

ASSESSMENT OF TRAINING NEEDS OF FISH FARMERS IN THE PORT-HARCOURT METROPOLIS OF RIVERS STATE, NIGERIA.

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ABSTRACT

*The study assessed the training needs of fish farmers in the Port Harcourt metropolis of Rivers State, Nigeria. The purposive sampling technique was used to select 100 fish farmers for the study. Data were collected with a structured questionnaire and interview schedule and analysed using descriptive statistics (percentages, frequency, and mean). The result shows that the majority (54%) of the fish farmers were male, had Tertiary education 72%, had been visited by extension agents (53%), and belonged to an agricultural association (58%). Most (45%) of the fish farmers were between the ages of 21-30 years, 43% of the respondents were artisans, while 75% had attended training on fish production. Catfish (*Clarias gariepinus*) (98%) and Tilapia (*Oreochromis niloticus*) (51%) were majorly cultivated by the farmers. The fish farmers needed training on: control and treat fish diseases ($\bar{x} = 3.40$), fish feed formulation ($\bar{x} = 3.03$), water quality management ($\bar{x} = 3.03$), spawning techniques ($\bar{x} = 2.97$), marketing of fish products ($\bar{x} = 2.90$) and innovation on fish farming ($\bar{x} = 2.89$), fish processing and preservation ($\bar{x} = 2.68$). The major constraints faced by fish farmers in accessing training on fish production were: lack of agricultural funds ($\bar{x} = 3.50$), poor implementation of agricultural programmes and policies ($\bar{x} = 3.44$), high cost of procuring fish production equipment ($\bar{x} = 3.07$), lack of skilled agricultural extension agent in fish farming ($\bar{x} = 3.03$), amongst others. It was recommended that Ministries of Agriculture and relevant stakeholders should fund fish farmers and liaise with agricultural research institutes to train extension agents on fish production, and deploy the trained extension agents to train fish farmers on pest and diseases management, fish multiplication/reproduction, feed formulation, fishery management practices, processing, preservation and marketing of fish.*

Keywords: Training needs, constraints, fish farmers, training, fish production.

INTRODUCTION

Nigerians consume and sell fish and fish products in large quantities (Olaoye & Ojebiyi, 2018). Adding value to fish production is paramount for achieving food security in sub-Saharan Africa (European Union, 2011). However, this value addition can be met if fish farmers are trained on improved methods in fish production. Agricultural services providing fish farmers with fish farming inputs and extension

information are insufficient to achieve sufficiency in fish production. Fish farming inputs are required but call for training of fish farmers on the use and the necessary skills required in its operation (Olaoye & Ojebiyi, 2018). Fish farmers in Nigeria are highly in need of training on fish production to deviate from the indigenous fish farming system, which lacks value addition in food security (Michael & Koyenikan, 2020; Olorunfemi *et al.*, 2017). Fish farmers in most Nigerian communities lack interest and do not have the zeal to participate in training workshops on fish production (Olorunfemi *et al.*, 2017). However, their non-participation in training on fish production could indicate that some constraints prevented them from doing so.

Training requires learning and/or teaching, primarily through practical experience, the skills necessary to do a job (Microsoft Encarta, 2009). Fish farmers acquiring the needed skills and training to improve their fish production face challenges (such as lack of finance and inputs) (Nwakuche *et al.*, 2019). Based on this premise, it is pertinent to ascertain the training needs of fish farmers and the challenges that prevent them from accessing training on fish production. Agricultural policy makers and relevant stakeholders need to be provided with necessary information on training, inputs and support required by fish farmers for practical experience. Therefore, the study's broad objective was to assess fish farmers' training needs in the Port Harcourt metropolis of Rivers State, Nigeria. Specifically, the study sought to:

- i. describe the socio-economic characteristic of fish farmers in the study area,
- ii. ascertain the species of fish farmed in Port Harcourt metropolis,
- iii. assess the training needs of fish farmers in Port Harcourt metropolis and;
- iv. assess the constraints faced by fish farmers in accessing fish production training in the study area.

MATERIALS AND METHODS

The study was conducted in Port Harcourt Metropolis of Rivers State Nigeria. Rivers State is one of the thirty-six (36) States in Nigeria. Port Harcourt is located at

latitude 4°46'38.71" N and longitude 7°00'48.24" E. All the fish farmers in Port Harcourt metropolis constituted the population of the study. The agricultural activities carried out in Rivers State includes fish farming, crop and livestock farming amongst others. The study employed purposive sampling technique to select fish farmers for the study. Obio/Akpor Local Government Area and Port Harcourt Local Government Area are the 2 Local Governments that made up Port Harcourt Metropolis. Five communities were purposively selected from each of the 2 Local Government Areas due to the high concentration of fish farmers in the communities. Thereby giving a total of 10 communities. Ten (10) fish farmers were selected from each of the selected 10 communities. A total of 100 fish farmers made up the sample size of the study. A combination of structured questionnaire and interview schedule were used to collect data from the fish farmers. The socio-economic characteristics of fish

farmers and species of fish farmed in the study area were analysed using descriptive statistics such as: frequency counts and percentages. A four-point rating scale of Strongly Agreed (SA) – 4, Agreed (A) – 3, Disagreed (D) – 2, and Strongly Disagreed (SD) – 1, was used to determine the training needs of fish farmers and the constraints faced by fish farmers in accessing training on fish production in Port Harcourt metropolis. The sum of the mean rating scale was divided by 4 that is, $(4+3+2+1=10/4 = 2.50)$. Any mean score greater than or equal to 2.50 was regarded as the training needs or constraints faced by fish farmers in the study area.

RESULTS AND DISCUSSION

Socio-economic characteristic of fish farmers in the study area

Data related to the socio-economic characteristics of fish farmers in the study area are presented in Table 1.

Table 1: Socio-economic characteristics of fish farmers in the study area

Socio-economic characteristics	Frequency	Percentage (%)
Sex		
Male	54	54.0
Female	46	46.0
Age (in years)		
≤ 20	4	4.0
21-30	45	45.0
31-40	38	38.0
> 40	13	13.0
Educational level		
No formal education	2	2.0
Primary education	4	4.0
Secondary education	22	22.0
Tertiary/ university	72	72.0
Occupation		
Trader	33	33.0
Civil servant	19	19.0
Artisans	48	48.0
Marital status		
Single	59	59.0
Married	33	33.0
Divorced	5.0	5.0
Separated	3	3.0
Have you been visited by an Extension Agent		
Yes	52	52.0
No	48	48.0
Do you belong to any agricultural association/cooperative		
Yes	58	58.0
No	42	42.0
Have you attended any Extension or Agricultural training on fish farming		
Yes	75	75.0
No	25	25.0
Years of experience in fish farming		
1-5	71	71.0
6-10	23	23.0
11-15	3	3.0
15-20	3	3.0

Household Size

1-3 persons	29	29.0
4-6	48	48.0
7 and above	23	23.0

Source:(Field Survey, 2021)

Entries in Table 1 show that majority (54%) of the fish farmers were males thereby implying that more males were fish farmers in comparison to their female folks. This result is in conformity with Olorunfemi *et al.*, (2017) who reported that there were more male fish farmers in their study area.

Most (45%) of the fish farmers were between the ages of 21-30 years, 38% were between the ages of 31-40, 13% were more than 40 years while 4% were less than or equal to 20 years of age. This means that majority of fish farmers in the study area were youths who possessed the physical strength to carryout tasks required in fish farming. Michael & Koyenikan (2020) reported that fish farmers were mainly between the ages of 21 to 40 years old.

Also, majority (72%) of the fish farmers had Tertiary or university education, 22% of them had secondary education, 4% had primary education while 2% had no formal education. This implies that majority of fish farmers in the study area were educated and are capable of reading, writing and understanding the skills related to trainings on fish farming. The findings are in agreement with Ogunleye, Ojo & Oyewo (2015) who reported that majority of fish farmers in their study area were graduates of tertiary institutions.

Most of the fish farmers were made up of artisans (48%) and traders (33%) with few civil servants (19%) thereby implying that fish farming can easily be combined with other economic activities or occupations. This result is in agreement with Ogunleye, Ojo & Oyewo (2015) who reported that fish farmers practiced fish farming alongside with other professions.

Results show that majority (59%) of the fish farmers were single, 33% were married, 5% were divorced and 3% were separated. Majority (53%) of fish farmers agreed that they had being visited by extension agents.

This implies that fish farmers in the study area had access to information on fish farming. The findings reveal that majority (58%) of the farmers belonged to agricultural association/cooperative while (42%) of them were not members of agricultural association/cooperative. This implies that the fish farmers in the study area belonged to agricultural association. The result agrees with Olaoye & Ojebiyi, (2018) who reported that majority of fish farmers across four states in Nigeria belonged to a fish farming association. Result shows that majority (75%) of the fish farmers in the study had attended agricultural training. This implies that the fish farmers had accessed to agricultural extension information in relation to fish production. Majority (71%) of the fish farmers had fish farming experience of 1 to 5 years. This infers that the fish farmers had low experience in fish farming, hence need to be trained on fish production. This finding supports Michael & Koyenikan (2020) who reported that fish farmers in their study area had about 0 to 5 years' experience on fish production. Most (48%) of the fish farmer's household size were between 4-6 persons. However, 29% of the fish farmers had a household size of between 1-3 persons while 23% had a household size of 7 and above. This could be an indication that most urban and peri-urban fish farmers were composed of individuals or relatives who could serve as farm labour in their various fish farms. The result corroborates Ajala, Kolawole, Owolabi & Faseyi, (2017) who reported that most fish farmers had a household size of between 4 to 7 persons.

Species of fish farmed in Port Harcourt Metropolis

Data related to the species of fish farmed in Port Harcourt Metropolis in the study area are presented in Table 2.

Table 2: Species of fish farmed in Port Harcourt Metropolis

Species of fish	Frequency	Percentage (%)
Catfish (<i>Clariasgariepinus</i>)	98	98.0
Tilapia (<i>Oreochromis niloticus</i>)	51	51.0
Common carp (<i>Cyprinus carpio</i>)	13	13.0
Crayfish (<i>Cambarus sp.</i>)	2	2.0

Source:(Field Survey, 2021)

Table 2 shows that Catfish (*Clariasgariepinus*) (98%), and Tilapia (*Oreochromis niloticus*) (51%) were the species of fish that were largelycultivated in the study area. However, common carp (*Cyprinus carpio*) (13.0%) and Crayfish (*Cambarus sp.*) (2%) were the least cultivated species of fish.This result agrees with

Kaleem, and Sabi (2021) who reported that catfish and Tilapia were the major species of fish that are cultivated in Nigeria. Emodi, Omofoweuvie & Hilda (2015) opined that tilapia is one of the most cultured and preferred breed of fish in Rivers State, Nigeria.

Training Needs of Fish Farmers in the Study Area

Data related to the training needs of fish farmers in the study area are presented in Table 3.

Table 3: Training needs of fish farmers in the study area

Training needs	Mean	Standard deviation	Rank
Control and treatment of fish diseases	3.40*	0.82	1 st
Fish feed formulation	3.03*	0.98	2 nd
Water quality management	3.03*	1.08	3 rd
Spawning techniques	2.97*	1.05	4 th
Marketing of fish products	2.90*	1.10	5 th
Innovations on fish farming	2.89*	0.93	6 th
Fish processing and preservation	2.68*	1.07	7 th
Fish harvesting methods or techniques	2.47	0.99	8 th
Techniques for fish grading	2.38	0.96	9 th

Source:(Field Survey, 2021)

Mean cut off = 2.5 (*means training need)

Table 3 shows that fish farmers in the study area needed training on: how to control and treat fish diseases ($\bar{x} = 3.40$), fish feed formulation ($\bar{x} = 3.03$), water quality management ($\bar{x} = 3.03$), spawning techniques ($\bar{x} = 2.97$), marketing of fish products ($\bar{x} = 2.90$) and innovations on fish farming ($\bar{x} = 2.89$), fish processing and preservation ($\bar{x} = 2.68$). However, the fish farmers did not need training on: fish harvesting methods or techniques ($\bar{x} = 2.47$) and techniques for fish grading ($\bar{x} = 2.38$).

These training needs of fish farmers could be an indication that most fish farmers in the cities are not skilled on: the practical ways of treating diseased fish,

how to carry out fish breeding, how to locate the right market for their fish, how to locally compound fish feeds and sustainable ways of preserving their fish and fish products. This result corroborates Ogunleye, Ojo & Oyewo (2015) who reported that fish farmers in their study area needed training on how to: produce fingerlings, administer drugs to diseased fish, control pest and diseases of fish and feed formulation.

Constraints faced by fish farmers in accessing training on fish production in the study area

Data related to the constraints faced by fish farmers in accessing training on fish production in the study area are presented in Table 4.

Table 4: Constraints faced by fish farmers in accessing training on fish production in the study area

Constraints	Mean	Standard deviation	Rank
Lack of agricultural fund	3.50	0.75	1 st
Poor implementation of agricultural programmes and policies	3.44	0.72	2 nd
High cost of procuring fish production equipment	3.07	0.84	3 rd
Lack of skilled agricultural extension agent in fish farming	3.03	0.68	4 th
Lack of relevant agricultural information	2.84	0.99	5 th
Difficulties in the use of improved technologies	2.81	0.89	6 th
High cost of hiring an expert in fish farming	2.75	1.00	7 th
Unavailability of improved fish species within the area	2.72	0.97	8 th
Low technical know-how of the fish farmer	2.71	0.96	9 th
Lack of awareness of available innovations	2.68	1.08	10 th
Poor teaching aids	2.58	1.12	11 th

Source:(Field Survey, 2021)

Mean cut off = 2.5

As shown in Table 4, the constraints faced by fish farmers in accessing training on fish production in the study area were: lack of agricultural fund ($\bar{x} = 3.50$), poor implementation of agricultural programmes and policies ($\bar{x} = 3.44$), high cost of procuring fish production equipment ($\bar{x} = 3.07$), lack of skilled agricultural extension agent in fish farming ($\bar{x} = 3.03$), lack of relevant agricultural information ($\bar{x} = 2.84$),

difficulties in the use of improved technologies ($\bar{x} = 2.81$), high cost of hiring an expert in fish farming ($\bar{x} = 2.75$), unavailability of improved fish species within the area ($\bar{x} = 2.72$), low technical know-how of the fish farmer ($\bar{x} = 2.71$), lack of awareness of available innovations ($\bar{x} = 2.68$), and poor teaching aids ($\bar{x} = 2.58$). These constraints could indicate that government and relevant stakeholder were not effectively

monitoring and evaluating agricultural programmes relating to fish production and fish farmers were deficient of funds to register for fish production trainings, access experts on fish production and as well as acquire inputs needed in participating in trainings relating to fish production.

This result corroborates Nwakuche et al., (2019) who reported that fish farmers in their study area were facing the challenges of poor funding, inability to receive trainings on innovations on fish production and expensiveness of inputs used in fish production.

CONCLUSION

The study showed that fish farmers in urban or metropolitan areas were mostly youths (especially males) with fish farming experience of between 1 to 5 years. Most farmers were tertiary education graduates who were members of agricultural associations/cooperatives and had existing contact with agricultural extension agents. These farmers produce Catfish (*Clarias gariepinus*) and Tilapia (*Oreochromis niloticus*) and require training in the control and treatment of fish diseases, fish feed formulation, and water quality management. Major constraints in fish production among farmers were lack of agricultural funds, poor implementation of agricultural programmes and policies, high cost of procuring fish production equipment, lack of skilled agricultural extension agents in fish farming, lack of relevant agricultural information, and difficulties in the use of improved technologies amongst others. The study recommends that the National Institute for Freshwater Fisheries Research (NIFFR), Ministries of Agriculture and relevant stakeholders liaise with agricultural research institutes and train extension agents on pest and diseases management and modern fishing teaching aids for the fish farmers.

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