The most adverse effect is an increase in poverty, as FAO (2018) stated that 72% of the subsistence farmers in Nigeria live below the poverty line. In addition, subsistence farmers in Nigeria also need more knowledge of farm planning and management, better linkage to the market, and more capital to expand their businesses (Ladele et al., 2017). Furthermore, inadequate storage and processing facilities and market information often lead to farmers turning to intermediaries to sell their produce (Mwada et al., 2019; Muchesa et al., 2019). These middlemen, however, tend to over-extort these farmers (Agbarevo & Obinne, 2010; Nwafor et al., 2019).

A study by Ovwigho (2015) found that market-oriented extension services provided to farmers still need to address their needs. If necessary steps are not taken, subsistence farmers may continue in this vicious cycle of poverty (Mwada et al., 2019). Therefore, there is a need to find out what knowledge the farmers are gaining from the market-oriented agricultural extension services and how they are utilizing this knowledge and service. This will enable improvements in the type of services provided and find ways to help farmers utilize them better. Some of the past literature focused on the marketing extension needs of the farmers. For example, Abugu et al. (2013) investigated farmers' production and marketing extension needs.

Similarly, Ogunleye et al. (2010) found out that farmers in Oyo State need market-oriented extension services like market linkage, access to finance, market information, storage facilities, and training on value addition, processing, grading, and packaging. However, extension agents must improve some of their marketing extension roles, mainly advising farmers on available markets, sales

timing, grading, packaging, and transportation (Ovwigho, 2015). Vasanthi &Angadi (2020) assessed farmers' constraints in utilizing market-oriented agricultural extension services in India. It is worth noting that these studies have yet to assess farmers' level of utilization of market-oriented agricultural extension services.

To enable the improvement and provision of adequate market-oriented agricultural extension services and effective utilization of these services by the farmers, it is therefore imperative to find out the knowledge and utilization of market-oriented agricultural extension services by the farmers. The research specifically:

1. Identified the significant providers of market-oriented agricultural extension services to farmers in the study area
2. Examined respondents' knowledge of market-oriented agricultural extension services in the study area
3. Examined the extent of utilization of market-oriented agricultural extension services by the farmers
4. Identified the constraints in utilizing market-oriented agricultural extension services by the farmers

The research hypothesis was:

H01: There is no significant relationship between farmers' personal and enterprise characteristics and their utilization of market-oriented agricultural extension services.

RESEARCH METHOD

The study was conducted in Oyo state, one of Nigeria's largest producers of food crops. Oyo state was created in 1976 and located in the south-west zone of Nigeria. It has a population of about 8,392,588 people and a population density of 279 people per square kilometer (NIPC, 2022). Oyo state has a land mass of 28 454 sq. Km. Oyo state lies within longitude 4°00′ east and latitude 8°00′ north. Oyo state climate is marked by two distinct seasons: the wet season, which starts in April and ends in October, and the dry season, which starts in November and lasts till March. The state has a mean annual rainfall of 1,264 mm in the south and 1,194 north. The temperature ranges from an annual mean minimum of 22.9 $^{\circ}C$ and a maximum of 27 $^{\circ}C$. The state also has a mean relative humidity of 60% (at 1500 GMT) and 79% (at 0900 GMT). Oyo state is located in Nigeria's rainforest and Guinea savannah vegetation zone. The target population of this study consists of farmers who have been provided with some market-oriented extension services or market-related capacity building or training.

Two-stage cluster sampling and simple random sampling were used to select respondents for the study. The four agricultural zones in Oyo state, namely

Ibadan/Ibarapa, Saki, Ogbomoso, and Oyo, formed the clusters for the study. Two clusters were randomly selected, and four Local Government Areas (LGAs) were randomly selected from each of the two clusters. Simple random sampling was used to select respondents from each selected LGA for the study. The total number of respondents selected for the study was – One hundred and thirty-four (134).

Respondents' level of accessibility to market-oriented agricultural extension services, including input services, production services, post-production services, marketing services, and capacity building, was measured on a three-point scale of always, sometimes, and never with scores of 2, 1, and 0, respectively. Respondents' level of satisfaction with market-oriented agricultural extension services provided to them by the extension service providers in the study area was measured on a three-point scale of highly satisfactory, moderately satisfactory, and not satisfactory with scores of 2, 1, and 0, respectively. The constraints faced by the respondents when utilizing market-oriented agricultural extension services in the study area were measured on a three-point scale of severe constraint, mild constraint, and not a constraint with scores of 2, 1, and 0, respectively, on a 25-item scale. The types of market-oriented agricultural extension services needed by the respondents in the study area were measured on a three-point scale of considerable extent, some extent, and not at all, with scores of 2, 1, and 0, respectively.

RESULT AND DISCUSSION

Result Primary Provider Of Market-Oriented Extension Service

The findings in Table 1. reveal a critical insight into the significant providers of market-oriented agricultural extension services reported by the surveyed farmers. Notably, a substantial majority, precisely 61.6% of the respondents, relied on the public extension system as their primary source of such services. This dominance of the public extension system signifies its central role in disseminating market-oriented agricultural information and support within the study area. In contrast, a much smaller % of farmers, representing 9.4%, identified private extension services as their primary source of market-oriented agricultural extension. The private sector's involvement in extending these services is relatively limited compared to the public sector. Surprisingly, producer and commodity organizations are the second primary Providers of MOAES ahead of input suppliers and private extension systems. This implies that farmers' organizations with adequate support and structuring can be significant providers of extension services (Fisher et al., 2018). The substantial reliance on the public extension system, coupled with the involvement of private input suppliers, producer organizations, and processing and trading enterprises, underscores the multifaceted nature of the agricultural extension landscape in

the study area. Understanding this distribution is crucial for developing and tailoring effective extension programs and interventions to cater to farmers' diverse preferences and needs, ultimately promoting agricultural development and sustainability.

Table 1. Distribution of Respondents based on their primary Provider of market-oriented extension service

MOAES Provider	F	%
Public Extension System	64	61.6
Private Extension	10	9.4
Input Supplier	11	10.0
Producer And Commodity Organization	13	12.3
Processing And Trading Enterprise	8	7.7

Source: Field Survey, 2023

Farmers' Knowledge of Market-Oriented Agricultural Extension Service

Table 2. reveals that the majority (63.2%) of the farmers indicated that MOAES is based on the comparative advantages of a given area in terms of existing resources like land, water, and vegetation; MOAES's primary aim is to help farmers achieve better income from their farming activities (64.2%), MOAES enhance market-orientation and participation of smallholder farmers (62.3%), MOAES does not encourage a combination of Indigenous and scientific knowledge (67%), and MOAES help farmers overcome market-related problems (64.2%). Knowledge and understanding of market dynamics enable them to make informed decisions and improve their agricultural practices. While market-oriented agricultural extension services hold significant potential to improve farmers' knowledge, their awareness and utilization still need to be improved in many contexts. Enhancing farmers' awareness, addressing access challenges, and utilizing interactive learning platforms like Farmer Field Schools can empower farmers with market-oriented farming knowledge (Naumova-Mihajlovska & Daniloska, 2018). According to Nwafor (2018), Lack of awareness can limit farmers' ability to access and utilize these services effectively.

Table 2. Distribution of Respondents Based On Farmers' Knowledge Of Market-Oriented Agricultural Extension Service

Market-oriented agricultural extension service (MOAES)	Yes		I do not know		No		Mean
	F	%	F	%	F	%	
MOAES is based on the comparative advantages of a given area in terms of existing resources like land, water, and vegetation.	67	63.2	20	18.9	19	17.9	1.45
MOAES primarily aims to help farmers achieve better income from their farming activities.	68	64.2	23	21.7	15	14.2	1.50
Every effort of MOAES is geared towards the development of market-oriented commodities.	47	44.3	29	27.4	47	44.3	1.16
MOAES is based on a value chain framework	45	42.5	31	29.2	30	28.3	1.14
MOAES builds on farmers' existing knowledge and experience.	41	38.7	26	24.5	39	36.8	1.02
MOAES enhance market orientation and participation of smallholder farmers	66	62.3	11	10.4	29	27.4	1.35
MOAES help farmers to treat their farm as a business enterprise	51	48.1	35	33	20	18.9	1.29
MOAES does not encourage a combination of Indigenous and scientific knowledge	71	67	23	21.7	12	11.3	1.56
MOAES helps in the long-term capacity building of the farmer	27	25.5	31	29.2	48	45.3	0.80
MOAES facilitates the organization of farmers in conducting collective marketing of their produce	30	28.3	38	35.8	38	35.8	0.92
MOAES help farmers overcome market-related problems	68	64.2	20	18.9	18	17.0	1.47
MOAES promotes the adaptation and adoption of improved technologies and practices.	47	44.3	50	47.2	9	8.5	1.36
MOAES helps in organizing reliable sources of market information for farmers	47	44.3	28	26.4	31	29.2	1.16
MOAES provides advisory services on postharvest, processing, grading, and packaging	36	34	61	57.5	9	8.5	1.15

Source: Field Survey, 2023

Categorization of Farmers' Knowledge of Market-Oriented Agricultural Extension Service

Table 3. shows that a significant majority (71.7%) of farmers exhibited limited knowledge of market-oriented agricultural extension services. Farmers' varying levels of understanding can be attributed to factors including their access to extension services, the availability of information and training, the effectiveness of communication channels, and the numerous challenges and barriers they face, as noted by Ovwigho (2015). Addressing these factors is essential for enhancing farmers' knowledge and ensuring the successful implementation of market-oriented agricultural extension services.

Table 3. Categorization of Farmers' knowledge of market-oriented agricultural extension service

Knowledge Group	Frequency	Percentage	Minimum	Maximum	Mean	S.D
Low	76	71.7	12	28	17	5.69
High	30	28.3				

Source: Field Survey, 2023

Categorization of Respondents Based on Their Extent of Utilization of Market-Oriented Agricultural Extension Services

Table 4. highlights that a significant portion of the surveyed farmers, approximately 55.7%, exhibited a low utilization of market-oriented agricultural extension services. This finding underscores a critical concern in the agricultural sector. Farmers' utilization of these services is profoundly influenced by their awareness and accessibility to such resources. Research conducted by Vasanthi & Angadi (2020) has indicated that farmers informed about the existence and potential benefits of market-oriented extension services are more likely to engage with them actively. This awareness is a crucial determinant of utilization. Moreover, accessibility factors, including the proximity of farmers to extension centers and the ease of communication with service providers, also play a pivotal role in shaping utilization levels. The findings emphasize the importance of promoting awareness and improving the accessibility of these services to enhance farmers' engagement and, ultimately, the effectiveness of market-oriented agricultural extension programs.

Table 4. Categorization of Respondents Based On Their Extent of Utilization of Market-Oriented Agricultural Extension Services

Level of Utilization	Frequency	Percentage	Minimum	Maximum	Mean	SD
Low (13-23)	59	55.7	13	52	24	9.65
High (24-52)	47	44.3				

Source: Field Survey, 2023

Constraints Faced By Farmers in the Utilization of Market-Oriented Agricultural Extension Services

Table 5. presents farmers' critical constraints in pursuing market-oriented agricultural extension services. The data reveals that a substantial majority of farmers, around 89.6%, consider poor linkage between input suppliers and extension agents a severe constraint. Additionally, challenges such as inadequate price information for various inputs (67.9%), the unavailability of credit sources for input purchases (84.0%), insufficient training on best production systems (61.3%), and poor infrastructure for processing and value addition (71.7%) were identified as significant obstacles.

Table 5. Constraints Faced By Farmers In The Utilization of Market-Oriented Agricultural Extension Services

Constraints to market-oriented agricultural extension services utilization.	Severe constraint		Mild constraint		Not a constraint		Mean
	F	%	F	%	F	%	
Input							
Inadequate knowledge of the best commodity to produce by the extension agents	55	51.9	39	36.8	12	11.3	1.41
Poor linkage between input suppliers and extension agents	95	89.6	11	10.4	0	0.0	1.90
High cost of labor	43	40.6	54	50.9	9	8.5	1.32
Inadequate price information for the various inputs	72	67.9	34	32.1	0	0.0	1.68
Unavailability of credit sources to finance inputs purchase production	89	84.0	17	16.0	0	0.0	1.84
Inadequate training on best production systems	65	61.3	41	38.7	0	0.0	1.61
The small size of the farmland	46	43.4	50	47.2	10	9.4	1.34
Inadequate knowledge of improved technologies	62	58.5	44	41.5	0	0.0	1.58
Inadequate training on how to operate modern farm equipment	53	50.0	53	50.0	0	0.0	1.50

Constraints to market-oriented agricultural extension services utilization.	Severe constraint		Mild constraint		Not a constraint		Mean
	F	%	F	%	F	%	
Post-production							1.58
Lack of proper storage facilities	61	57.5	45	42.5	0	0.0	1.70
Poor means of transportation							
Poor infrastructure for processing and value addition	76	71.7	28	26.4	2	1.9	1.55
Inadequate training in processing and packaging	58	54.7	48	45.3	0	0.0	1.42
Poor linkage of farmers to processors	44	41.5	62	58.5	0	0.0	1.49
Inadequate information on market prices	54	50.9	50	47.2	2	1.9	1.26
Poor knowledge of market promotion	28	26.4	78	73.6	0	0.0	1.28
Dilemma in choosing the right marketing channel	30	28.3	76	71.7	0	0.0	1.09
Poor linkage of farmers to buyers/market	13	12.3	90	84.9	3	2.8	1.47
Capacity building							
Inadequate knowledge of farm planning	51	48.1	54	50.9	1	0.9	1.12
Lack of mentoring or coaching	23	21.7	73	68.9	10	9.4	0.85
Poor knowledge of budgeting and profitability analysis							0.87
Improper training in financial management	13	12.3	64	60.4	29	27.4	0.87
Lack of follow-up activities by the extension agents	14	13.2	64	60.4	28	26.4	1.51
Inadequate trained extension personnel for capacity building of farmers	63	59.4	34	32.1	9	8.5	0.99

Source: Field Survey, 2023

Farmers grapple with these constraints, which hinder their access to and utilization of market-oriented agricultural extension services. Past research, exemplified by Gwary et al. (2019), underscores the importance of capacity-building programs to enhance farmers' comprehension of market dynamics and value-addition techniques. Moreover, as highlighted by Kahan (2011), financial constraints can impede farmers from participating in training programs or adopting market-oriented practices. These findings underscore the need for comprehensive solutions to address these constraints and enhance the effectiveness of agricultural extension services.

Relationship Between Farmers' Social Economic Characteristics And Their Utilization Of Market-Oriented Agricultural Extension Service

The result of Chi-Square in Table 6. reveals that a significant relationship only exists between farmers' educational level (X^2=8.055, p≤ 0.045) and their utilization of market-oriented agricultural extension services. Education is a crucial factor influencing farmers' ability to acquire and apply knowledge effectively (Anabaraonye et al., 2019). Educated farmers are more likely to access information through various channels, such as agricultural training programs, workshops, and written materials. They are better equipped to understand and adopt market-oriented agricultural practices (Yaseen et al., 2016).

Table 6. Result On Chi Square Showing Relationship Between Farmers' Social Economic Characteristics And Their Utilization Of Market-Oriented Agricultural Extension Service

Variables	X^2	df	P
Sex	3.259	1	0.71
Marital Status	2.071	1	0.352
Religion	0.186	1	0.666
Educational level	8.055	3	0.045**

Source: Field Survey, 2023

CONCLUSION AND SUGGESTION

Conclusion

The study's findings underscore the significance of market-oriented agricultural extension services for farmers in Oyo State. While most farmers relied on the public extension system, many expressed low knowledge and satisfaction with these services. Nevertheless, specific areas like crop selection, input procurement, and food safety standards saw relatively higher utilization. Noteworthy constraints included poor links between input suppliers and extension agents, insufficient price information, a lack of credit sources for input financing, inadequate training, and limited infrastructure for processing and value addition, all of which could have improved the effective utilization of extension services. The study also established relationships between farmers' age, household size, education, and their usage of market-oriented agricultural extension services, emphasizing the need for tailored services for different farmer groups.

Suggestion

The study recommends strengthening the public extension system through agent training and decentralized services, improving information dissemination using innovative methods, enhancing linkages between input suppliers and farmers, promoting accessible credit sources, and focusing on postharvest handling and value addition. Implementing these recommendations can empower farmers, boost their productivity, and improve their livelihoods while making the agricultural sector in Oyo State more competitive.

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