

PARTICIPATION OF FISH FARMERS IN AGRICULTURAL COOPERATIVE SOCIETIES FOR ECONOMIC EMPOWERMENT AMONG SMALL-SCALE FARMERS IN DELTA STATE

¹Okwuokenye, G.F. And ²Iduseri. E.O.

¹ Department of Agricultural Economics and Extension, Faculty of Agricultural Sciences,
National Open University of Nigeria, KM 4, Zaria Express Way, Kaduna, Kaduna State

²Department of Environmental Science, Faculty of Science, National Open University of Nigeria
Corresponding Author's email address: ofolunsho@noun.edu.ng

Received 23rd March, 2021 Accepted 06th October, 2021

ABSTRACT

The study examined fish – farmers' participation in agricultural cooperative societies as a paradigm shift for farmers' economic empowerment among small-scale farmers in Delta State. Data were collected from 81 fish farmers through well-constructed, validated questionnaires and interview schedules. The respondents were sampled across four local government areas in the State. The study used both primary and secondary data. Primary data gathered were analyzed using frequency distribution and four - point Likert scale. Results were analyzed using Binary Logistic regression and T-test statistics. Results revealed that majority (65.43%) of the respondents were males, mostly (96.30%) educated, with majority been married fish farmers. In addition, the average age, fish farming experience, household size, years of cooperative membership and years of residence in community were 45.74 years, 11.20 years, 5 persons, 8.30 years and 16.14 years respectively. Most (75.31%) of them participated in their group at a high level and their semi-annual average income before and after membership of their group were N251,969.14 and N329,746.91 respectively. The difference in the average income was N77,777.78 and was significant at the 5% level. Variables like cooperative membership ($b = 0.061$; $t = 0.951$), education ($b = 0.067$; $t = 2.291$), age ($b = -0.829$; $t = -3.532$), marital status ($b = 1.362$; $t = 3.984$) and fish farming experience ($b = 2.103$; $t = 4.991$) were significantly related to respondent's farm income. The study concluded that respondents' participation in groups has boosted their farm income. The study recommended that there is need for the cooperative society's leadership to seek and incorporate interest of members' in designing activities for the group and need to ensure that benefits accruing to the group be equitably distributed and not hijacked by a few.

Key words: Fish-farmer, farm income, participation, cooperative societies, farm experience

INTRODUCTION

The importance of fish and its products to Nigerians in the present day cannot be overemphasized. Okwuokenye and Onemolease (2014) acknowledged that apart from employment provision, they provide the people with vitamins, protein, minerals as well as other important nutrients that are essential for human and livestock development. The authors also advanced that going by Food and Agricultural Organization (FAO) recommendation of animal protein which stands at 34 gram/day, only about 9.3 gram/day is being taken. The lag calls for Nigeria through her fish farmers to source for alternative strategies, development and conserve these with an aim to boost fish production.

The concern for the necessity to increase the quantity and quality of food production, with

particular reference to fish production has led to targeting efforts at the small-scale fish farmers.

Such drive is not unconnected to the fact that the small-scale farmers contribute about 85% of the total food production force (Adebayo and Sorungbe, 2002). Adebayo and Sorungbe (2005) observed that the small-scale farmers have out rightly not been able to actualize the dream of food sufficiency due to some litany of problems plaguing them. These include; lack of storage facilities, poor cultural practices, unfavourable and fluctuation in prices of agricultural products and shortage of capital. An attempt to overcome the aforementioned challenges calls for some kind of participatory action in one or more fish farmers cooperative societies. Participation in cooperative society is conceived by farmers as one of the surest medium of overcoming farm limitations. According to Ekong (2003), group participation is defined as the engagement in activities with others. The author also stressed that being a member and taking part in a group's activities is group or social participation. Taiye *et al.*, (2006) summed that it is worthy to note that participatory efforts in groups is a key factor

worthy of impacting and enhancing farmers production and income, thereby engendering development. Pursuing economic empowerment through social groups is an assurance of self-reliant development (Sherry, 2006). Fish farmers' cooperative societies like other agricultural cooperatives are actually organized bodies of men and women who voluntarily come together for the purpose of improving their social and economic well-being.

Farinde and Adisa (2005) cleared that that cooperative societies are either formal (registered) or informal (unregistered) and that they engage the spirit and practice of self-help aimed at fostering the economic interest of members. The authors further stated that cooperative societies operate in such a way that, the members pull their resources together and this enable the members to enjoy the benefit of large-scale production, as well as have access to loan from financial institutions Ekong (2003) identified cooperative societies that exist in our environment to include agricultural or farmers cooperatives, cooperative building societies, craft and artisans cooperatives, consumer cooperatives and apex organizations. Stressing further, the group's major objectives are to increase the productive capacity and efficiency of members, act as anti-monopoly mechanism by cutting excess profit of the middle men and to encourage savings and accumulation of capital among members. Other objectives include to develop leadership skills among her members and to establish a wide range credit facilities for members thereby enhancing more investments on the farm amongst others.

Going by the aforementioned, Ofuoku and Urang (2009) declared that cooperative societies are groups that are made up of members from other groups, and that these members agree to participate for purpose of either gaining or improving their general economic empowerment. It has been observed that even when many of these farmers have attempted to improve on their economy through other self-help group within their locality, the goal of economic empowerment had not been achieved. It is against this background that this study advocates the participation of fish farmers in cooperative societies as a sure means of gaining genuine and sustainable economic empowerment. In actualizing the overall objective, the study specifically seeks to: examine the socio-economic characteristics of fish farmers' cooperative societies in Delta State,

ascertain fish farmers' level of participation in cooperative societies in the state, examine the effects of fish farmers participation in cooperative societies on the respondents farm income; and identify the challenges limiting fish farmers from effectively participating in cooperative societies in the area of study.

The hypotheses were stated in their null forms.

H₀₁: Socio-economic characteristics of fish farmers' cooperative society members' have no significant influence on their farm income.

H₀₂ There is no significant difference in farm income of fish farmers before and after being members of fish farmers' cooperative societies

METHODOLOGY

Area of Study

The study was carried out in Delta State of Nigeria. The State is made up of three agricultural zones which are Delta North, Delta South and Delta Central. Okwuokenye and Okoh (2018) stated that Delta State has a total land area of 17,698² Km, it also has twenty five (25) Local Government Areas (LGAs) with the capital seat at Asaba. The State's projected population as at 2016 stands at 5,663,400 (National Bureau of Statistics, 2016). Geographically, the State lies between longitudes 5.00⁰ and 6.45⁰ North and latitude 18⁰ and 23⁰ South. The major ethnic and tribal groups and mostly the Isoko, Ika, Urhobo, Itshekiri, Ijaw, Ukwanis and Aniocha speaking people. National Atlas of Electoral Commission (2008) report indicated that the predominant occupation of Deltans and those inhabiting the state include farming, oil prospecting, civil service, trading and commerce. Agriculturally, the state is characterized by two distinct seasons, the dry and the rainy seasons which respectively ranged between November – March or April and March or April – October (Federal Office of Statistics, 2004). The report further stated that the average rainfall in Delta State ranges between 252 – 254mm and the average temperature ranges from a minimum of 24°C to a maximum of 33°C.

Sampling Technique

The sample was drawn using the multi-stage random sampling technique. The first stage involved the random selection of two out of the three agricultural zones of the state. They were Delta North and Delta South agricultural zones. The second stage was the purposive selection of two LGAs from each of the agricultural zones, thus making it four LGAs used for the study.

Ndokwa West and Ndokwa East LGAs were selected from Delta North while Isoko South and Bomadi were selected from Delta South agricultural zones. The purposive selection was done as a result of their notable fish farming activities, their nearness and cultural / traditional similarities.

The third stage involved the random selection of two registered and active (be in existence for about two years and functional) fish cooperative societies from the list provided by the agricultural development programme (ADP) offices in the LGAs as a sampling frame. In stage.

four, there was the random selection of fifty percent (50%) of fish farmers of the sampled cooperative societies (Table 1 shows the list of randomly sampled fish farmers cooperative societies in the various LGAs that were used for the study). Proportional sampling was done since the groups had unequal membership size. However, the membership size was one hundred and ninety (190), out of which ninety five (95) (i.e. 50%) were taken and administered with the question instruments. From the returned instruments, eight one (81) (i.e. 85.26%) of them suitable for analysis were used for the study.

Table 1: List of viable cooperative societies sampled and used for the study

Senatorial Zone	LGAs	Cooperative Societies	Sampled Membership size (50%)	Membership size
Delta North	Ndokwa West	i. Amorji fish farmers multi-purpose cooperative society	12	25
		ii.Trusted fish farmers multi-purpose cooperative society Ute-Okpu	11	22
	Ndokwa East	i. Onyema farmers' multipurpose cooperative society - Afor Town	13	27
		ii. Out – Oyeneka farmer's multi-purpose cooperative society – Okpai – Obeze	10	20
Delta South	Isoko South	i. Unique multi-purpose cooperative society, Oleh	13	27
		ii. Obokparo women better life multi-purpose cooperative society, Emede	13	26
	Bomadi	i. Joyful farmers' multi-purpose cooperative society, Bomadi	11	23
		ii. Tarakeme fish farmers' multi-purpose cooperative society, Bomadi	12	24

Source: Ministry of Agriculture and Natural Resources, of the respective LGAs, Delta state, (April, 2018)

Validation and reliability of Data Collection Instrument

The study employed the use of primary and secondary data. Primary data were collected from respondents (fish farmers) of the study while secondary data were sourced from Journals and other documented reports. Primary data were collected through the use of questionnaire and interview schedule which were respectively distributed to literate and illiterate respondents. These instruments were administered with the assistance of trained enumerators that were residents of the respective areas of study.

In order to ensure that the study instruments elicited the necessary information, it was made to go through validity and reliability test. Validity test involved the face-content method where experts in the field of Agricultural Extension went through it and judged that it was good for the purpose it hoped to achieve. In case of the instrument's reliability, the test-re-test

method was employed. The process involved administering the instrument to the subjects (respondents) in a pilot study on two different occasions while allowing a month's interval between the periods of administration. The responses were coded and scored. Thereafter, the score for the first and second were then compared and run to obtain a value of Correlation Coefficient ('r'). The value of "r" was 0.79, and this was judged as been high thus indicating that the instrument was reliable. However, the higher the value is to one (1), the higher the reliability of the instrument (Erie, 2009).

Data Analysis Technique

Data of the study were analyzed using descriptive and inferential statistics. Descriptive statistics involved the application of frequency counts, frequency tables, percentages, means and standard deviations. Descriptive statistics was used to analyze the socio-economic

characteristics, level of respondents' participation and the effects of respondents' participation in cooperative societies. Four - point Likert scale was used to analyze data on challenges limiting respondents' participation in cooperative societies. The scale was scored and scored as Strongly agree (coded 4), Agree (coded 3), Disagree (coded 2) and Strongly disagree (coded 1). The weighted mean score of 2.50 was used to determine which factors were limiting fish farmers from effectively participating in their groups and those that did not. However, factors with mean score of 2.50 and above were considered as limiting factors while those factors with less than 2.50 were considered as not limiting.

Inferential statistics was used to analyze the hypotheses of the study. First, Binary Logistics regression was used to analyze hypothesis one. This regression analyzes and explains relationship between one dependent variable and one or more independent variables. The variables in the model were specified as;

Y = Farm income (₦)

X₁ = Gender (dummy: male = 1; female = 0)

X₂ = Age (years)

X₃ = Education (pri. educ. = 1, sec. educ. = 2 and tertiary educ. = 3)

X₄ = Marital status (single = 1, married = 2, divorced = 3 widow(er) = 4)

X₅ = Fish farming experience (years)

X₆ = Household size (number of persons living and feeding together)

X₇ = Cooperative membership experience (years)

X₈ = Years of residence in community (years)

Hypothesis two was analyzed with the use of t-test statistics. The test was used to determine if a significant difference existed before and after respondents became members of fish farmers' cooperative societies. Madukwe (2004) concluded that t-test is used to compare the means between two groups or same group but at different time periods. The formular for T-test is shown below:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}} \text{-----Equation 1.}$$

Where:

$\bar{x}_1$ = the mean of group 1

$\bar{x}_2$ = the mean of group 2

S₁ = standard deviation for group 1 ;

S₂ = standard deviation for group 2

S₁² = variance of the first group ;

S₂² = variance of the second group

n₁ = size of the first group ;

n₂ = size of the second group

√ = square root

Decision rule: we reject null hypothesis and accept the alternative if the calculated test (t-cal) is greater than t-tabulated. On the other hand, we accept null hypothesis if t-cal is less than t-tab

RESULTS AND DISCUSSION

Table 2 shows the socio-economic characteristics of the respondents of the study. It however revealed that majority (65.43%) were males while about 35% constituted females. The result infers that males were major participants of fish farmers cooperative groups in the study area. The result is in line with that of Okwuokenye and Akintoye (2016) who reported dominance of males in social groups. The mean age of the respondents was 45.74 years and most (37.04%) of them were within the age bracket of 40 – 49 years. This implies that the farmers were within their active age. Similar result in line with active age group of farmers participating in social groups was reported by Fakoya and Daramola (2008).

The educational level of the respondents revealed that almost (96.3%) all of them had formal education. Precisely, most (38.27%) of them attended secondary school. Also, closed to this was about 36% of the respondents who had tertiary education. The result implies that most of the farmers were literates and so are able to exploit (within the limits of the group they belong) and achieve their purpose of belonging to their cooperative societies. The respondents level of formal education will to a large extent enhance their performance in the groups they belong. This result corroborates with reports of Okwuokenye and Akintoye (2016) which stressed that most farmer participants of social groups have high formal educational level. The result also showed that most (64.19%) of the farmers were married. The reason may not be unconnected to using the farm proceeds to support their families and as well using their households as source of family labour. Akinbili *et al.*, (2008) findings agreed with the result. The authors were of the view that social groups participants are mostly married people and the purpose is mostly for the improvements of economic livelihood.

Table 2: Socio- economic characteristics of respondents (n = 81)

Characteristics	Categories	Frequency	Percentage	Mean
Gender	Male	53	65.43	
	Female	28	34.57	
Age	< 30	4	9.88	
	30 – 39	14	17.28	
	40 – 49	30	37.04	
	50 – 59	22	27.16	
	≥ 60	7	8.64	45.74
Educational level	No formal educ.	3	3.70	
	Primary educ.	18	22.22	
	Secondary educ.	31	38.27	
	Tertiary educ.	29	35.80	
Marital status	Single	15	18.52	
	Married	52	64.19	
	Divorced	8	9.88	
	Widow(er)	6	7.41	
Fish farming exp. (yrs)	< 5	13	16.05	
	5 – 9	19	23.46	
	10 – 14	27	33.33	
	15 – 19	12	14.81	
	≥ 20	10	12.35	11.20
Household size	1 – 3	18	22.22	
	4 – 6	37	45.68	
	7 – 9	22	27.16	
	10 – 12	4	4.94	5
Cooperative membership (yrs)	< 5	17	20.99	
	5 – 9	42	51.85	
	10 – 14	13	16.05	
	15 – 19	6	7.41	
	≥ 20	3	3.70	8.30
Yrs of residence in community	< 5	5	6.17	
	5 – 9	9	11.11	
	10 – 14	14	17.28	
	15 – 19	21	25.93	
	≥ 20	32	39.51	16.14

Source: Field Survey: 2018

Fish farming experience of the respondents revealed that most (33.33%) had between 10 – 14 years fishing experience. The average farming experience was 11.20 years. The result indicated that they were experienced fish farmers. Such level of experience would help them to know the intricacies surrounding the business, help them minimize mistakes and assures them of good business success. The result agreed with that of Onunka (2011) which stated that good experience in farming enables farmers set realistic goals and targets. The average household size was 5 persons with majority (45.68%) having between 4 – 6 persons per household. The result implies that the respondents had people who dependent on them for economic livelihood. Similar household range among farmers in closely related farming groups was reported by Mohammad *et al.*, (2011).

The modal experience of the respondents in their cooperative societies was 8.30 years with most (51.85%) of them having between 5 – 9

years' experience. It could be judged that the respondents had put in long years in their groups and this may suggest that they have been benefitting from the groups. The result of Okwuokenye (2014) confirmed this as he noted that farmers with long experience in their social groups are likely to have their farm productivity raised and economic livelihood enhanced. The average year of residence for respondents was 16.14 years. Majority (39.51%) of them had resided in their respective communities for more than 19 years. The result strictly implies that the farmers have been residing in their community for a long period of time. This may afford them the opportunity to know which group to belong and function effectively in. the result of Akinola (2000) is in line with the assertion. The author agreed that the longer residents stay in a particular community, the more willing they would want to identify with the local organizations around.

Respondents Level of Participation in Cooperative Societies

Respondents level of participation in cooperative societies is shown in Table 3. From the Table, majority (48.15%) of them participated on a very high level, this was followed by about 27.16% whose participation was just high. On the other hand, few of them respectively had average (17.28%) and poor

(7.41%) participation level. On a broader categorization, majority (75.31%) participated at a high level while few of them (about 25%) participated on a low level. High level of participation suggests that respondents may most likely be benefitting from the groups they belong. The result is in line with that of Taiye *et al.*, (2006) which reported high level of farmers participation in their social groups.

Table 3: Respondents Level of Participation in Cooperative Societies

Level of participation	Categorization	Freq.	Percentage	Lumped percentage
High	Very high	39	48.15	75.31
	Just high	22	27.16	
Low	Average	14	17.28	24.69
	Poor	6	7.41	

Source: Field Survey, 2018

Semi-Annual Fish Farm Income Range of Respondents Participating in Cooperative Societies

Table 4 shows the income range of respondents before and after membership of their cooperative societies on a semi-annual basis. From the result, majority of the respondents before (37.04%) and after (35.80%) cooperative group membership respectively had semi-annual income range of between ₦200,000 – ₦299,000 and ₦300,000 – ₦399,000.

Their average farm income earnings before and after group's membership was ₦251,969.14 and ₦329,746.91 respectively. The difference was ₦77,777.78 and in favour of the respondents after being members of cooperative group. The result concurred with that of Abegunde (2009) who noted the positive impact of self-help group on farmers economic development.

Table 4: Semi-Annual Fish Farm Income Range of Respondents Participating in Cooperative Societies

Income range (₦'000)	Before Participation			After Participation		
	Freq.	%	Mean	Freq.	%	Mean
< 100	9	11.11	251,969.14	5	6.17	329,746.91
100 – 199	17	20.99		8	9.88	
200 – 299	30	37.04		17	20.99	
300 – 399	16	19.75		29	35.80	
400 – 400	6	7.41		12	14.81	
≥ 500	3	3.70		10	12.35	

Source: Field Survey: 2018; Difference in income range = ₦77,777.78

Factors Limiting Respondents' Participation in Cooperative Societies.

The fish farmers have been known to face some constraints in the agricultural cooperative societies they belong (see Table 5). These constraints either affect the group or the participants' directly and this goes a long way in affecting farmers level of participation in groups. The factors limiting respondents' participation in their groups are presented in the magnitude of their means and they are given below:

These included poor access to credit and other fishing inputs (mean = 3.07), failure to address member's needs (mean = 2.93) and members' refusal to repay loans (mean = 2.91). Other constraints are lack of government/NGOs

assistance (mean = 2.90), corrupt and dishonest leadership (mean = 2.81) and hijacking and bias in the distribution of benefits (mean = 2.72). Lack of transparency by the leaders about organization's activities (mean = 2.66) and hijacking of organization's affair by few privileged members (mean = 2.53) were as well identified as constraints to participation.

These findings are supported by the results of Daman (2003) who acknowledged inadequate access to credit as one of the problems faced by the farmers in participating in groups such as cooperative societies. The author further revealed unavailability or inadequate agricultural inputs and other agricultural services together with poor leadership style of the

organization's executive coupled with unfair/bias in the distribution of works and benefits among farmers as important participation constraints. Sinkaiye (2005) findings agreed that failure of cooperative societies to address/pursue members' needs, hijacking of benefits and affairs by few

privileged members and hijacking of organizations affair by few privileged members would lead to unwillingness of group members to participate effectively in social groups. Akpabio (2000) studies revealed poor loan repayment capacity by member and this as well affects the commitment of the members to group activities.

Table 5: Factors Limiting Respondents' Participation in Cooperative Societies

Constraints	Delta	
	Mean	SD
Poor access to credit & other fishing inputs	3.07*	0.65
Failure to address members needs	2.93*	0.66
Members refusal to repay loans	2.91*	0.58
Lack of government/NGOs assistance	2.90*	0.51
Corrupt and dishonest leadership	2.84*	0.76
Hijacking and bias in the distribution of benefits	2.72*	0.60
Lack of transparency by the leaders about organization's activities	2.66*	0.54
Hijacking of organization's affair by few privileged members	2.53*	0.55
Wrong timing of organization's activities	2.17	0.49

*Agreed (mean ≥ 2.50);

Source: Field survey, 2018

Relationship Between Respondents Socio-Economic Characteristics and Respondents Farm Income

Table 6 shows the binary Logistic Regression result analysis for the relationship between respondents socio-economic characteristics and their farm income. The model had a Chi-Square value of 40.88 with degree of freedom (df) of 8 and was found to be significant at the 1% level (Critical $X^2 = 1.96$). Going by this value, the model was found to be significant and appropriate for the test. The co-efficient of determination or adjusted R^2 was 0.721. This implies that the explanatory variables accounted for about 72.1% variation in the dependent variable, i.e. respondents farm income. From the results, five (5) out of eight (8) of the explanatory variables were found to have significant influence on respondents farm income. However, the results was arranged in the order of magnitude of the b-coefficient.

Cooperative membership experience had a beta coefficient value of 0.061 and t-value of 0.951. The result was positively signed and significant to respondents' farm income. The result implies that the more experience farmers had in their cooperative societies, the more their farm income would be. The results aligns with report of Katungi and Akankwasa (2008) which opined that the more years farmers stay in their groups, the more interest they build in the

group's activities which most times translate to financial benefits. Education level of the respondents ($b = 0.067$; $t = 2.291$) was positively signed and significantly related to their farm income. The odd ratio was 2.102. What this implies is that educated farmers are expected to make or generate income that is two times higher than what their non-literate counterparts would generate. By implication, more educated farmers are bound to make higher farm income from their fish farms. Education helps them to handle challenges and quickly overcome difficulties associated with fish farming activities that would otherwise reduce farm income. Taiye *et al.*, (2006) concurred with this finding as they acknowledged that having formal education helps to enhance farmers individual capacity to handle agricultural innovation and this helps to improve productivity and income.

Age of respondents ($b = -0.829$; $t = -3.532$) was negative and significantly related to respondents farm income. The negative sign implies that the younger respondents tend to generate more farm income from their fishing activities. This may be adduced to the fact that, younger farmers tend to be involved in more risk taking and adherence to agricultural innovations which are resulting to higher farm productivity and income. This finding contradicts that of Yomi-Alfred (2005) who stressed that older farmers tend to be more engaged in farming activities which impact positively in their

farming revenue. The b-coefficient and t-value for marital status were 1.362 and 3.984 respectively. The values were positively signed and significant to the respondents farm income. The odd ratio was 1.542 which indicates that married fish farmers would produce income that is 1.5 times more than their other counterparts. The result simply implies that married people

would produce more income from their fish farming activities. This could be possibly achieved through the use of family labour which would obviously not be paid for. This assertion is in consonance with the results of Okwuokenye (2014) which advanced that family labour provided in the farm helps to reduce farm cost and therefore increase farm income.

Table 6: Relationship Between Respondents' Socio-Economic Characteristics and Farm Income

Variables	Coefficient (b)	T	Odd ratio
Cooperative membership experience	0.061*	0.951	0.220
Education	0.067*	2.291	2.102
Years of residence in community	0.411	2.328	2.001
Age	-0.829*	-3.532	1.001
Gender	0.921	1.214	1.247
Marital status	1.362*	3.984	1.542
Fish farming experience	2.103*	4.991	2.729
Household size	2.463	3.202	0.925
Constant	3.379	2.530	0.050

Adjusted R² = 0.721; Model X² = 40.88; Percentage Correction Prediction = 73.8; Critical t at 5% = 1.96

Fish farm experience (b = 2.103; t = 4.991) was positively correlated with income generated by respondents from their fish farming activities. The result implies that the higher the respondents farming experience, the more farm income they are likely to generate. The odd ratio was 2.729, implying that experienced fish farmers would produce farm income that is 2.7 times more than their inexperienced counterparts. Results of Abegunde (2004) agreed with this finding. The author agreed that farmers who participate in social groups and with farming experience generate farm income that is in commensuration with their years of experience in farming.

Respondents Farm Income Before and After Membership of Cooperative Societies

Results on respondent's fish farm income before and after membership of fish farmer's cooperative societies (Table 7) revealed that mean farm income was ₦251,969.14 and ₦329,746.91 respectively. The mean difference in income was ₦77,777.78, in favour of the respondents after being members of their cooperative societies and significant at the 5% level. In addition, since the calculated - t (28.423) was greater than the tabulated - t (1.96), the null hypothesis was rejected while the alternative was accepted. The result thus suggested that belonging to cooperative group has significant effect on the respondents' farm income. This result was supported by Abegunde (2009) who acknowledged that participating in similar self-help group has a way of enhancing socio-economic development of members.

Table 7: Difference in Respondents' Farm Income Before and After Membership of Fish Farmers Cooperative Societies (T-Test)

Farmers membership status	n	Mean income (₦)	Difference in income (₦)	T
Before membership	81	251,969.14		
			77,777.78	28.423*
After membership	81	329,746.91		

*Significant at the 5% level (Critical t - value = 1.96)

CONCLUSION AND RECOMMENDATIONS

Results of the study have shown that participation of fish farmers in cooperative

societies has helped in boosting their productivity and farm income. This is evident difference in farm income (₦77,777.78) before (₦251,969.14) and after (₦329,746.91) being

members of their group's. Despite the fish farmers laudable achievements, especially in where farm income level is concerned, their participation in the groups was still plagued by some serious problems that borders on poor access to credit and other fishing inputs, members refusal to repay loans, corruption and dishonest leadership of group's executives. Based on findings, the following are recommended:

- i. The tendency of the cooperative societies not addressing immediate needs was noted. There is need for the cooperative society's leadership to seek and incorporate interest of members' in designing activities for the group. This will boost their interest and promote members participation in groups.
- ii. The executive members of cooperative societies need to ensure that benefits accruing to the group should be equitably distributed and not to be hijacked by a few.
- iii. Executives of cooperative societies should encourage leadership accountability. This will help promote a good level of transparency and honesty amongst them.
- iv. The respondents also identified none assistance by the government/NGOs as a major problem. Efforts should be put in place by the government to help increase or improve on the assistance (both in cash and kind) given to this category of farmers in their groups. Assistance of this kind will go a long way in helping the farmers and encouraging group participation and;
- v. Since low loan repayment was a problem, the group's executive should ensure that loans are collected with the tendering of some commensurate collaterals. Such strategy would ensure that loans collected are paid back by benefactors and at due time. It is hoped that this would help ensure smooth running and continuation of the cooperative societies.

REFERENCES

- Abegunde, A.A. (2004). "Community Based Organization in the Sustainable Development of the Rural Area in Atiba L.G.A., Oyo State". *Journal of Institute Town Plan.* 17: 1 - 14
- Abegunde, A.A. (2009). The role of community based organizations in economic development in Nigeria: The case of Oshobo ,Osun State, Nigeria. *International NGO Journal.* 4(5): 236 – 252
- Adebayo, K. and Sorungbe, O.S. (2002). Farmers' perception of the epidemic of African swine fever in Ogun state, Nigeria: Implication for environmental extension education, *Journal of Extension Systems.* 2(1): 103-112.
- Adebayo, k. and Okuneye, P.A. (2005). Economics of agricultural extension. In: F. Adebayo (ed). *Agricultural Extension in Nigeria.* Agricultural Extension Society of Nigeria, Ilorin. P. 79.
- Akinbile, L.A., Hussain, L.A. and Yekinni, O.T. (2008). CDAs/CBOs participation in community based poverty reduction projects in selected communities in Ekiti State, Nigeria. *Nigeria Journal of Rural Sociology.* 8(1): 41 – 47
- Akinola, S.R. (2000). "Balancing the Equation of Governance at the Grassroots" In: Adebayo, A and Bamidele, A (eds). *People-Centred Democracy in Nigeria.* Heineman Educational Books (Nigeria), Plc. PP. 171- 198
- Akpabio, I. A. (2000). Determinants of levels of social participation in farmers' local organization in Akwa Ibom State, Nigeria. *Unpublished Ph. D Thesis,* Department of Agricultural Extension and Rural Development, University of Ibadan, Nigeria. PP. 183 - 204
- Daman, P. (2003). Food Ssecurity and Agricultural Cooperatives. Retrieved at: <http://www.uwcc.wisc.edu/info/intl/rur-women.pdf> 30th September, 2017
- Ekong, E.E. (2003). *An Introduction to Rural Sociology.* Second edition, Dove educational publishers, Uyo, Nigeria. PP. 3, 127, 233, 234, 289-304.
- Erie, A.P. (2009). A conceptual framework for the privatization and commercialization of Agricultural extension services (A case study of Edo state, Nigeria. Rudel printer and publishers, Benin City, Edo State, Nigeria. PP. 52 & 53.
- Fakoya, E.O. and Daramola, B.G. (2008). Socio – economic factors influencing farmers' participation in integrated fish farming in Ogun State, Nigeria. *Nigeria Journal of Rural Sociology.* 8(1): 9 - 17
- Farinde, A.J. and Adisa, B.O. (2005). Role of community association and non-

- governmental organizations in Agricultural extension activities in Nigeria. In: F. Adedoyin (ed). *Agricultural Extension in Nigeria*. Agricultural extension society of Nigeria, Ilorin PP. 208-219.
- FOS (2004). Poverty and Agricultural Sector in Nigeria Federal Office of Statistic, Abuja, Nigeria. P. 133.
- Katungi, E. and Akankwasa, A (2008). Community based organizations and their effect on the adoption of agricultural technologies in Uganda: a case study of Banana (*Musa spp*) pest management technology, *National Banana Research Program, Uganda*. PP 719 - 726
- Madukwe, M.C. (2004). Multivariate analysis for agricultural extension research. In: Olowu, T.A. (ed). *Research Methods in Agricultural Extension*, Agricultural Extension Society of Nigeria (AESON). PP. 206 - 235
- Mohammad, H.U., Umar, B.F., Abubakar, B.Z. and Abdullahi, A.S. (2011). Assessment of factors influencing beneficiary participation in Fadama II project in Niger State, Nigeria. Retrieved at: <http://www.ajol.info/index.php/njbas/article/view/73885>. June 25, 2012
- National Atlas of Electoral Constituencies (2008). NAEC Publication of Independent National Electoral Commission, Abuja, Nigeria. PP. 52, 89 and 107
- National Population Commission of Nigeria (web) National Bureau of Statistics, 2016. Retrieved at: <http://www.citypopulation.de>php.ni.....> On 25th April, 2017
- Ofuoku, A.U. and Urang, E. (2009). Effect of cohesion on loan repayment in farmers' cooperative societies in Delta State, Nigeria. *International Journal of Sociology and Anthropology* Vol. 1(4) Pp. 070-076
- Okwuokenye, G.F. (2014). Farmers participation in community based organizations: Implications for increased productivity in selected states in the Niger Delta, Nigeria. *Unpublished Ph.D Thesis*. Department of Agricultural Economics and Extension, Faculty of Agriculture, Ambrose Alli University, Ekpoma, Nigeria. PP. 4,122 - 123
- Okwuokenye, G.F and Akintoye, E.O. (2016). Farmers participation in community ba organizations: Implications for increased productivity in Edo, Delta and Bayelsa States in Niger Delta Area, Nigeria. *British Journal of Applied Science and Technology* 13(1): 1 - 17
- Okwuokenye, G.F. and Okoh, S.O. (2018). Effects of growth enhancement support scheme on income and productivity of farmers in Delta State, Nigeria. *Journal of Agriculture and Food Environment* 5(2): 29 – 41
- Okwuokenye, G.F. and Onemolease, E.A. (2014). Determinants of fresh fish marketing in urban areas of Delta State. *The Nigerian Journal of Agriculture and Forestry* 4(1): 65 - 80
- Onunka, B.N. (2011). Gender factor production and marketing of African egg plant (*Solanumgilo*) in Abia State, Nigeria. *Unpublished Ph.D. Thesis*, Department of Agricultural Economics and Extension, Abia State, Uturu, Nigeria. PP. 57 - 76
- Sherry, A.R. (2006). Participation. Retrieved at: <http://www.worldwildlife.org/bsp/...afri ca.../participation.pdf-United.States>. June 16th, 2017
- Sinkaiye, T. (2005). Agricultural extension participatory methodologies and approaches. In: F. Adedoyin (Ed.). *Agricultural Extension in Nigeria* Agricultural Extension Society of Nigeria, Ilorin. PP. 220-226.
- Taiye, O. F., Adebola, O. A. and Adebayo, E. K. (2006). Social activities and socio – economic state of rural farmers cultivating improved maize in kaduna State, Nigeria. *Global Approaches to Extension Practice*. 2(1): 29 - 36.
- Warri (2006). Special Souvenir. 5th African Women Championship magazine. PP. 10-19
- Yomi –Alfred, S.D. (2005). Measurement of farm households' socio-economic and socio-psychological variables: A paradigm for evolving a more appropriate method. *Journal of Agriculture and Social Research (JASR)*. 5 (1): 90-95