

**ORIGINAL RESEARCH ARTICLE****Role of catfish farmer's association of Nigeria in adoption of aquaculture technologies in Lagos state*****Fregene B. T and Amure T. O**

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ABSTRACT

Hindrances to the adoption of aquaculture technologies are lack of basic knowledge and financial capability to acquire the required production inputs. Solution to problems encountered by individual fish farmers can be overcome collectively by farmer's group. This study was carried out to determine the roles of Catfish Farmer's Association of Nigeria (CAFAN) in assisting fish farmers to adopt aquaculture technologies in Lagos State. Questionnaires were administered in Lagos state at their monthly general meeting to elicit information on CAFAN. Data were analyzed using descriptive and inferential statistics. Result revealed that 57% were males; married (82%) and all were educated. Different workshops/seminars/trainings on fish production were attended by the fish farmers through the influence of CAFAN. Attendance varied from 20% in fish harvesting technologies' workshops to 61% in fish feed and feeding systems. Various fish production techniques introduced to the members were adopted at different rate ranging from tilapia breeding (12%) to fish feed and feeding technologies (87%). Only 25% were beneficiaries of loan assistance from the CAFAN cooperative society which boosted fish production and profit by 44% to 200%. Chi-square analysis revealed that access to loan had significant influence ($P < 0.01$) on profitability of fish production. It was recommended that awareness of the existence, relevance and activities of CAFAN should be intensified among fish farmers especially in the rural areas to enhance fish production in Nigeria as well as to improve the livelihood of the fish farmers through fish yield and profit improvement derived from the technologies adopted.

Keywords: Fish farmers, catfish production, fish production technologies, associations

INTRODUCTION

The story of aquaculture in Nigeria is essentially that of catfish culture and the hope of fish supply in Nigeria depends on its development and culture (Adewumi and Olaleye, 2010). Supply of fish which requires quality fish feed, is expensive and a challenge for many fish farmers. Furthermore, value addition of catfish to meet diverse market demands depends on training of fish farmers on modern technology, commercial knowledge and investment capabilities. Despite the available technologies, many individual fish farmers are confronted with various constraints. Nwachukwu and Onuegbu (2009) reported that many individual farmers lack adequate funds to purchase the inputs for the improved aquaculture technology. Adelakun *et al.* (2011) also pointed out that the fish farmers do not

have sufficient capital to either operate their farms profitably or expand them. This situation was made more difficult by the unwillingness of financial institutions to grant loans to the farmers or give out loans at a high interest rate that will rip them off their profits. Fregene and Olumayowa, (2012) observed that, the highest source of credit is from the cooperatives, which may be because of the high interest rate of bank loans. Ashley-Dejo *et al.* (2013) indicated that all fish farmers in south-western states of Nigeria were confronted with the problem of high cost of fish feed and market price fluctuation. The low supplies from local fish farmers was also attributed to poor quality feed seed, inadequate access to necessary information, high cost of inputs, traditional techniques used, small size holdings, poor infrastructural facilities

and low capital investment (Ugwumba *et al.*, 2006). FAO (2006) noted that lack of awareness of the required technologies, inadequate training and skills and high cost of inputs could further impede development of the industry.

However, World Bank (2008) is of the opinion that the use of new agricultural technology, could lead to significant increase in agricultural productivity in Africa and stimulate the transition from low productivity subsistence agriculture to a high productivity agro-industrial economy. Unfortunately individual farmers are resource poor and they have low propensity to adoption of technology. This is due to financial constraints to acquire the inputs required, lack of training and skills required as well as inadequate extension agents/services. All these have contributed to low adoption of useful aquaculture technology by individual farmers (Adelakun *et al.*, 2011). The need for collaborative effort by fish farmers to find solutions to these hindrances has led to formation of associations among them to help members secure the production inputs and skills required for profitable business in fish farming. Fregene and Akiande (2012) in the study among fish farmers organized in Fadama user groups which benefited from the Fadama II project showed farmers learnt improved fish farming techniques which enhanced their productivity and positively impacted their livelihood. The role of Catfish Farmers' Association of Nigeria (CAFAN) in promoting such improvement has not been adequately documented.

This study was therefore aimed to enumerate the various aquaculture technologies disseminated through training and rate of adoption by CAFAN members; benefits derived as members and impact on profitability of fish production. To test relationship between the variables, a null hypothesis was drawn as follows:

Ho: There is no significant relationship between financial assistance rendered by CAFAN to its members and increase in profitability of the fish farming business.

MATERIALS AND METHODS

Description of the Study Area

The study area was Lagos State which was created on May 27, 1967 carved out of the old western state and it lies within latitude $6^{\circ} 20' \text{ N}$ and $6^{\circ} 40' \text{ N}$ and longitude $2^{\circ} 45' \text{ E}$ and $4^{\circ} 21' \text{ E}$. Lagos state is bounded on the North east by Ogun State, in the West by Republic of Benin and in the South by the Atlantic ocean, It stretches for about 180km along the coast of the Atlantic ocean. Lagos State covers an area of about 3,577square kilometers land mass with about 786.94 square kilometers (22%) of it being lagoon creeks (Ajana, 1995).

Method of Data Collection and Analysis

A set of well structured questionnaire was administered each to 100 members of CAFAN, Lagos State chapter during their monthly meeting. Data collected were analyzed using descriptive and inferential statistics. Inferential statistics used in testing for the hypotheses was Chi-square analysis.

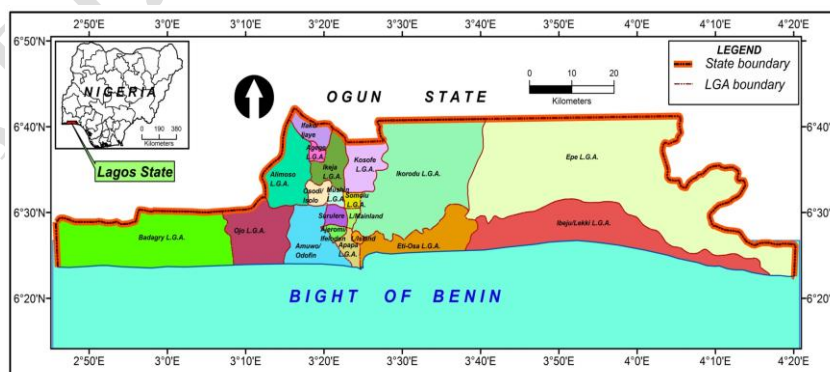


Figure 1: Lagos state and local government areas

Source: Cartography Section, Geography Department University of Ibadan

RESULTS AND DISCUSSION

Socio-economic Characteristics of Fish Farmers

Results of the descriptive statistics showed that 57% were male (Table1). Majority of the fish farmers were married (88%) while few of them were single (11%). All were educated and one-third had B.Sc. qualification (38%) and household size between 5-6 members was the highest with 53%.

Table 1: Socio-economic characteristics of fish farmers

Socio-economic characteristics	Freq (100)	% (100)
Sex		
Male	57	57
Female	43	43
Marital Status		
Single	11	11
Married	82	82
Divorced	2	2
Widowed	5	5
Age		
<30	6	6
30-40	24	24
40-50	32	32
>50	38	38
Educational Level		
None	0	0
Primary education	6	6
Secondary education	17	17
OND	5	5
NCE	38	38
B. Sc/HND	13	13
Ph. D	2	2
Tribe		
Yoruba	60	60
Igbo	35	35
Others	5	5
Household Size		
1-2	1	1
3-4	21	21
5-6	53	53
7-8	22	22
9-10	3	3

CAFAN as a cooperative body of fish farmers influenced and encouraged her members to attend seminars/workshops/trainings. In confronting these

challenges, some international organizations such as USAID were working with several partners to make fish farming in Nigeria more competitive against imports. Variety of training had been organized by the USAID for members of CAFAN in new smoking techniques (USAID, 2014). Other organizers were Federal Department of Fisheries (FDF), Non-Governmental Organizations (NGOs), Lagos State Government, private bodies, International organizations and Agricultural Development Programme (ADPs). Workshops on fish feed and feeding technology had the highest percentage of attendance (61%). This is because feed accounted for the highest percentage (60%-70%) of the total production inputs cost and frequently determined the quality of the fish produced (Table 2). Attendance of fish culturing enclosure seminars, fish breeding, fish processing and preservation were 37%, 60% and 59% respectively.

Many of the various fish production technologies introduced to the fish farmers for improving their productivity were adopted at different rates. The use of floating fish feed had the highest adoption rate of 87% followed by value addition (83%) because of the high demand for good quality processed fish products in the market and higher profit margin. Technologies about fish culturing tanks adoption rate was 73% because it made fish farming practices possible and easier without acquiring scarce and expensive land in fish production. Catfish breeding recorded 51% adoption because catfish was the main farmed fish with the highest level of demand in Nigeria as of now. Tilapia breeding technology had the lowest percentage of adoption because of the difficulty in the handling and inadequacy of technical support.

Fish farmers had financial assistance/loan (25%) through CAFAN to procure aquaculture inputs required for adoption of aquaculture technologies introduced to them (Table 3). Other benefits derived from the association that enhanced adoption rate were opportunity of access to regular fish farming

Table 2: Fish farmers attendance at trainings and adoption rate

Training/Seminar on Technology	Attendance	Adopted	Non-Adopted
Fish Culturing Enclosure	37		
Earthen pond		52	48
Fish tank		73	27
Integrated fish/plant farming		62	38
Integrated fish/animal farming		48	52
Pond Preparation and Maintenance	36		
Stocking density		62	38
Water quality		81	19
Fish Breeding Technology	60		
Tilapia breeding		12	88
Catfish breeding		51	49
Fish Feeding Technology	61		
Feed Formulation and Processing	37		
Fish Feed Storage	24		
Sinking feed		29	71
Floating feed		87	13
Use of maggot		20	80
Fish Transportation	21		
Fish Transportation		54	36
Fish Harvesting	20		
Fish Harvesting		85	15
Fish Processing and Preservation	59		
Value Addition	52		
Value Addition		83	17
Fish Products Quality Assurance	30		
Profitability Assurance	26		

or aquaculture information updates (98%) and acquisition of fish farming inputs (97%).

Test of Hypothesis

Chi-square result (Table 4) revealed that access to credit had significant relationship with the number of technology adopted ($P < 0.01$). Financial loan acquired by CAFAN members from the association

had a positive impact on the profitability of the fish production business. Result showed that increased financial input appropriately invested in fish production would enhance higher profitability of fish production.

Table 3: Benefits of fish farmers as members of Catfish Farmers' Association of Nigeria

Benefits	Percentage
Loan/Financial Support	25
Fish Farming Technology Acquisition	97
Fish Farming Input Support	46
Produce Marketing Support	59
Fish Farming Information Updates	98
Yield Improvement	71

Table 4: Relationship between the loan acquired and fish production profitability

Variable	Chi square	df	Level of Significance
Loan acquired	100.00	1	0.000*

*** P < 0.01

The null hypothesis was therefore rejected. Fregene and Akiande (2012) also observed an increase in income of fish farmers as a result of the Fadama II intervention in Oyo state.

CONCLUSION

This research showed the roles of CAFAN in the adoption of aquaculture technologies among the members in Lagos State. Several aquaculture technologies disseminated through training were adopted at various rates. Members of CAFAN had benefited from loans, acquisition of fish farming technology and fish farming information updates among several others which increased their profit. The awareness of the existence and activities of CAFAN should be intensified among the fish farmers especially in the rural areas to enhance collective effort among fish farmers for improved yield of fish productions. Financial assistance or loan given to the members through cooperative society should be increased for others to benefit thereby improving fish production.

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