

Comparative analysis of cooperative and non-cooperative fish farmers in the central agro-ecological zone of Delta State Nigeria

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Abstract: This study was organised to determine the state of operation of cooperative and non-cooperative fish farmers with a view to assess the extent to which the cooperative scheme can be used to achieve increased culture fish production. Forty-two respondents were randomly selected from groups of cooperative fish farmers and non-cooperative fish farmers in the study area. The variables used were the operation scales of table fish production, fingerling production; and fingerling and table fish production. Farmers were classified into small, medium and large scale. It was found that the majority of the cooperative fish farmers were into large scale table fish production, fingerling production, and combined enterprise. It is inferred that cooperative fish farmers operate on higher scale than non-cooperative fish farmers. Recommendations were given to include educational extension programs to non-cooperative fish farmers on the benefits of cooperative societies, structural transformation of existing cooperatives. Also the study recommends the provision of cooperative and extension staff, both in quantitative and qualitative terms.

Keywords: fish farming, cooperative farming, Delta State Nigeria.

Introduction

In consideration of the impact of cooperative society in agricultural production in developed economics, farmers in developing countries had been encouraged to organize themselves into cooperative societies. Observations however, indicated that a good number of them, still do not participate in cooperative societies and the level of livestock production continues to decline as evidenced from the present high cost of meat, which leads to inadequate intake (Oladeji and Oyesola, 2000). They further argued that the inadequacy of animal protein in human-kind diet had been responsible for incidence of malnutrition in infants and adults. Thus the need arose to explore alternative sources of animal protein supply as a means of increasing available food output.

This paper deals with the analysis of the impact of a cooperative scheme for increasing fish production in the central agro-ecological zone of Delta State, Nigeria. The initial hypothesis, i.e. there are not differences in scale of operation and efficiency between cooperative and non-cooperative farmers, is tested. Background information of the fish sector in Nigeria is provided and a discussion of the results is implemented. Finally, a series of conclusions and recommendations are highlighted.

Background

Cooperatives all over the world are instruments of social and economic transformation (Ijere, 1992). The relevant social aspects of people from Africa, according to Ijere (1992), are those aspects that deal with their attitudes of life and themselves, their modes of behaviour and relationship with one another as well as their modes and customs. These issues should be typified by such norms as honesty, fairness, equity, democracy and mutual fellow feelings that he further postulated.

It can be said that neither socialism nor capitalism nor a mixed economy enshrines or espouses the above standards or virtues as does cooperative, whether traditional or modern. The major characteristics of traditional types of cooperative, such as Isusu or Esusu contribution clubs, age groups and work relation arrangements are founded on the above principles. These bodies are very careful about who is admitted into their membership. They admit only those people who are known to for their integrity and honesty, good reputation, and kindness. The modern cooperative only came to borrow and grow from these traditional trails of Nigeria society.

People come together not only for fellow feeling, but also to help themselves. That is to say that individuals form groups or cooperatives immediately their individuals efforts are geared towards economic problems to be solved and are those of scarcity, matching wants with available resources

and seeking ways to argument any shortfall or optimizing the given situation by different types of combinations (Ijere, 1981).

The resources mentioned above can be physical, mental, and material in nature. They form the basis for producing the commodities needed by man. Cooperatives as economic bodies operate in similar manner to other business. They are therefore, expected to justify their existence through acceptable results or benefits to the members of the society.

Agricultural inputs are put into food production (Dalton, 1982) to make them available at the consumers' table. By this statement, all farmers-arable, tree/forest products, fish and livestock are involved in agricultural cooperatives.

The economic problems of members, which the cooperatives are meant to solve, extend from production to marketing, thrift, processing, packaging, and storage (Osuntogun, 1990).

Ubani (1980) in a study demonstrated that the NUS farmers Multipurpose Cooperative Society have shown that a cooperative society can be set up and managed as a modern business, and still fulfill its social functions to its members. The society which has fine functioning advantages as the supply of essential commodities at subsidized rates and credit disbursement to the members have substantially improved the members' well-being (Ubani, 1980). The membership of cooperative society increased to approximately 3,000,000 in 1988 compared to 400 in 1935, this is an indication of the benefits members derive from them.

In spite of the benefits of cooperative societies many farmers are still skeptical about them and so feel reluctant to subscribe to its membership. Considering this fact, this study is therefore conceived to ascertain the position of affairs of cooperative and non-cooperative farmers.

The context for hypothesis setting

The 1995 Federal Department of Fisheries Statistics report indicate that wild fish production figures account for about 97%, where culture fisheries contributes a mere 3% of the total produced between 1985 and 1994 (Ekokotu and Ekelemu, 1999). This figure grossly fall short of the projected mean annual demand figure of 752, 297, metric ton (Utamakili, 1987).

To bridge the gap between fish protein supply and demand in this country among the options opened for consideration were the development of large fish farm complexes and encouragement of the development of efficient rural-based external input fish farms, rather than artisan fish farming.

There is the need to encourage a higher proportional growth of culture fish production. Therefore, with dwindling capture fisheries production, it has become necessary to determine co-operative and non-cooperative fish farmers scales of operation with a view to accessing the extent to which cooperatives could be used for the achievement of increased culture fish production.

The hypothesis of this study established that there is no significant difference in the scales of operation of fish farmers who are members and non-members of cooperative societies.n

According to Ladele (1995) the advantages of using groups such as farmers' cooperatives and associations includes:

- Increased coverage of farming community, leading of improved dissemination of extension messages and agricultural innovations among farmers.
- Dealing with groups for extension work confers advantage of time economy
- It allows for participation of more people
- Self improvement due to skill acquisition and educational opportunities offered through adult education and literacy programmes.
- Provision of supportive services to complement education function of extension.
- It enhances the sustainability of development efforts by farmers if the groups are virile enough to be well involved in the acquisition and delivery of essential agricultural support services such as credit, farm inputs, produce marketing and transportation.

According to Baxter (1987), other benefits of group extension are that farmers' groups are often an effective means for identify local production constraints and for identifying development proprieties.

Methodology

The study area is the Delta Central Agro-Ecological Zone of Delta State. The area consists of eight (8) local government areas (LGAs). The area lies in the rain forest zone and the conditions favour the establishment of fish farms.

A structured questionnaire was used to collect information from 42 randomly selected cooperative fish farmers and 42 randomly selected non-cooperative fish farmers who were identified within the study area.

The variables for the study as adopted from Oladeji and Oyesola (2000) are as follows:

- i) Level of table fish production
- ii) Level of fingerling production
- iii) Level of fingerling and table fish production if combined enterprise. The level was measured by classifying the numbers of fish owned and managed by farmers into large, medium and small scale.

Farmers with fish population size from 5,000 – 10,000 and those with fingerling population size of from 10,000 – 20,000 were classified as large scale; those with 3,000 – 4,000 and with fingerling population of 5,000 – 9,900 were classified as medium scale, while those with less than 3,000 fish and with fingerling population of less than 5,000 were classified as small – scale.

Discussion of results

Farmers' Age.

Table 1 reveals that the majority of the fish farmers (50%) fall within 41 – 50 years of age while majority of the non-cooperative farmers (55%) are 51 years and above. A greater number of cooperative farmers (74%) are found to be within 31 – 50 years.

This suggests that young men/women and youths are engaged in fish farming. The finding also indicates that fish farmers may not easily want to participate in cooperative societies at older age. This implies that the older the farmer, the less likely he/she is ready to subscribe to the membership of cooperative society.

Gender

Table 1 also shows that fish farmers were predominately males (62%) than females (38%) for cooperative farmers. Corresponding, higher proportion of males (67%) than females (33%) for non-cooperative farmers.

Level of education

Table 1 likewise, indicates that the majority of cooperative fish farmers (51%) had tertiary education, while the majority of the non-cooperative farmers (67%) had primary education. This is followed by those cooperative farmers (26%) who had secondary education. The implication of this is that the educational attainment level of the cooperative farmers is a variable that has influenced their subscription to the membership of Fish Farmers Cooperative Society.

Experience

Table 1 also indicates that a large proportion of cooperative and non co-operative farmers, i.e. between 97% and 93% respectively, had more than 10 years fish farming experience. This implies that the two categories of fish farmers have long years of experience. This is an indication, that they have much wealth of experience in fish farming.

Reasons for enlisting in the membership of co-operative society:

The reasons given by fish farmers for participating in co-operative society (Table 2) shows that a relatively high proportion of the co-operative farmers (64.28, 73.80%, 90.47%, 54.76% and 80.95) indicated that they subscribed to the membership of co-operative society to get access to inputs and credit, attract government attention for aids, to increase fish output, to be informed on new fish production innovations, and to gain knowledge of improved practices. None of the respondents indicated that they enlisted to gain higher social status. This finding implies that the respondent were motivated to join because of the benefits in membership of co-operative societies. This agrees with FDA (1980) as it argues that cooperatives are ideally suited to the solution of the problems surrounding organisational issues of the economically weaker sections of the population.

Scale of operation of cooperative and non-cooperative farmers

Table fish production – Table 3 shows that a greater percentage of the co-operative farmers (19.04%) and a minority of the non-cooperative farmers (4.76%) were engaged in large scale and 11.90% and 4.52% in medium scale table fish production respectively.

This is attributed to the benefits derived from cooperative society. Conversely, a minority of the cooperative farmers (2.38%) were engaged in small scale table fish production, while a majority (23.80%) of the non-cooperative farmers were into small scale table fish production.

Fingerling production – Table 3 also indicates that 21.42% and 11.90% of cooperative farmers were engage in medium and large scale fingerling production respectively compared to non-cooperative farmers (9.52% and 2.38%) who were engaged in medium and large scale fingerling production respectively. A majority (35.71%) of the non-cooperative farmers were engaged in small scale fingerling production compared to a minority (9.52%) of cooperative farmers who were into small scale fingerling production. This conveys that the majority of the non-cooperative fish farmers engaged in small scale fingerling production is an index of the opportunities they did not get since they were not participating in cooperative societies.

Table fish and Fingerling Production (combined enterprise). A majority (19.04%) of the cooperative respondents were engaged in medium and large scale combined enterprises compared to a minority (4.76%) of the non-cooperative farmers are engaged in medium scale combined enterprises.

None of non-cooperative fish farmers was engaged in large scale combined enterprises. This again is the result of failure on the part of the non-cooperative fish farmers to avail themselves of the opportunities provided by cooperative societies. A minority, 4.76% of the cooperative fish farmers were involved in small scale combined enterprises compared to the 9.76% of the non-cooperative fish farmers. This again implies that since the non-cooperative farmers were involved in cooperative societies, they do not have easy access to cheap inputs, credit and improved practices.

Testing of the hypothesis

Ho: There is no significant difference between the scale of operation of fish farmers who are members and those who are not members of cooperative societies. A chi-square test was used to test the statistical hypothesis of this study as appears in Table 4.

Decision criterion: Since the X^2 calculated is greater than the X^2 tabulated, the null hypothesis is rejected. This means that there is significant difference between the scale of production of fish farmers that hold the membership of cooperative societies and those that were no members of cooperative societies.

This also shows a positive relationship between membership of cooperative societies and scale of operation. This is attributed to the fact that fish farmers who were members of cooperative societies have access to credit facilities and they also had frequent access to fisheries extension agents. Fisheries extension officers find easier to reach them for regular meetings, dissemination of ideas, knowledge, skills, inputs and other information needed by the farmers groups that on an individual basis. Their cooperative membership made it easier to have contact with them by the extension agent, to share their problems, needs and aspirations with them.

Conclusions and recommendations

From the study, the conclusions are as follows:

- (a) Co-operative fish farmers were mostly engaged in medium and large scale table fish farming production than the non-cooperative fish farmers.
- (b) The cooperative fish farmers were also mostly engaged in medium and large scale fingerling production than the non-cooperative farmers.
- (c) Again the cooperative fish farmers who operated a combined enterprises were more than the non-cooperative farmers.
- (d) There was significant difference between the scale of operation of cooperative and non-cooperative fish farmers.
- (e) The scale of operation of the non-cooperative fish farmers is a reflection of their failure to join cooperative societies.

Considering the above conclusion, the following recommendations are made.

1. Stronger effort should be directed to the education of the non-cooperative farmers on the benefits of cooperative societies by the agricultural extension agencies.

2. Transformation of the cooperatives should be done structurally. The rudiments of transformation may include the use of inputs and the incentives like subsidized cost of excavation of ponds to motivate farmers to venture into expansion of their existing farms.
3. Non Governmental Organizations and oil companies, through their community development units should assist in organizing non-cooperative small scale fish farmers into cooperative societies.
4. From the information above, we contend that Nigeria aquaculture would have a new lease of life if fish farmers' cooperatives are given even a little part of the money spent on large-scale agricultural programmes. This statement is consistent with the suggestion of Ijere (1981) that Nigerian agriculture is able to encompass new opportunities with new scenarios if cooperatives were given one-tenth of the funds poured into large scale agricultural programmes since the incidence of food shortage would be reduced.
5. The number and quality of cooperative staff should be increased by training more fisheries cooperative manpower. This is in concordance with Bayagbona (1999) as this author was of the view that plans should be made to train fisheries cooperative and extension officers at senior, intermediate and junior levels to assure an effective attention to the fish cooperative farming sector.

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Appendix

Table 1. Demographic characteristics of respondents

Variable	Cooperative Frequency (f)	Farmers Percentage (%)	Non-Cooperative Frequency	Farmers Percentage (%)
Age (years)				
< 20	1	2.40	3	7.14
21 – 30	5	11.90	6	14.28
31 – 40	10	23.80	86	9.52
> 51	5	11.90	42	100.00
Level of Education				
Sex				
Male	26	61.90	28	66.67
Female	16	38.10	14	33.33
Total	42	100.00	42	100.00
Farm Experience				
Farm (yrs)				
1 – 5	4	9.52	0	0.0
6 – 10	8	19.04	3	7.14
11 – 15	16	38.09	19	45.23
16 – 20	8	19.04	8	19.04
Above 20	6	14.28	12	28.57
Total	42	100.00	42	100.00
Level of Education				
Level of Education	0	0.0	1	2.38
Primary Education	5	11.90	28	66.67
Secondary Education	13	30.95	11	26.19
Tertiary Education	24	57.14	2	4.70
Total	42	100	42	100

Table 2. Reasons for subscribing to membership of cooperative society

Variable	Frequency (F)	Percentage (%)
To get easy access to inputs and credit	27	64.28
To attract the attention of government	31	73.28
To increase fish output	38	00.80
To be informed on new fish production innovations	23	90.80
To gain improved practices	34	54.76
To gain higher social status	0	0.00

Table 3. Fish Production Level of Cooperative and Non-Cooperative Farmers

Type of Enterprise	Scale of Operation	Cooperative Frequency (F)	Fish Farmers Percentage (%)	Non-Cooperative Frequency (F)	Fish Farmers Percentage (%)
TableFish Production	Small Scale	1	2.38	10	23.80
	Medium Scale	5	11.90	4	4.52
	Large Scale	8	19.04	2	4.76
Fish Production	Small Scale	4	9.52	15	35.71
	Medium Scale	9	21.42	4	9.52
	Large Scale	5	11.90	1	2.38
Fingerling + Table Fish Production Combination	Small Scale	2	4.76	4	9.76
	Medium Scale	5	11.90	2	4.76
	Large Scale	3	7.14	0	0.0
Total		42	100.00	42	100.00

Table 4: Contingency table of chi-square analysis of the scale of operation of fish farmers who are members and non-members of cooperative societies.

Membership Status	Scale of Operation			Total
	Small Scale	Medium Scale	Large Scale	
Cooperative Societies Members	7(18)	19(14.5)	16(9.5)	= 42
Non Members of Cooperative Societies	29(18)	10(14.5)	3(9.5)	= 42
Total	36	29	19	84

$$X^2_{cal} = 30.3, X^2_{tab} = 4.60, df = 2, P = 0.05.$$