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COPING STRATEGIES TO MITIGATE THE CHALLENGES OF SMALL SCALE FISH FARMERS IN ADO LOCAL GOVERNMENT, EKITI STATE, NIGERIA

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Abstract
This study examined the challenges faced by small-scale fish farmers in the Ado Local Government Area of Ekiti State. Specifically, the study aimed to: (1) describe the socioeconomic characteristics of small-scale fish farmers in the area, (2) identify the inputs used by these farmers, (3) assess the challenges they face in fish farming, and (4) explore the coping strategies they adopt to sustain their businesses. A two-stage sampling technique was employed to select 90 small-scale fish farmers for the study. Descriptive statistics, including frequency counts, means, percentages, and standard deviations, were used to analyze the socioeconomic characteristics of the farmers and identify their coping strategies. A 3-point Likert scale was used to assess the challenges faced by the farmers. The results showed that the mean age of respondents was 46 years, with an average household size of 6 members and a mean monthly income of ₦92,322.29. Major challenges identified included the high cost of inputs, the low crude protein content of fish feed, and unstable fish markets. To cope with these challenges, the majority of farmers (92.2%) engaged in fish processing to enhance profitability and extend shelf life. About 71.1% dug wells to address water scarcity during the dry season, and 68.9% formulated their own fish feed to supplement commercial feed, improve protein content, and reduce production costs. Additionally, 27.8% of farmers outsourced feed, and 15.6% relied on loans to sustain their operations. In conclusion, the primary coping strategies among small-scale fish farmers in the area were fish processing, well digging to combat water scarcity, and formulating local feed with higher crude protein. Based on these findings, it is recommended that small-scale fish farmers explore both internal and external solutions to address their challenges. Policymakers should consider implementing price controls and collaborating with input suppliers to reduce input costs. Furthermore, quality control agencies should monitor the quality and protein content of fish feed to support sustainable fish farming practices.

Introduction

Fish farming is known to make important contribution to the food and nutritional security of approximately 200 million people in Nigeria. It is a source of income for more than 10 million people who are mostly small-scale fish farmers and entrepreneurs of fish production and marketing (Machanje, 2020). As important as fish is to the local families and to the nationwide food security, it has been detected that a wide gap do exists between its supply and demand. In light of this situation, it is not of surprise therefore that fish farming has gained reputation not only in dietary purposes, but also as a source of employment and income for fish farmers in Africa (Machanje, 2020).

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Internationally, fish farming yield at the start of the 21st century was 37.5 million metric tonnes, the yield only represent approximately 29% of world fishery produce which falls short of the expected 53 million metric tonnes desired to feed the world (Machanje, 2020).

Nigerian fishing industry according to (Sadiq, and Kolo, 2015), comprises of three major sub sectors namely the artisanal, industrial and aquaculture. The aquaculture sub sector contributes between 0.5% and 1% to Nigeria's domestic fish production. Regrettably, the supply has been on the decline (Ugumba and Chukwuji, 2010). The industry now contributes only 2.0% of the GDP and accounts for 0.2% of the total global fish production.

Nigeria is one of the largest importers of fish with a per capita consumption of 7.52kg and a total consumption of 1.2million metric tonnes with imports making up about 2/3 of the total consumption. The shortfall is said to be bridged by the importation of 680,000 metric tonnes annually consuming about N 50 billion in foreign exchange. This indicates the large deficit in fish supply in Nigeria (Sadiq, and Kolo, 2015). Equally estimated was the possible creation of 30000 jobs and generation of revenue of US$160 million per annum by the aquaculture industry (Ugumba and Chukwuji, 2010). These prompted the Federal Government of Nigeria to package the Presidential Initiative on fisheries and aquaculture development in 2003 to provide financial and technical assistance to government programmes and projects encouraging fish production. Despites these efforts by Government, fish production have remained low in the country.

According to Ugumba and Chukwuji (2010), the awareness of the potential of aquaculture to contribute to domestic fish production has continued to increase in the country. This stems from the need to meet the much needed fish for domestic production and export. Therefore, the importance of the fishing industry to the sustainability of animal protein supply in the country cannot be over-emphasized.

Meanwhile, some of the challenges the fish farmers are facing include inadequate promotion of fish farming, inconsistency of fish production as a result of seasonal challenges, problem of brood stock, high cost of feeding, lack of price regulation among others. Subsequently the sector has operated without a comprehensive policy and legislation and this has reduced management and research effectiveness, discouraged investment in fish farming and constraint production and growth of fish in the area (Odoma, Omada and Emeje, 2018), there is a high level of poverty among small scale fish farmers in Nigeria especially in the rural areas, it is therefore a paramount need to find means of improving their living standard through the exploration of such great potential as fish production. One of the ways of doing this is to find out the challenges facing fish farming and fish production (Odoma, Omada and Emeje, 2018). The development of the fish industry will therefore increase local production of fish and save much of the foreign exchange being used for fish importation and also contribute significantly by ensuring food security, alleviating poverty and provision of animal protein in the area. Lack of certified quality fingerling and commercially produced feeds are among the problems facing fish production in the fish farming sector.

Fish farming in Ekiti, especially in Ado Ekiti is characterized by the problem of inadequate site selection, poor designs and construction of fish pond, low level of fish farm management techniques, high cost of

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pelleted fish feeds, inadequate hatchery facilities, poor record keeping and poor water management. Commercially produced feeds are hard to come by and when available they are expensive for most farmers and potential farmers to afford. Inadequate training programmes for farmers and extension workers have retarded the growth of the fisheries sector (Odoma, Omada and Emeje, 2018). Fish production in the area is still at subsistence level which could have been a huge boost in employment level. The assessment of the problems and prospects of small scale fish farmers in Ado Ekiti local government, Ekiti State has been necessary because most of the inhabitant of the Local government area depend on fishes as a substitute for their protein requirement and nutritional security.

It is therefore pertinent to assess the challenges of the small scale fish farmers in the study area. Specifically, the study is design to

- Describe the socioeconomic characteristics of small scale farmers in Ado local government area;
- Identify the inputs employed by the small scale fish farmers in the study area;
- Ascertain the problems militating against small scale fish farming in the study area; and
- Identify the copping strategies adopted by the small scale fish farmers to sustain their fish farming business in the study area.

METHODOLOGY

The Study Area

Ado-Ekiti Local Government Area (LGA) was established in May 1989 during the administration of Ibrahim Badamosi Babangida, carved out from the former Ekiti Central Local Government. While Ado-Ekiti LGA is often referred to as a "one-town" local government because of its central urban hub, Ado-Ekiti, it also encompasses a number of rural farm settlements. These include communities like Igirigiri, Idwgw, Ilamuo, Ago Aduloju, Igimo-Kogo, Ago-Aso, Emirin, Temidire, Esunmo, and Ureje, all of which contribute to the area's agrarian character. Geographically, the local government area is located at approximately 7.6124° N latitude and 5.2371° E longitude.

The creation of Ekiti State in 1996 solidified Ado-Ekiti's central role, with the town becoming the state capital and Ado-Ekiti LGA serving as its political and administrative core. This centrality has significantly influenced the region's agricultural development, positioning it as a key center for agricultural research, extension services, and rural development programs within the state.

Ado-Ekiti LGA benefits from fertile land and a favorable climate, making it ideal for diverse farming activities. Situated between the southern forest zone and parts of the northern savannah zone, the area's farm settlements engage in the cultivation of both food and cash crops. Key crops grown include yam, cassava, maize, rice, cocoa, oil palm, and cashew. These agricultural products play a vital role in Ekiti State's overall output, underscoring the importance of Ado-Ekiti LGA in the region's agricultural landscape. Understanding the agricultural dynamics of the area is essential for improving productivity and ensuring the sustainability of farming practices in the region.

Population of the study

The population of this study comprised the small scale fish farmers in Ado local government, Ekiti State.

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Sampling procedure and sample size

A two stage sampling procedure was used for this study. At the first stage, stratified sampling method was deployed. The local government was divided into 3 strata (south , central , and north). In the second stage purposive sampling technique was employed. In this stage, 30 small scale farmers were purposively selected and interviewed from each of the stratum for the study. Thus, 90 small scale fish farmers were purposively sampled for this study. This is because the study is interested in small scale farmers.

Method of Data Analysis

Descriptive statistic such as frequency counts, means, percentages, and standard deviation were used to describe the socioeconomic characteristics; and identify the coping strategies adopted by the small scale fish farmers to sustain their fish farming business in the study area. Also, a 3-point Likert type scale was used to measure the problems militating against small scale fish farming in the study area while inferential statistical tools such as Pearson Product Moment Correlation (PPMC) was used to test the hypothesis.

RESULT AND DISCUSSION

Socioeconomic characteristics of the respondents

The result in Table 1 revealed that the mean age of the respondents was 46 years. Majority (87.8%) of the respondents were within 30-60 years. This implies that the respondents are much more active. Also, the result revealed that 74.4% of the respondents were male while 25.6% of the respondents were female. More than half, (62.2%) of the respondents were Christians while 27.8% and 10.0% of the respondents practice Islam and traditional religion respectively. This implies that the three major types of religion in Nigeria were represented in the study area. The result also revealed that 46.67% of the respondents had tertiary education, 23.33% had secondary education while 14.4% had primary education. This implies that majority of the respondents had education but differs in the number of years spent in school. Also, more than half (67.8%) of the respondents were married while (17.8%) and (14.44%) of the respondents were single and widow/ers respectively. Findings also shows that more than half (62.2%) of the respondents practiced monogamous family and the mean household size of the respondents is 6 persons. This shows that the respondent have a normal or average household member. The study also revealed from the table 4.1 that the primary occupation as indicated by the respondents was farming (41.1%), trading (31.1%), civil servant (25.6%). The mean monthly income of the respondent was ₦92,322.29. Majority (80.00%) of the respondents' monthly income was more than ₦30,000.00.

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Table 1: Socioeconomic characteristics of the respondent

Variables	Frequency	Percentage	Mean
Age (Years)			
<30	9	10.00	
30-60	79	87.78	**46 years**
> 60	2	2.22	
Sex			
Male	67	74.44	
Female	23	25.56	
Religion			
Christian	56	62.22	
Islam	25	27.78	
Traditional religion	9	10.00	
Education status			
No formal education	14	15.56	
Primary education	13	14.44	
Secondary education	21	23.33	
Tertiary education	42	46.67	
Marital status			
Single	16	17.78	
Married	61	67.78	
Widow/er	13	14.44	
Family forms			
Monogamy	56	62.22	
Polygamy	34	37.78	
Household size			
≤ 5	45	50.00	**5.9 persons**
> 5	45	50.00	
Primary occupation			
Farming	37	41.11	
Trading	28	31.11	
Artisan	2	2.22	
Civil servant	23	25.56	
Monthly income			
≤ 30,000	18	20.00	
> 30,000	72	80.00	₦92,322.29

Source: Field survey, 2023

Inputs Employed by the Small Scale Fish Farmers

Figure 1 shows the result of the various inputs used by the respondents in the study area. The findings reveals that all (100.00%) of the respondents used fish feed in the study area. Also, majority (77.00% of the respondents used weighing scale in the study area. This could be for quantifying the feed and measuring the weight of the fish. More so, a larger proportion (77.22%) of the respondents in the study area indicated that they used pumping machine while more than half (60.0%) of the respondents indicated that they have earthen ponds in the study area. Meanwhile, (48.89%), (25.56%), (20.00%) and (5.56%) of the respondents in the study area indicated that they used Tapoline, Dragnet, Storex or Bath tub and concrete pond

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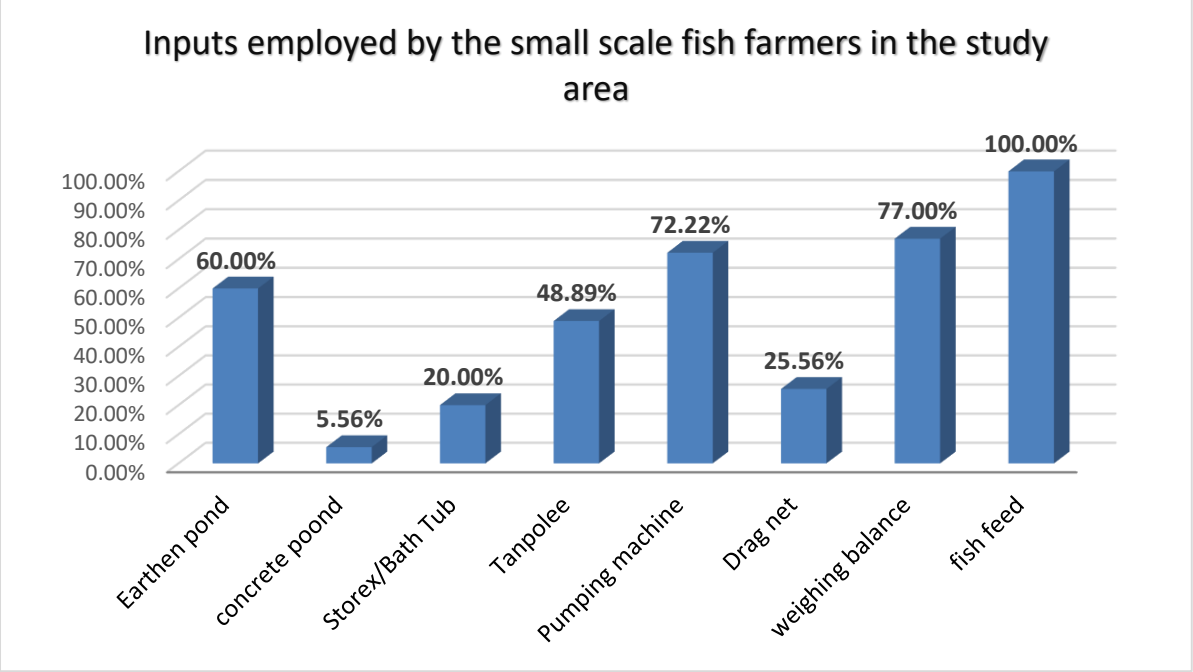
respectively. That implies they are small scale farmers.



Problems militating against small scale fish farming in the study area

The findings in Table 2 revealed mean of the problems militating against the small scale fish farming in the study area. The results show that high cost of input (2.8) is a serious challenge militating against the small scale fish farming in the study. This is capable of reducing the productivity of the fish farmers as they will not be able to stock more than the capacity they can cater for. Also, the findings show that low crude protein of the fish feed (2.5) is a significant problem in the sector. Low crude protein is a limiting factor to the growth of fish and this have the tendency to affect the profitability if not addressed. Findings also show that unstable market of fish in the study area is a significant factors militating against the sector. Fish market stability is a significant factor to consider for the profitability of the sector. This instability of price have the tendency to reduce the profit of the farmers thereby discouraging the farmers from investing into the sector.

Table 2. Problems militating against small scale fish farming in the study area

Variable	Total	Mean	Decision
Inadequate quality water	156	1.7	Not a problem
Unstable market price	181	2.0	Problem
Problem of theft	120	1.4	Not a problem
High cost of inputs	248	2.8	problem
Unavailability of fish feed	155	1.7	Not a problem
Low crude protein of feed	222	2.5	Problem

Source: Field survey, 2023.

Any variable with mean > 2.0, is said to be problem.

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Coping strategies

The results in Table 3 reveals the coping strategies adopted by the respondents in the study area. Findings revealed that majority 92.2%) of the farmers resulted to processing of their fish to maximize profit and improve shelf life. Also, 71.1% of the respondents indicated that they dug well to solve the problem of water scarcity during the dry season. Also, more than half (68.9%) of the respondents formulated feed to supplement the foreign feed, improve crude protein and reduce cost of production of fish in the study area while only 27.8% and 15.6% of the respondents outsourced for food and borrowed to sustain their production respectively in the study area. This is in Line with Obe and Omolola (2015) Who reported that 26.7% feed their fish with local pelleted feeds only, 20% feed their fish with imported feeds only, 16.7% feed their fish with other Nigerian feeds, while 3.3% feed their fish with locally formulated powdered feed

Table 3: Coping strategies

Strategies	Freq.	%
Processing / smoking to extend shelf life	83	92.22
dug well to solve the problem of water scarcity	64	71.11
Borrowed money to solve the problem of high cost of input	14	15.56
Outsource for food in neighbouring states	25	27.78
Formulate local feed with high crude protein	62	68.89

Source: Field survey, 2023.

Conclusion & recommendation

Based on the findings of this study, it was therefore concluded that Processing / smoking to extend shelf life, and dug well to solve the problem of water scarcity and Formulate local feed with high crude protein are the major coping strategies by the fish farmers in the study area It is therefore recommended that small scale fish farmers should look inward and outward for alternative ways to combat their challenges while policy makers look into price control and collaborate with the input suppliers to subsidize the cost of input while Quality control agencies should monitor the quality and crude protein of the fish feed.

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