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Thank you.

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PUBLIC AND PRIVATE ORGANIZATIONS' EXTENSION DELIVERY SERVICES TO FISH FARMERS IN THE AGRICULTURAL ZONE C OF KWARA STATE, NIGERIA

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Abstract: In Nigeria, agricultural extension services are provided by both the government (public) and private organizations. This study was designed to compare the contributions of public and private organizations to agricultural extension delivery to fish farmers in the Agricultural Zone C of Kwara State Nigeria. The Zone comprises five local government areas of the State namely: Asa, Ilorin-West, Ilorin-East, Ilorin-South and Moro. A purposive sampling of three of the LGAs provided 48 fish farm locations and managers. A questionnaire which served as an interview protocol when necessary was constructed by the researchers to obtain data on the six selected characteristics of fish farmers; as well as data on both private and public extension agents' service delivery. The respondents were 46 fish farmers. Findings indicated that they receive extension services only occasionally by each of the two organizations. The mean score of the private organizations' contribution (1.55) is significantly better than 1 that of the public agencies (1.16). Among the recommendations preferred by the researchers are that government should lease land for small scale fish farming to private sector fish farmers in the towns and that the Kwara ADP should revamped and better funded to provide extension services to a wide variety of clientele, including fish farmers.

Key words: Agricultural extension, fish farming private sector, public sector, extension services/services

Introduction

Fish is man's most important single source of high quality protein. An increase in the protein supply to an average Nigerian family would definitely have a positive effect on the national productivity as healthy people tend to work harder. Presently, the production of fish is undertaken by a large number of small-scale farmers in Nigeria. These people have not been able to meet the Country's high demand for fish. The Federal Government of Nigeria packaged the Presidential Initiative on Fisheries and Aquaculture Development in 2003 to encourage fish production (Ugwumba and Chukwuji, 2020). Regardless of this and other efforts of Government, fish production has remained low in Nigeria. This situation has been attributed to many challenges, including lack of adequate information, and shortage adequate agricultural extension services among others (Madubuike, 2022; Mohammed, Oyiola and Usman, 2015).

Agricultural extension implies informing, teaching and advising farmers about new and improved technologies and getting a feedback from the farmers for use in the research centres. This is with a view to helping the farmers improve their productivity, earn more income and improve their standard of living (Agbamu, 2019, Aderinoye-Abdulwahab and Bayei, 2020). Agricultural extension brings about improvement in farmers' attitudes towards farming and changes in their knowledge and skills. In addition, agricultural extension sets out to build the capacity of farmers

and help them to make informed decisions (Sinkaye 2015, Aderinoye-Abdulwahab eta, 2020).

In Nigeria, agricultural extension services are provided free of charge by government agencies. For example, the Agricultural Development Programmes (ADPs). The ADPs were the official agricultural extension agencies of State Ministries of agriculture in Nigeria in 1972. In Kwara State, the ADP demarcated the state into four (4) agricultural zones namely:

Zone A - Baruten and Kaima Local Government Areas (LGAs)

Zone B - Edu and Patigi LGAs

Zone C - Asa, Ilorin East, Ilorin South, Ilorin West and Moro LGAs

Zone D - Ekiti, Ifelodun, Irepodun, Isin, Offa, Oke-Ero and Oyun LGAs

Each zone forms an extension block. Each block is made up of villages that are referred to as extension cells. The blocks are manned by extension agents; while the cells are covered by village extension agents who interact with farm households, under the supervision of block extension agents. The public extension system has consistently failed to deal squarely with the specific needs and problems of farmers (Ejieh, 2022); Omotesho, Babasola, Adesoji and Olaoye 2020; Ishola, 2018; Aderinoye-Abdulwahab, Salau and Bayei, 2020). It is regarded as outdated, top-down, paternalistic, inflexible and subject to bureaucratic inefficiencies. Therefore, the public extension system is unable to cope with the dynamic demands of modern agriculture. This is why agricultural extension service delivery has been become a key complementary function of private organizations like non-government organizations and farmers co-operatives.

Non-Governmental Organizations (NGOs) for example play an increasing role in providing extension education for rural development. These are concerned with identifying, adopting and disseminating methods relying on farmers-to-farmer contract (Balogun, 2016). Moreover, farmers' co-operative societies have been playing a key role in providing access to extension services and enlightening and educating members (Abdullahi, Tafida and Habibi 2019). Farmers' co-operative societies provide access to extension services; equip members with new agricultural innovations; provide market information, enlighten and educate members; provide linkages with other groups and development agencies (Ayanda, 2019)

Agboola (2021) revealed from literature that most public sector extension units were operating below capacity due to: inadequate and reliable release of funds, shortage of input supplies, problems of management and insufficient motivation of staff especially extension staff. In the private sector, progress was hampered by: inadequate supply of good quality fish seeds and feeds, low performing extension services, long procedures in accessing land and long procedures for accessing institutional credits.

Agricultural extension service delivery to farmers in general has been investigated by many researchers including Balogun (2016), Ejieh (2022), Efuoku (2023), Ishola (2018), Omoregbe, Abiola and Okagba (2019) abd Ayanda (2019). In the same way researchers have examined extension service delivery to fish farmers/marketers. These

researchers include: Essien, Effiong and Abasiabong (2020); Oluwasola, Adesiyan and Egwu, 2016); Omoregbe, et al (2019); Akembor and Ike (2015); Agboola (2021) and Anugwa, Agwu and Anyanwu (2017). Their findings indicated that extension service delivery was poor, irregular and low performing. Among the problems that brought about this predicament in agricultural extension service are: poor logistics support of extension staff, use of poorly trained extension staff, deficiencies of extension content and irregular evaluation of extension programmes.

A major conclusion from the studies of past extension programmes in Nigeria is that it is not possible for the government (public) sector alone to operate all the ramifications of agricultural extension. The private sector has had to play a more active role in delivering agricultural extension services (Sinkaye 2015, Agbamu, 2015, Rivera and Carry 2017); Ejiek, 2022; Akangbe, Omotesho and Asaju, 2023) and Aderinoye-Abdulwahab, Salau and Bayei, 2020). Therefore, the present study was designed to assess the frequencies of agricultural extension service delivery by public and private organizations to fish farmers in agricultural Zone C of Kwara State, Nigeria.

Purpose of the Study

The purpose of the study was to:

Assess the frequencies of public and private extension service delivery to fish farmers in agricultural Zone C of Kwara State.

Research Question

The research question below was answered in the study:

What is the frequency of extension services delivered to fish farmers by public and private agencies in the Agricultural Zone C of Kwara State?

Hypothesis

The null hypothesis below was tested in this study:

There is no significant difference in the frequency at which fish farmers receive extension services from public and private organizations.

Material and methods

The study area was Agricultural Zone C of the Kwara State Agricultural Development Project, demarcated in 1996. The Zone is an agro-ecological area, comprising Asa, Ilorin West, Ilorin East, Ilorin South and Moro Local Government Areas of Kwara State. Kwara State falls within attitudes 7^0 45^1 North and 9^0 30^1 North of the Equator; as well as longitudes 2^0 45^1 East and $6^0.40^1$ East of the Greenwich Meridian. The State has a tropical climate with mean annual temperature between 30^0C and 35^0C. The mean annual rainfall varies from 1000mm to 1,500mm. The Kwara Agricultural Zone C is made up of those four LGAs plus Moro LGA. A random sampling of three of the five LGAs gave Ilorin West, Ilorin East and Ilorin South. Visits by the researcher and research assistants to three LGA Headquarters Fufu (Ilorin South), Oke-Oyi (Ilorin East) and Wara (Ilorin West) helped to identify fish farm locations in the LGAs, with their owners and/or managers numberings 48 in all.

A questionnaire which could be used as an interview protocol when necessary was constructed by the researcher using concepts of extension services derived from literature. The instrument comprised three sections. Sections A elicited data on six selected characteristics of the respondents. Section B is a Likert-type scale with three alternative responses of Regularly (3 points), Occasionally (2 points) and Rarely (1 point). The number of statements describing the frequency of extension services to fish farmers by the public sector organizations was eleven Section C was also a Likert-type scale with three alternative responses of Regularly (3 points), Occasionally (2 points) and Rarely (1 point). The number of statements describing extension services to fish farmers by private sector organization was also eleven. With the help of two students of agriculture at a college of education in Ilorin, the instrument was administered on the respondents who made 46 copies available after two weeks in April, 2024. Data gleaned from the filled questionnaire/interview protocol were analyzed to answer the research question and the null hypothesis, using frequencies, percentages, means, ranking and independent t test statistic.

Results and Discussion

Characteristics of Respondents

Seven demographics characteristics of the respondents were chosen for this study. the distribution of the respondents by each of these characteristics is shown in Table 1.

Table 1: Distribution of Respondents According to Selected Characteristics

Variables	Description	Frequency	Percentage
Years of Formal Schooling			
0	Not Educated	2	4.3
1 – 6 Years	Minimally Educated	3	6.5
7 – 12 Years	Moderately Educated cc	11	23.9
13 or above	Highly Educated	30	65.2
Total	-	**46**	
Experience of Fish Farmers			
1 – 5 Years	Short	30	65.2
6 – 10 Years	Moderate	9	19.6
11 – 15 Years	Long	7	15.2
Total	-	**46**	
Size of Farmer's Fish Farms			
1 ha	Small	34	73.9
2 ha	Medium	9	19.6
3 ha	Large	3	6.5
Total	-	**46**	

Commitment to Fish Farming				
Full Time			11	23.9
Part Time			35	76.1
Total			**46**	
Membership of Farmers' Association				
-	Yes	35	76.1	
-	No	11	23.9	
Total		**46**		
Membership of Farmers Co-Operative Societies				
-	Yes	38	82.6	
-	No	8	17.4	
Total		**46**		
Number of Respondents visited by Public and Private Organizations				
Public Organizations	-	19	41.3	
Private Organizations	-	27	58.7	
Total		**46**		

Field Survey 2024

Table 1 shows that 76.1% of the farmers are on part tiume basis. This is similar to the situation in Osun State, where 67.1% of the fish farmers were doing part-time fish farming (Oluwasola, Adesiyun and Egwu, 2016). Also the finding of the present study agrees with that of Mohammed, Iyiola and Usman (2015) that 62% of the catfish farmers in Epe LGA of Lagos State were part time farmers.

The size of fish farmers as discovered in the present study is mainly small, at about one hectare for 73.9% of the farmers. According to Ajayi, Hssan, Fabunmi, Bolatoto, Alalade, Omitogun, Olufeagba (2018) preponderance of small scale fish farming was found in Lagos, Ogun and Oyo States in Southwestern Nigeria.

The majority of the fish farmers (76.1%) in present study are members of farmers' associations. Also 82.6% of the fish farmers are members of farmers' co-operative societies. Furthermore, a majority of them (73.9%) have short experience of between 1 – 5 years. For fish farmers in Osun State, the farmers with short experience account for 41.4% (Oluwasola., 2020).

Research Question: How far is the extension services frequently delivered by public and private sector organizations to fish farmers in Agricultural Zone C in Kwara State?

Table 2: Frequency of Delivery of Extension Services to Fish Farmers By Public and Private Organization

S/No	Extension Service Statements	Responses

		Public Organization N = 19		Private Organization N = 27	
		Mean	**Frequency**	**Mean**	**Frequency**
1.	Communication information on site selection and pond construction	1.55	Occasionally	1.62	Occasionally
2.	Providing information on recommended fertilizers and limes to treat fish ponds	1.00	Rarely	0.90	Rarely
3.	Providing information in how to keep pond waters soft, safe and pure	1.71	Occasionally	0.57	Rarely
4.	Using training and visit extension system.	2.52	Regularly	2.31	Regularly
5.	Arranging for input supplies to fish farmers.	2.00	Occasionally	1.52	Occasionally
6.	Communicating information on fish feeds and feeding	1.00	Rarely	.158	Occasionally
7.	Conducting fish adaption trials on selected fish farm plots to identify suitable varieties of fish	0.80	Rarely	0.90	Rarely
8.	Facilitate the processing of loans and loans recovery for fish farmers in financial institutions	0.60	Rarely	2.60	Regularly
9.	Providing information on the processing and marketing of fish	1.00	Rarely	2.50	Regularly
10.	Facilitating the organization and running of farmers association and farmers' co-operating society	0.71	Rarely	2.52	Occasionally
	Grand Mean and Frequency	**1.16**	**Occasionally**	**1.55**	**Occasionally**

Field Survey 2024

Table 2 indicates the mean scores were categorized as follows: 0.1 – 1.0 (Rarely), 1.1 – 2.0 (Occasionally), 2.1 – 3.0 (Regularly). It is clear therefore from table 2, that fish farmers receive extension services occasionally from public organizations (mean 1.16). At the sometime they receive extension services also occasionally from private organizations (mean 1.55). However, the extent of the frequency of services delivered by the private organization is higher.

Null Hypothesis: There is no significant difference in the frequency of delivery of extension services to fish farmers by public and private organizations.

Table 3: T-Test Analysis of the Difference Between Frequency of Delivery of Extension Services to Fish Farmers by Public and Private Organizations

Variables	**N**	**Mean**	**Std Dev.**	**Df**	**t-cal**	**t-tab**	**Decision**
Public Organizations	19	1.16	0.13				

Private Organizations	27	1.55	0.14	44	2.10	2.015	Reject H_O
Total	**46**		**Significance Level = 0.05**				

Field Survey 2024

Since the calculated t value (2.10) is greater than the tabulated t (2.15) the calculated t is significant and the null hypothesis is rejected (See Table 3 below). There is a significant difference in the frequency of extension services delivered to fish farmers by public and private sector organizations, in favour of the latter

The finding under the research question and the null hypothesis indicates that private organizations like the United Stated Aid for International Development (USAID's) support for extension service delivery by Micro Small and Medium Scale Enterprises, farmers associations and farmers' co-operatives are more frequent than the extension service delivery of the Agricultural Development Project (ADP) of the Ministry of Agriculture at the State level. Indeed, as shown in table 1, most of the fish farmers are members of farmers' associations (76.1%) and co-operative farmers' union (82.6%). NGOs are increasingly involved in agricultural development in Nigeria, especially through agricultural extension education (Balogun, 2016; Adewumi and Olaleye, 2021). This was amply illustrated by Balogun (2006) in a study of Farmers' Development Union (FADU) and Diocesan Agricultural Development Project (DADP). They carried out 21 extension activities on the areas of agricultural information to farmers, group formation and home and farm visits.

Conclusion

Both the public and private sector organizations carry out agricultural extension services largely to crops farmers in general, as well as fish farmers on a more limited scope. Public sector organizations are confronted by challenges which hampered their operations, including poor funding and bureaucracy. Private sector organizations are more flexible and more involving of farmers and extension workers. In the present study, it was discovered that private extension services to fish farmers are significantly more frequent than the extension services provided by public sector organizations

Recommendations

1. Government should lease plots of land in the periphery and peri-urban areas of the city for small scale fish farming and for practitioners to form co-operatives for easy access to extension services.
2. Kwara State ADPs should be reorganized and adequately funded to organize, plan and implement extension activities for a wide variety of clientele including fish farmers.
3. Extension agents frequency of contact with fish farmers/marketers should be increased in number improve extension service delivery especially on those fish technologies with low adoption prospects.
4. Fish farmers' cooperative society should provide access to extension services and

equip members with new fish farming methods.

5. The Society of Agricultural Extension, founded in 2006, should put in place a robust and to deal squarely with extension services for fish farmers and fish marketers.
6. The Nigerian Agricultural Extension System should be revamped by funding and manpower to provide training, incentives and institutional support to fish farmers.

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