

SOCIO-ECONOMIC CHARACTERISTICS OF FISH FARMERS ACCESSING AGRICULTURAL CREDITS IN BAYELSA STATE, NIGERIA

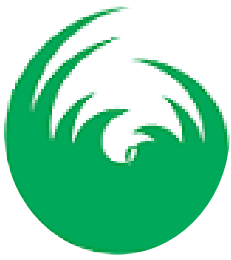
¹Odinwa, A. B., ²Enoch, I., ³Ekeogu, C. O. and ⁴Odinwa, A. N.

^{1&4}Department of Agricultural Education, Federal College of Education (Technical), PMB 11, Omoku, Rivers State, Nigeria.

^{2&3}Department of Agricultural Science, Ignatius Ajuru University of Education, Port Harcourt, Rivers State.

Abstract: Socio-economic characteristics of fish farmers accessing agricultural credits was investigated in Bayelsa State, Nigeria. The objective was to describe the socio-economic characteristics of the registered fish farmers and the extent to which fish farmer's access agro-credits available in Bayelsa State. Descriptive survey design was used to elicit information using questionnaire and group interviews from a cross section of fishers in the area of study. Multi stage and purposive sampling techniques were engaged at the initial stages to choose the three LGAs. Proportionate random sampling technique was also used to select 10% from the sample frame of 1,116 fish farmers to arrive at one hundred and eleven (111) respondents as sample size for the study. Data collected were analyzed using both descriptive and inferential statistics. Descriptive statistics used includes percentage, arithmetic mean and the weighted mean scores obtained from the Likert type rating scale. The inferential statistics used were the simple linear regression and the Analysis of Variance (ANOVA) for test of significance at 0.05% probability level. The results showed that greater part of the registered fish farmers in Bayelsa State were men (70.27%) with mean age of 45 years old; majority of them were married (82%) and had formal education (84%). It revealed poor regularity of farmers' contact with extension agents (quarterly contact (55.86%) and a mean annual income of N281, 721.00 for the fish farmers in the study area. The regression result indicated that: Years of experience (1.896*), nature of farming (1.789*), farm size (number of ponds (1.632*), regularity of contact with extension agents (1.560*), sex of farmers (1.430*), annual income (1.400*) and Level of education (1.292*) had positive correlation with farmers' access to agricultural credits in the area at 5% significant level. The results on the extent of accessing agricultural credits by fish farmers in Bayelsa State indicated cumulatively low access (CM =1.77) to formal agricultural credits, but personal savings (GM = 2.69), loan from relatives /friends (GM = 2.66), loan from Money lenders (GM = 2.65) and loan from Co-operative societies (GM = 2.41), among few others recorded high access in the study area. Test of significance on farmers' level of access to agricultural credits, also showed no meaningful difference in the group means. The study therefore, recommended that: Women and youths be aroused and encouraged to participate in fish farming enterprises in Bayelsa State, Revolving agricultural credits should be made available and accessible to fish farmers by the State government and non government organizations in Bayelsa State, and Extension services should be beefed up to cover supervision and recouping of government revolving agricultural credits in Bayelsa State.

Keywords: Socio-economic characteristics, Fish farmers, Access, Agricultural credits.



Introduction

Fish farming involves raising fish commercially in tanks or enclosures such as fish ponds, usually for food. It is the major form of aquaculture, while other methods may fall under maniculture. Any fish reared in a pond or caught from natural water bodies such as sea, river, oceans and lake is mainly for consumption, most of these fishes are reared in fish ponds and are managed effectively and efficiently to reach market sizes at the needed period. The branches of fish production is made up of pedigree breeding (hatchery), table fish production and marketing (Jull, 2000). These are the branches of the fish industry which farmers can engage in, which is advisable to combine for profit maximization. More so, other related fish ventures include production of fish meal, manufactures of fishing tools, processing and preservation of fish and fish products. The relationship of these branches to one another is relatively interchangeable. (Anyanwu, 2005).

In the past, fish rearing was not common but fishing in natural water bodies was predominant. Gradually, fish pond farming developed into a commercial enterprise involving thousands of fish species in stock. Large fish ponds replaced small ones while more efficient breeds of fish, balanced feeds, intensive housing, and better fishing equipment come into use (Anyanwu et al, 2009).

According to Okorie (2004) fishing in natural and artificial water bodies can only be productive when people within the age limit of 25- 50 years are engaged and also been responsible to duties especially married farmers. In view of these, Delgado (2001) opined that the commercialization of fish production is a recent development in Nigeria. He noted that fish production enterprise is less capital intensive consisting of small units and depends more on manual labour. Moreover, the fish industry in Nigeria is not as diversified as in the advanced countries. He revealed that emphasis is on table

fish production and not much has been done in pedigree breeding, canning and exportation. According to Anyanwu (2005) fish breeding / hybridization enhances the production of fast growing breeds of fish that are resistant to many diseases which brings more economic and nutritional benefits.

Demand is increasing for fish protein, which has resulted in widespread overfishing in wild fisheries. China provides 62% of the world's formed fish (ASL 2050, 2014). As of 2016, more than 50% of sea food was produced by aquaculture (World Bank, 2017). In the last three decades, aquaculture has been the main driver of the increase in fisheries and aquaculture production, with an average growth of 5.3 percent per year in the period 2000-2018 reaching a record of 82.1 million tons in 2018. The fish industry is characterized by low capital outlay, low operating cost, low application of technology and intensive labour demand as well as high post harvest losses, varying from 35-45 percent (Tobor, 1990). Despite these problems this subsector contributed about 96.2 percent of the total fish output from 1994- 2004 (Bada, 2005). Robert *et al* (2002) contented that inadequate fund, skills and good knowledge about fishing to fishers has pose a great challenge in the fishing industry or sector. This has resulted to low production output, unable to purchase the needed inputs for fishing venture, hence farmers needed governmental and non-governmental assistance toward this regard in order to boost production. Nwabeze and Erie (2013) reveals that Artisanal fishing uses traditional fishing techniques such as rod and tackle, fishing arrows and harpoons, cast nets trap and small traditional fishing boat or canoe. Larson (2007) observed that artisanal fishermen are low income farmers, hence there may not possess the financial strength needed to buy fishing gear and inputs required for their operation which may turn out to low output production. He further pointed out that the variation in the



income level of artisanal fish farmer may be due to difference in the type of fishing venture, number of fishes cultured or captured, fishing techniques, types or fishing gear employed and size of fishes offered for sale among others. Anyanwu et al (2009) reported that capture and culture fishermen / fish farmers are quick to adopt technologies (innovation) and social schemes whenever they perceive a clear benefit from them.

Engaging in socio economic ventures like fish farming and its allies, that are technical and financial intensive, requires a circulating sources of agricultural credits for ease of access and usage. The knowledge and the understanding of these sources of agricultural credits and their access in any place depend on the socio economic background of the operators of these ventures. Scholars have evaluated different factors linked with agricultural loans but recent ones avoided analysis of farmers' socio economic characteristics in accessing and utilizing credits in fishing enterprises (Akintunde *et al.*, 2020).

Therefore, there is need to examine the socio economic characteristics of fishers that are accessing and utilizing agricultural credits in Bayelsa State, the home of fish industry in Nigeria, hence, this study with the aim to specifically:

- i. describe the socio economic characteristics of fish farmers in Bayelsa State, and
- ii. examine the extent to which fish farmers' access agricultural credits in the area.

Two hypotheses were framed to fintune the study which include:

- Ho₁: There is no significant relationship between the socio economic characteristics of fish farmers and their access to agricultural credits in Bayelsa State.
- Ho₂: Extent of access to agro-credits does not differ significantly among the fish farmers in the three LGAs of Bayelsa State.

Methodology

The study was conducted in three local government areas believed to be doing well in fish farming enterprises especially culture fishing in Bayelsa State. It used descriptive survey design to elicit information using questionnaire and group interviews from a cross section of fishers in these LGAs. Multi stage and purposive sampling techniques were engaged at the initial stages to choose the three LGAs. Proportionate random sampling technique was also used to select 10% from the sample frame of 1,116 fish farmers to arrive at one hundred and eleven (111) respondents as sample size for the study. Data collected were analyzed using both descriptive and inferential statistics. Descriptive statistics used includes percentage, arithmetic mean and the weighted mean scores obtained from the Likert type rating scale. The inferential statistics used were the simple Linear Regression and the Analysis of Variance (ANOVA) for test of significance at 0.05% probability level.

Ho₁ was actualized using linear regression model which was explicitly represented as:

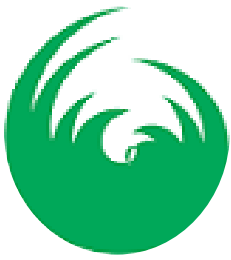
$$Y = f(x_1 \ x_2 \ x_3 \ x_4 \ x_5 \ x_6 \ x_7 \ x_8 \ x_9 \ x_{10} \ x_{11} \ +e) \dots\dots\dots(1)$$

Where Y = Farmers' Access to Agro Credits; x₁ = sex; x₂ = age (in years); x₃ = marital status; x₄ = level of education; x₅ = nature of fish farming; x₆ = farm size (ha); x₇ = household size (no); x₈ = contact with ext. agents; x₉ = years of experience (in years); x₁₀ = annual income (₦); x₁₁ = additional means of livelihood; b₀ = constant; e = error term.

Linear function:

$$Y = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 \dots\dots\dots + b_{11}x_{11} + e. \dots\dots\dots (2)$$

Test of Ho₂ was done using ANOVA. The inferential statistic used was to ascertain if the fish farmers' access



to agro credits in Bayelsa State differed significantly among the various LGAs studied. The hypotheses were tested at 0.05 alpha level of significance, where f -calculated is greater than the alpha level (0.05), the null hypotheses were rejected; otherwise, the null hypotheses were accepted.

Results and Discussion

Socio-Economic Characteristics of Registered Fish Farmers in Bayelsa State

From the findings (Table 1), it showed that greater part of the registered fish farmers in Bayelsa State were men (70.27%) against women (29.73%). This means that men were the major actors in fish farming in Bayelsa State, which may be due to gender sensitivity, technical nature and skilled energy required in fish farming, as a branch of livestock production. This finding may be the reason for the declining trend in fish products in the area. The finding is in support of Odinwa, Emah and Albert, (2016) who recorded that women are the locomotive engine that drives the agricultural industry in Africa, such that any sector of farming industry that they are not involved based on gender biases, suffers low agricultural productivity. Also, in agreement with this finding is the World Bank (2017) report which indicated that women provide 60-80 percent of agricultural labour and they participate in all aspects of agriculture.

The finding put the mean age of the fish farmers in Bayelsa State at 45 years old and about 82% of the population as married folk. This means that there is a future for fish farming, giving the necessary motivation since the middle adult men, full of energy are operating the fish farming industry in this state.

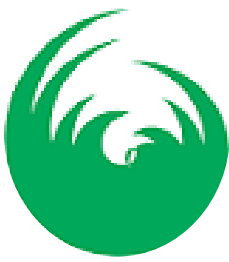
The result also showed that the majority of the registered fish farmers had formal, at least primary education (84.68%). They were more of part-time farmers (63.06%)

than those in full-time (36.94%). That majority of the respondents being above 84% are having formal education is another added advantage to the prospects of fish farming in the area, since the farmers are enlightened, it will be easier for them to receive, understand and apply any innovation in their fishing operations. It is in support of Onubuogu *et al* (2014) who documented that illiteracy has been shown to be a major limitation to technology adoption in livestock and crop production, that increasing the overall educational level would enable farmers to access relevant information that will stimulate their production.

On the aspect of type of fish farming being practiced in the area, the result indicated that pond culturing (85.59%) was more proficient than any other type and followed by combination of artisanal and pond culturing (14.41%). These finding portray the fact that fishing is really a business in Bayelsa State since it is pond culturing that gives fishing operation a business outlook and not artisanal that is purely based on fish capturing and consumption. This claim agrees with Igbokwe *et al* (2000) who ascertained that culture fisheries is the acculturation of selected fishes in confine area with almost care to get maximum yield.

The findings showed a mean farm size (measured in number of ponds per family) as 12 ponds and a mean household size of 6 persons per fish farm family in Bayelsa State. This result is a proof that fish farmers were small scale business farmers since 12 fish ponds cannot cover 1.5 hectares estimation of land. This result is in sharp agreement with Baudura (2014) who asserted that Nigeria farmers are classified as small-scale because their farm sizes are less than 10.00ha and 94.37percent of all farm holding in Nigeria operate at this scale.

Concerning regularity of farmers' contact with extension agents, the result revealed that quarterly contact (once in three months 55.86%) was more pronounced, seconded



by no contact at all (24.32%) and followed by yearly contact (05.41%). This exposed irregular visit by extension agents working in the area is not healthy and worthwhile to meaningful extension services and indicates an imbalance ratio of extension agent to a farmer in Nigeria. This finding was not in line with Odinwa, Nlerum & Odinwa (2020) who recorded that frequent and regular extension contacts with the farmers has a positive effect on the adoption of technologies by farmers.

The study further showed 12 years as mean years of experience and a mean annual income of ₦281, 721.00 for the fish farmers in the area of study. It showed, based on years of experience and the annual income that the fish farmers have a teenage experience in fishing enterprise and are also poor which would certainly limit their level

of operation. These findings agree with Onyebinama (2004) who found that farmers with more years of farming experience are more efficient, have better knowledge of climatic conditions and the market situation, and are therefore able to run their enterprises more profitably; and that the success of livestock production is significantly influenced by age, farming experience and financial status of the farmer.

It finally showed that trading (35.14%), civil service (29.73%) and artisanal skills (27.03%) were the major additional means of livelihood engaged by fish farmers in order to make ends meet. Engagement into other occupations or skills is apparent since the identified farmers in this study were small scale fishers on part-time basis, hence the need for diversification, so as to survive the present harsh economy in place.

Table 1: Socio-Economic Characteristics of Registered Fish Farmers in Bayelsa State

Variables	Kolokuma n = 33		Sagbama n = 38		Yenagoa n = 40		Grand %/Mean N = 111
	(f)	(%)	(f)	(%)	(f)	(%)	
Sex	(f)	(%)	(f)	(%)	(f)	(%)	(%)
Male	26	(78.79)	25	(65.79)	27	(67.50)	70.27
Female	07	(21.21)	13	(34.21)	13	(32.50)	29.73
Age	(f)	(%)	(f)	(%)	(f)	(%)	(Mean)
21 – 30	06	(18.18)	00	(00.00)	00	(00.00)	45 years
31 – 40	21	(63.64)	00	(00.00)	04	(10.00)	
41 – 50	04	(12.12)	20	(52.63)	29	(72.50)	
51 – 60	02	(06.06)	18	(47.37)	07	(17.50)	
61 and above	00	(00.00)	00	(00.00)	00	(00.00)	
Marital Status	(f)	(%)	(f)	(%)	(f)	(%)	(%)
Single	17	(51.52)	03	(07.89)	06	(15.00)	15.00
Married	13	(39.39)	35	(92.11)	34	(85.00)	82.00
Others	03	(09.09)	00	(00.00)	00	(00.00)	03.00
Level of Education	(f)	(%)	(f)	(%)	(f)	(%)	(%)
No Formal education	04	(12.12)	06	(15.79)	07	(17.50)	15.32
Primary education.	08	(24.24)	06	(15.79)	06	(15.00)	18.02
Secondary	12	(36.36)	22	(57.89)	18	(45.00)	46.85
NCE/OND	07	(21.21)	04	(10.53)	07	(17.50)	16.22



Bachelors	02	(06.06)	00	(00.00)	02	(05.00)	03.04
Nature of Fish Farming	(f)	(%)	(f)	(%)	(f)	(%)	(%)
Full-Time	28	(84.85)	04	(10.53)	09	(22.50)	36.94
Part-Time	05	(15.15)	34	(89.47)	31	(77.50)	63.06
Type of Farming	(f)	(%)	(f)	(%)	(f)	(%)	(%)
Artisanal fishing	00	(00.00)	00	(00.00)	00	(00.00)	00.00
Pond culturing	25	(75.76)	37	(97.39)	33	(82.50)	85.59
Combination of artisanal and pond culturing	08	(24.24)	01	(02.63)	07	(17.50)	14.41
Farm Size (No of ponds)	(f)	(%)	(f)	(%)	(f)	(%)	Mean
1- 5 ponds	21	(63.64)	02	(05.26)	02	(05.00)	
6- 10 ponds	09	(27.27)	02	(05.26)	06	(15.00)	
11 – 15 ponds	01	(03.03)	04	(10.53)	25	(62.50)	12 ponds
16 – 20 ponds	02	(06.06)	29	(76.32)	09	(22.50)	
21 ponds and above	00	(00.00)	01	(02.63)	00	(00.00)	
Household Size	(f)	(%)	(f)	(%)	(f)	(%)	Mean
1- 5 Persons	25	(75.76)	10	(26.32)	14	(35.00)	
6-10 Persons	06	(18.18)	23	(60.53)	22	(55.00)	6 persons
11-15 Persons	02	(06.06)	04	(10.53)	04	(10.00)	
16 – 20	00	(00.00)	01	(02.63)	00	(00.00)	
21 and above	00	(00.00)	00	(00.00)	00	(00.00)	
Contact with Ext. Agents	(f)	(%)	(f)	(%)	(f)	(%)	(%)
No contact with Ext agent	27	(81.82)	00	(00.00)	00	(00.00)	24.32
Daily contact	02	(06.06)	00	(00.00)	00	(00.00)	01.80
Weekly contact	02	(06.06)	00	(00.00)	00	(00.00)	01.80
Fortnightly	02	(06.06)	00	(00.00)	00	(00.00)	01.80
Monthly	00	(00.00)	00	(00.00)	00	(00.00)	00.00
Bimonthly	00	(00.00)	06	(15.79)	04	(10.00)	09.01
Quarterly	00	(00.00)	31	(81.58)	31	(77.50)	55.86
Yearly	00	(00.00)	01	(02.63)	05	(12.50)	05.41
Years of Experience in fishing	(f)	(%)	(f)	(%)	(f)	(%)	Mean
1 – 5	23	(69.70)	00	(00.00)	02	(05.00)	
6 – 10	06	(18.18)	00	(00.00)	02	(05.00)	
11 – 15	04	(12.12)	11	(28.95)	28	(70.00)	12 years
16 – 20	00	(00.00)	27	(71.05)	08	(20.00)	
Annual Income from fishing	(f)	(%)	(f)	(%)	(f)	(%)	Mean
Below ₦150,000	12	(36.36)	00	(00.00)	01	(02.50)	
150,000 – 250,000	12	(36.36)	03	(07.89)	16	(40.00)	
251,000 – 350,000	06	(18.18)	10	(26.32)	13	(32.50)	
351,000 – 450,000	01	(03.03)	23	(60.53)	08	(20.00)	₦281,721
451,000 – 550,000	00	(00.00)	02	(05.63)	00	(00.00)	
551, 000 – and above	00	(00.00)	00	(00.00)	02	(05.00)	
Additional means of livelihood	(f)	(%)	(f)	(%)	(f)	(%)	(%)
Trading	07	(21.21)	18	(47.37)	14	(35.00)	35.14
Civil service	15	(45.45)	04	(10.53)	14	(35.00)	29.73



Artisanal skill	06	(18.18)	14	(36.84)	10	(25.00)	27.03
Craft work	03	(09.09)	02	(05.63)	02	(05.00)	06.31
Agro processing	00	(00.00)	00	(00.00)	00	(00.00)	00.00
Industrial work	02	(06.06)	00	(00.00)	00	(00.00)	01.80

Source: Field Survey, 2022

The regression result on the relationship between the socio-economic characteristics of registered fish farmers and their access to agro-credits in Bayelsa State (Table 2) showed that: Years of experience (1.896*), Nature of farming (1.789*), Farm size (number of ponds 1.632*), Regularity of contact with extension agents (1.560*), Sex of farmers (1.430*), Annual income (1.400*) and Level of education (1.292*) had positive correlation with farmers’ access to agricultural credits in the area at 5% significant level. This implies that increase in these variables, all things being equal, would increase access to agro credits in Bayelsa State. These findings to some extent are supported by Onyebinama (2004) who noted that farmers with more years of farming experience are more efficient, have better knowledge of climatic

conditions and the market situation, and are therefore able to run their enterprises more profitably; and that the success of livestock production is significantly influenced by age and farming experience. Also, in agreement with these findings was Yorgas (2019) who noted that education, farm size, group membership, etc. will greatly influence the awareness and adoption of innovation of any kind.

However, the finding showed that: Marital status (-1.688*), Household size (-1.423**), Age (-1.378**) and Type of fish farming (-1.324**) had negative relationship with farmers’ access to agricultural credits in the area, even though they were all significant at 5% level of probability, implying that increase in marital status, household size, age and type of fish farming do not increase access to agricultural credits in the area.

Table 2: Relationship between the Socio-economic Characteristics of Registered Fish Farmers and their Access to Agricultural Credits in Bayelsa State.

Variables	Coefficient	Std error	t-Values	Probability
(Constant)	2.611	0.594	4.398	0.000
Sex	0.207	0.145	1.430*	0.156
Age	-0.242	0.175	-1.378**	0.171
Marital Status	-0.304	0.180	-1.688*	0.095
Level of Education	0.110	0.085	1.292**	0.200
Nature of Farming	0.339	0.190	1.789*	0.077
Type of Fish Farming	-0.315	0.238	-1.324*	0.189
Farm Size (No of ponds)	0.172	0.105	1.632*	0.106
Household Size	-0.219	0.154	-1.423*	0.158
Regularity of contact with ext. agents	0.094	0.060	1.560*	0.122
Years of Experience	0.321	0.170	1.896*	0.061
Annual Income	0.185	0.132	1.400*	0.165
Additional means of livelihood	-0.066	0.091	-0.729*	0.468



Source: Field Survey, 2022

Extent to which Fish Farmers Access the Agro-Credits available in Bayelsa State

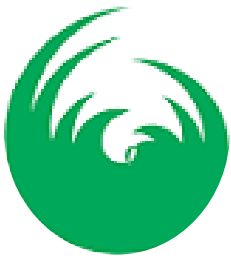
The findings on the extent of accessing agricultural credits by fish farmers in Bayelsa State (Table 3) indicated cumulatively low access (CM =1.77) to formal agricultural credits, but credit from Personal savings (GM = 2.69), Loan from Relatives /Friends (GM = 2.66), Loan from Money lenders (GM =2.65), Loan from Co-operative societies (GM = 2.41) and Loan from the Bank of Agriculture (BOA – GM = 2.34) recorded high access in the study area. The rest sources of credits including: Loan from the Produce Buyers (GM = 1.86), Loan from Micro Finance Bank (GM = 1.31), Commercial Agriculture Credit Scheme (Union Bank of Nig, Unity Bank, First Bank of Nig (GM = 1.30) and Agricultural Produce Finance Scheme (GM 1.16) among others recorded low access. High accessibility of the identified sources may shoot from the fact that the farmers are already aware of their existence, importance and how to

***P < 0.05**

go about them. Yorgas (2019) in support of this findings stated that accessing credit from the formal credit institutions require customers to have all the knowhow including having account with the banks and tangible or intangible collateral security for ease of access. While the non accessibility of these formal sources of credits could also shoot from the unawareness factor or from the terrifying interest charges attached to loans from these sources. This finding was in consonant with Baudura (2014) who noted that in Nigeria, generally, commercial banks and other formal Credit Institutions fail to cater to the credit needs of rural populations because of their lending terms and conditions. Also, in support of this finding were Yorgas (2019), Ogebe and Ogah (2020) who observed that it has been the rules and regulations of the formal financial institutions that since the poor are not bankable, and since they cannot afford the terms, they are therefore considered not creditworthy to access loans.

Table 3: Mean Distribution on the Extent to which Fish Farmers Access Agro-Credits available in Bayelsa State

Agro Credits	Kolokuma		Sagbama		Yenagoa		Grand		Grand Mean	Remark
	Weighted Scores n = 33	Mean	Weighted Scores n = 38	Mean	Weighted Scores n = 40	Mean	Total scores N= 111	Grand Mean		
Personal savings.	65	1.97	114	3.00	120	3.00	299	2.69	High extent	
Loan from Relatives /Friends.	62	1.88	114	3.00	119	2.98	295	2.66	High extent	
Loan from Money lenders.	64	1.94	114	3.00	116	2.90	294	2.65	High extent	
Loan from Non - Governmental Organizations	66	2.00	77	2.03	76	1.90	219	1.97	Low extent	
Loan from the Produce Buyers.	63	1.91	77	2.03	66	1.65	206	1.86	Low extent	
Loan from Co-operative societies.	78	2.36	91	2.39	98	2.45	267	2.41	High extent	
Loan from the Bank of Agriculture (BOA).	80	2.42	88	2.32	92	2.30	260	2.34	High extent	
Loan from Micro Finance Bank	63	1.91	40	1.05	42	1.05	145	1.31	Low extent	



Guaranteed Fund Credit Scheme	47	1.42	40	1.05	42	1.05	129	1.16	Low extent
Agricultural Finance Scheme	47	1.42	40	1.05	42	1.05	129	1.16	Low extent
Multi Agricultural Scheme	45	1.36	39	1.03	42	1.05	126	1.14	Low extent
Electronic Wallet (E – Wallet)	37	1.12	39	1.03	42	1.05	118	1.06	Low extent
Commercial Credit Scheme (Union Bank of Nig, Unity Bank, First Bank of Nig)	64	1.94	38	1.00	42	1.05	144	1.30	Low extent
Industrial End Users Out Growers Scheme	33	1.00	38	1.00	42	1.05	113	1.02	Low extent
Cumulative Mean		1.76		1.78		1.75		1.77	Low

Source: Enoch and Odinwa (2022)

Test of significance on farmers' extent of access to agricultural credits in Bayelsa State (Table 4) also showed no meaningful difference in the group means of Kolokuma, Sagbama and Yenagoa as ($f - \text{calculated} = 0.41$) was less than ($f - \text{critical} = 3.26$) at $P > 0.05$ significant level, an indication that fish farmers in these

Critical Mean = 2.00

three LGAs in Bayelsa State are operating at the same level as regards accessibility to available agricultural credits in the State and requires that something should be done uniformly in these LGAs to influence the fish farmers' awareness and access levels to all agricultural credits that exist in the State.

Table 4: ANOVA result on the Extent to which Fish Farmers Access Agro-Credits in Bayelsa State

Source of Variance	SS	Df	MS	f-cal	f-Critical	Remarks
B/W Group variance	0.33	2	0.17			
W/Group variance	14.72	108	0.41			
Total	15.05	110		0.41	3.26	NS

Source: Field Survey Data, 2021

NS – Not Significant at $P > 0.05$

Conclusion

The study indicates that middle adult men with formal but secondary education dominated the population of the registered fish farmers operating in Bayelsa State. It was also observed that the access to agricultural credits especially the formal agro credits were very low in these three LGAs studied. It showed that years of experience,

nature of farming, farm size, regularity of contact with extension agents, sex of farmers, annual income and Level of education had positive correlation with farmers' access to agricultural credits in the area. While marital status, household size, age of farmers and type of fish farming had negative relationship with farmers' access to agricultural credits in the area, even though they were all significant.



Recommendations

Based on the findings, the study therefore recommended that:

1. Women and youths should be aroused and encouraged to participate in fish farming enterprises in Bayelsa State.
2. Revolving agricultural credits should be made available and accessible to fish farmers by the State government and non government organizations in Bayelsa State.
3. Extension services should be beefed up to cover supervision and recouping of government revolving agricultural credits in Bayelsa State.

References

Akintunde, O.K., Coster, A.S., Nwigwe, C. A., & Agboola, T.O. (2020). An analysis of factors influencing access to credit by fish egg farmers in Southwestern, Nigeria. *Nigerian Journal of Animal Science*, 22 (2):204-212 (ISSN: 1119-4308) (<https://www.ajol.info/index.php/tjas>).

Anyanwu, D.C. (2005). *Over view, Fishery and Fish Production in the Tropic*: CEL-BEZ and Co- Publisher, 84 Owerri Road, Imo State.

Anyanwu, D. C., Mkpado, M. & Ohaka, C. C. (2009). Economic Analysis of Artisanal Fishing at River Niger Onitsha, Anamabra State, Nigeria. *Agro – Science journal of Tropical Agriculture, Food, Environmental and Extension*, 8 (3), 175- 179.

Anyanwu, D. C., Ujaegbu, E. P., Ohaka, C. C. & Onuoha, R. E. (2009). Economic Analysis Of Small Scale Fish Pond Production in Oguta, Imo State, Nigeria. *International Journal of Tropical Agriculture and Food System*, 3 (4), 314 – 318.

ASL 2050. (2018). Fish production systems spotlight Nigeria. FAO, Rome, Italy.

Bada, A. S. (2004). Investment potentials in homestead cat fish farming in concrete tanks. A Paper Presented

during the 2004 African Farm Management Association Conference, Abuja.

Baudura, A. (2014). *Social foundations of thought and action: A social cognitive theory*. In Braun, B., McCoy, T., & Finkbeiner, N. (2014). Extension education theoretical framework with criterion-referenced assessment tools. College Park, MD: University of Maryland Extension. Englewood Cliffs, NJ: Prentice-Hall, Inc.

Delgado, C . (2001). *Livestock Supply and Demand Trends*. Lagos: Government Press

Igbokwe, A.M. Mosuru. E.M, And Abdullllah J.A. (2000). Exam Focus, Agricultural Science for Senior Secondary Schools, Sure – Bet for WASSCE and SSCE (S.S 1, 2 and 3). 369- 386.

Jull, M.A. (2000). *Animal Husbandry*, 5th Edition, New York, Mc Graw Hill Co.

Larson, T. (2007). *History of the Fish Hook in America*. The White Fish Press. 1.

Nwabeze, G.O and Eric, A.P. (2013). Artisanal Fisher, use of Sustainable Fisheries management Practices in Jebba Lake Basin”. *Nigeria Journal, Agric Extension*, 123- 134.

Odinwa, A.B., Emah G.N. & Albert C.O. (2016). Assessment of Agro-Credits available to farmers in Orashi Region of Rivers State, Nigeria. *International Journal of Advanced Research in Social Engineering Strategies*, 4 (1). 46-55.

Odinwa, A. B., Nlerum, F. E. & Odinwa, A. N. (2020). Challenges of satisfying the extension needs of yam farmers in Rivers and Imo States, Nigeria. *Kobia International Journal of Education Humanities and Social Science*, 1(1), 10 – 22.

Ogebe, U., & Ogah, S. N. (2020). Small holder ‘access to agricultural credit in north-central Nigeria. *Journal of Research and Innovation in Applied Science*, 5(3), 2454-6.



Okorie, A. (1998). Management of Risk and Default in Agricultural Lending. In Ijere, M & A. Okorie (eds.). *Readings in Agricultural Finance* Lagos, Longman Nigeria Plc.

Onubuogu, G.C., Esiobu, N.S., Nwosu, C.S., & Okereke, C.N. (2014). Resource use efficiency of smallholder cassava farmers in Owerri Agricultural Zone, Imo State, Nigeria. *Scholarly Journal of Agricultural Science*, 7(8). 142-152.

Onyebinama, U.A.U. (2004). *Farm Business Management for Smallholder Farm Firms in Nigeria*. Nigeria: Owerri: Alphabet Nigeria Publishers. Roberts, F.A. & Oluyemi, J.A (2002). *Fish Production in Tropical Climates*. London: Macmilan Press Ltd.

Tobor, J.G, (1993). The fish industry in Nigerian status and potential for self sufficiency in Fish Production. National Institute for Maritime Research (NIOMR), Lagos, 54.

World Bank (2017). *Microfinance and Economic Development*. Policy Research Working Paper 8252 Development Research Group Finance and Private Sector Development Team November 2017.

Yorgas, G. (2019). Credits sums, access and factors influencing credit demand among rural livestock farmers in Nigeria, *Agricultural Finance Review*.