

AWARENESS AND ADOPTION OF INNOVATION ON IMPROVED FISH FEEDING TECHNIQUES AMONG FISH FARMERS IN OBIO/AKPOR LOCAL GOVERNMENT AREA OF RIVERS STATE, NIGERIA

***¹Ogunremi, J.B., ²Olatunji, S.O. ¹Igbani, F.**

¹*Department of Fisheries and Aquaculture, Federal University Wukari, Taraba State, Nigeria*

²*Department of Agricultural Economics and Extension, University of Port Harcourt, River State, Nigeria*

* jogunremi@gmail.com

ABSTRACT

The study assessed the adoption of innovation on improved fish feeding techniques among fish farmers in Urban and Rural communities in Obio/Akpor Local Government areas of Rivers State. Multistage sampling technique was used; the first stage fifteen (15) communities were purposively sampled and the next stage fish farmers were sampled randomly from the communities to obtain a sampled size of 100. Data were collected through structured questionnaire and interview scheduled. Descriptive statistics such as frequency, percentages and mean were used for data analysis. The results revealed that 22% farmers major source of information was through family and friends, while awareness rate was high 100% for the use of floating feed, about 85% of them used live food and most adopted innovation on improved fish feeding techniques were floating feed ($X = 4.99$) and use of live food ($X = 4.23$) constraints to adoption of innovations were high cost of improved fish farming techniques and technical knowhow. It was recommended that Government should provide funds in form of loan at a reduced interest rate to the fish farmers and extension agents should organize timely training for the fish farmers to enable them adopt innovations introduced to them.

Keywords: Awareness, adoption, fish farmers, fish, techniques

INTRODUCTION

The low domestic fish production was attributed to the fact that fish production in Nigeria is highly dependent on artisanal fishing, which is characterized by the use of crude fishing gear and equipment, low catch, lack of access to credit facilities and information on improved fishing technologies. The fishermen, who rely on the use of small fishing gear, operate on creeks, lagoons, inland waters or rivers which extend beyond 5 nautical miles of seashore. Hence, increasing the domestic fish production in Nigeria would require among others the adoption and use of improved fishing technologies which consists of required equipment and practices for finding, handling, processing and distribution of fish resources and their products (Olaoye *et al*, 2018). Nigeria aquaculture development has been driven by social and economic objectives, such as nutrition, improvement of rural areas, generation of supplementary incomes, diversification of income activities and the creation of employment (Ozigbo *et al*, 2014).

There has been an increased effort at development of technologies for increased production. Agricultural Extension Agents are constantly engaged in the transfer of developed farming technologies to farmers for adoption (Olatunji, and Ogunremi 2016). Adoption is a decision making process which involves a number of stages. Adoption as the integration of an innovation into farmers' normal farming activities is not a permanent behaviour (Ekong 2010).

The roles innovations are to simplify and make fish production more effective and efficient. It is therefore pertinent to investigate the extent to which fish farming technologies have been transferred to farmers and the extent to which the technology end-users have taken advantage of these technologies. Therefore, the study aimed at examining awareness and adoption of innovation on improved fish feeding among fish farmers in Obio-Akpor Local Government Area of Rivers State. The specific objectives of the study were to: (i) examine awareness of innovation on improved fish feeding technologies among the respondents, (ii) identify information sources of respondents on innovation (iii) determine adoption of innovations (iv) identify constraints to adoption of innovations by the respondents.

MATERIALS AND METHODS

AREA OF STUDY

The study was carried out in Obio/Akpor Local Government Area in the metropolis of Port Harcourt, one of the major cities of Niger Delta, located in Rivers State. The Local Government Area covers 260 km² and had a population of 464,789 people at the 2006 census. Obio/Akpor is bounded by Port Harcourt (Local Government Area) to the south, Oyigbo to the east, Ikwerre to the North and Emuoha to the west. It is located between the latitude 4° 45' N and 4° N and longitude 6° 5' E and 8° 00' E. It is mainly made up by people of Ikwerre ethnic nationality. The major occupations of the people are arable crop farming, trading and fishing. Obio/Akpor has a total number of three kingdoms which are Aparā, Evo and Akpor Kingdoms from which 54 communities are found (Obio/Akpor geographical location, 2017)

SAMPLING PROCEDURE

Multistage sampling technique was used to select respondents for the study. The first stage was a purposive sampling of fifteen (15) rural and urban communities that have more fish farmers than the others. The next stage involved random selection of one hundred (100) fish farmers in the selected fifteen communities. Thus, the total population size was 100 fish farmers.

DATA COLLECTION AND METHOD OF ANALYSIS

Questionnaire were used for data collection and supplemented with scheduled interview where respondents do not have formal education. Data collected were analyzed using descriptive statistics such as frequency percentage and mean.

RESULTS AND DISCUSSION

Table 1 showed that 22% of the fish farmers' main source of information on improved fish farming techniques was family and followed by other farmers which was 18%, internet source had 15% while extension agents had 2% respondents. The implication is that informal sources of information on improved fish farming were high. Reason for low level of information source from extension agents could be attributed to poor ratio of extension agents to fish farmers. In a similar study Ogunremi *et al.*, (2018) reported low level of information dissemination by extension agents to fisher folks. However, Ifejika *et al.*, (2008) reported extension agents as the major source of information on fish technologies.

Table 1: Sources of information on improved fish farming techniques in Obio-Akpor Local Government Area of Rivers State

Variable	Frequency	Percentage
Extension agent	2	2
Internet	15	15
Private consultant	8	8
Family and friends	22	22
Fish buyer	4	4
Other farmers	18	18
Total	100	100

Source: field survey, 2019

Table 2 indicated that 100% of respondents were aware of floating feed, 85% were aware of use of live feed, 53% of respondents were aware of automatic feeder and only 12% were aware of pulse feeding. High level of awareness on floating feed was a function of dissemination sources, also

majority of floating feed available in the market were imported which could be attributed to the mentality that imported fish feed are superior to locally manufactured feed. Live feed such as maggot is also widely acceptable to fish farmers which prompted it level of awareness among fish farmers in the study area.

Table 2: Awareness about improved fish farming techniques in Obio-Akpor Local Government Area of Rivers State

Improved fish farming techniques	Frequency	Percentage
Automatic feeder	53	53
Pulse feeding	12	12
Alternative feed	26	26
Floating feed	100	100
Use of live feed	85	85

Source: field survey, 2019

Table 3 indicated that floating feed and use of live feed were adopted by fish farmers in the study area while automatic feeder, pulse feeding and alternative feed were not adopted. Ashley-dejo *et al*, (2013) in a similar study reported high level of fish farmers' awareness on use of live feed among fish farmers. The implication for the adoption of floating feed is because it enable fish farmers to monitor response of fish to feeding, also prevents feed wastage because feed floats on water unlike the local feed that sink and uneaten feed easily pollute the water. Live feed on the other hand like maggot when fed to fish helps in reduction of amount spent on feeding fish. Non adoption of automatic feeder could be attributed to high financial implication involved since most fish farmers could not afford it. Tosan (2008) reported that cheap technology will be adopted faster than an expensive one, because farmers are eager to make money.

Table 3: Adoption of innovation on improved fish feeding techniques in Obio-Akpor Local Government Area of Rivers State

S/N	Variables	Adoption	Mean	Remark
1	Automatic feeder	0	1.37	Not adopted
2	Pulse feeding	0	1.22	Not adopted
3	Alternative feed	2	1.43	Not adopted
4	Floating feed	99	4.99	Adopted
5	Use of live food	72	4.23	Adopted

Mean Criterion = 3

Table 4 showed lack of awareness of improved fish farming techniques, high cost of improved fish farming techniques, technical knowhow, limited or no access to credit facilities affected the adoption of innovation on improved fish feeding techniques. Innovations can be widely adopted when all channels of creating effective awareness are maximally utilized. Adoption of innovation is a function of credit facilities which can be finance or equipment. The services of experts on innovation utilization are paramount in training fish farmers who are willing to adopt innovations on fish feeding.

Table 4: Constraints to fish farmers' adoption of innovation on improved fish feeding techniques in Obio-Akpor Local Government Area of Rivers State

S/N	Constraints	VSC	SC	MC	NC	Total	Mean	Remark
1	Lack of awareness of improved fish farming techniques	93	5	2	0	359	3.59	Agree
2	The high cost of improved fish farming techniques	94	1	3	2	387	3.87	Agree
3	I don't know how to put the new techniques to use	57	11	16	16	309	3.09	Agree
4	Poor marketing structure is affecting the adoption of improved techniques	19	13	40	23	218	2.18	Disagree
5	Limited or no access to credit facilities affect the adoption of improved techniques	86	9	1	4	377	3.77	Agree

Mean criterion: 2.5

VSC= Very strong constraint, SC= Strong constraint, MC= Mild constraint. NCAA= Not constraint at all

CONCLUSION AND RECOMMENDATION

Fish farmers were aware of some innovations on improved fish feeding techniques and had adopted only a few of them which can be related to the constraints like high cost of the innovation, technical knowhow and limited or no access to credit facilities. It was recommended that Government should provide funds in form of loan at a reduced interest rate to the fish farmers and extension agents should organize timely training for the fish farmers to enable them adopt innovations introduced to them.

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