Assessment of market performance of cat fish farmers in Sagamu local government area of Ogun State Nigeria

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Abstract

The study was conducted to assess the market performance of catfish farmers in Sagamu Local Government area of Ogun State, Nigeria. A stage random technique was used to select 106 fish farmers from the study area and an interview schedule was used to elicit information. Results of the study indicated that 44.3 percent were within the age category of 31-40 years. Majority (52.8%), were males and over half of respondents (60.0%) had primary education. Majority (80.4%), were married, (70.0%) were Christians and 47.2 percent had been in the business with 5-10 years of experience. The result of the analysis indicated that fish production was profitable (the net income is N78,838.00. A higher percentage of the respondents access credit for fish farming from the bank (37.7%) and 36.8 percent of the respondents sold to consumers, retailers and wholesalers. Hypothesis testing indicated no significant relationship between sex(X^2=0.863, P>0.05),religion (X^2=0.134, P>0.05) and the market performance but a significant relationship between age (X^2=17.966, P>0.05), marital status(X^2=51.293 P>0.05),educational level(X^2=37.6468, P>0.05),year of experience (X^2=27.883, P>0.05), main occupation (X^2=32.670, P>0.05) and the market performance. It was founded that most of the farmers are males with little education. Government should organize an enlightenment programme that will educate and improve the knowledge and skills of both males and female fish farmers which will shed more light on fish production.

Keywords: Assessment, market performance, catfish farmers, production

Introduction

Fish is widely accepted as an important source of animal protein because of its high nutritive values. It is rich in vitamins and some quantities of calcium, phosphorus, fat and other nutrients needed for human growth and health. Fish protein has been found to be rich in essential amino acids which are suitable for complementing high carbohydrate diets. They are also rich in minerals such as thiamine, riboflavin and performed vitamin A and D. fish also contains a sizeable protection of poly unsaturated fatty acids which are important in reducing blood cholesterol level, (Akanni, 2010)

The Food and Agricultural Organization

(FAO, 1999) reputed that between 1970 and 1998 the consumption of fish increased from 60 million tones in 1970 to 86 million in 1998 and it is expected to reach 110 million toned by 2010. Gabriel *et al* (2007) stated that with the population of Nigeria being on the increase, there is the need for a suitable agricultural system to meet the increasing demand for food and also maximize the utilization of the available resources without much wastage. This could be attained by divulging these limited resources into fish farming in the rural communities. The demand for fish globally and particularly in Nigeria has been on increase with supply not meeting up with the demand (FAO, 2004). Current projected fish demand is estimated at 260 million tones based on a particular (2006) of 140 million (FDF, 2007). Availability of fish to the consumers at the right time and right price requires an effective marketing system. Marketing of fish passes through various market participants and exchange points believe they reach the final consumers (Ali et al, 2008). Fish marketing does not usually involve the fishermen and consumer only but there are other players in the fish distribution channels especially middlemen (Lawal and Idega, 2004) Marketing of catfish is not usually on the basis of fishermen-consumer (Lawal and Idega,2004), therefore prices of catfish change as it passes through the middlemen such that before the time it reaches the consumers, it become expensive. Fishermen(Producers) usually first sell their catch to their women folk, who take charge of the smoking and marketing and frequently take the fish to the market and sell what they can of it fresh. According to Akogun (1994), the type of fish sold varies from place to place in Nigeria and depends largely on the distance between the market and the landing site. Catfish in the market depends on the financial level of the consumers and their tastes. Usually, catfish are more expensive mostly because they are not easy to come by. Catfish are bought by high and low income consumers.

As stated by Adeokun (2000), cat fish (Clarias gariepinus) is sold at landing site to middlemen processor who smokes fish (sometimes smoking is done by the family processor) and sells to distant wholesaler or middlemen transporter. This fish (catfish) then passes through some intermediaries before getting to the retailer who finally sells to consumers. However, shorter distribution channels characterized the marketing of Cat fish in the country, in contrast to those for agricultural products.

Chaston (1993), indicated that marketing is essentially an externally focused function and for the fishing industry to succeed, it is necessary to identify the opportunities or constraints presented by changes in the environment. Environmental factors affecting marketing of fish globally as stated by (Akanni, 2010) include: economic factors, technological environment and so on.

Problem Statement

There is no doubt that protein of animal origin is in very short supply in Nigeria, according to the Food and Agricultural Organization (FAO, 2004) report on nutrition, 60 % of the total 58gram of the daily protein intake required by an average adult person for healthy living must be of animal origin in form of meat, milk and eggs. However, in Nigeria only paltry 14 percent of this quantity is consumed. This persistent short fall has strongly compelled the need to supplement to a large extent of animal protein with fish protein. A major problem facing Nigeria is the need for increased food production to meet demand of the country's fast growing population.

Over the years, catfish marketing has been hampered by bad roads. The perishable nature of cat fish makes it spoil before reaching the market, hence reducing the quality of cat fish which get to the market. Transportation cost of feeds and fingerlings pose a problem in marketing of cat fish. Cost of feeds and cost of fingerlings also affect the marketing of fish. These two items (fingerlings and feeds) were the most expensive of the production costs. It was observed by Edegwa (2000) that prices of fish are never uniform with very keen competition in the marketing. However, lack of good storage is also one of the problems associated with cat fish marketing and this is a major concern of retailers whereas transportation ranks higher with wholesales

The broad objective of this study was to assess the market performance of cat fish in Sagamu Local Government Area of Ogun State.

The following hypotheses stated in the null form were tested.

Hypotheses of the Study

Ho_1 There is no significant relationship between socio economic characteristics and market performance.

Ho_2 There is no significant relationship between the constraints faced by the fish farmers and the market performance.

Ho_3 There is no significant relationship between the profit level of the catfish farmer and the market performance.

Ho_4 There is no significant relationship between the factors that determine desirable fish marketing and market performance.

Materials and Methods

The research was carried out in Sagamu Local Government Area of Ogun state, Nigeria. It is bounded in the East by Ikenne Local Government, in the North by Remo Local Government, in the West by Obafemi owode Local Government and the South by Ikorodu Local Government area of Lagos State.

Sagamu Local Government was carved out of the old Remo Local Government. It includes the territory of the older division of Offin, Makun and Ode-Lemo. Sagamu Local Government in its geographical and political administrative extension spans a total of 68.3square kilometres. It lies between Latitude $6^{o}6^{1}$N and Longitude $3^{o}38^{1}$E. And has an estimated population of 200,189 (National Population Commission 2000). The local government is divided into 15 electoral wards .There are about one hundred and eighty three villages in the study area. The major occupations in the area are agricultural activities and marketing. The study area was chosen because of the presence of a good number of fish farmers (Onakomaiya et al (2000).

Sampling techniques and sample size

A multi-stage sampling technique was used for this study. The study area comprises fifteen wards out of which 50 percent of the wards were selected using simple random techniques (eight wards) which are Ayegbami, Ogijo, Eleja, Egben, Isale oko, Ayepe, Ijoku and makun. Total number of cat fish farmers in each ward are 70, 40, 95, 87, 32, 51, 69 and 40 respectively. Twenty percent of the cat fish farmers were selected using simple random techniques making total number of 106 respondents

Table 2 presents the socio-economic characteristics of respondents in the study area. The result shows that 52.8 **percent of**

Table 1: Composition of sample size

Local Government Area	Number of Wards	50% of wards selected	Wards selected	Total No. of cat fish farmers in selected wards	22% cat fish farmers in selected wards sampled
	15	8	Ayegbami	70	15
			Ogijo	40	9
Sagamu			Eleja	95	21
			Egben	87	19
			Isale Oko	32	7
			Ayepe	51	11
			Ijoku	69	15
			Makun	40	9
				484	**106**

Source: Sagamu Local Government Areas, Agricultural Sector

Table 2: Socio-economic distribution of respondents (n = 106)

Variables	Frequency	Percentages
Sex		
Male	56	52.8
Female	50	47.2
Age		
<20years	12	11.3
20-30	43	40.6
31-40	47	44.3
41 and above	4	3.8
Religion		
Christianity	75	70.8
Islam	31	29.2
Marital status		
Single	17	16.0
Married	89	84.0
Educational level		
Primary	64	60.4
Secondary	37	34.9
Tertiary	5	4.7
Experience in fish marketing		
<5	18	17.0
5-10	50	47.2
11-15	21	19.8
16-20	12	11.3
21 and above	5	4.7
Income		
5,000-20,000	45	42.5
21,000 and above	61	57.5

Source: Field survey, 2010.

Socio – economic characteristics of Respondents

the respondents were male while 47.2 percent were female. This implies that men were more actively involved in cat fish farming than their female counterparts in the study area. This is further corroborated by Gabriel et al (2007) who maintained that male farmers play a greater significant role in the marketing of agricultural products. The result also shows that 44.3 percent of the respondents were between ages 31-40 years while 11.3 percent were below 20 years. This confirms that most of these farmers were young and strong enough to engage in income generating activities towards ensuring food security. This age group is also regarded as an active group as indicated by Edegwa (2000). The result shows that majority (70.8%) were Christians while 29.2 percent were Muslims. This implies that Christians were more into cat fish farming in the study area than their Muslims counterpart. It is indicated that religion was not really a determining factor for their involvement in the fish farming business. The result also indicates that majority (80.4%) of the respondents were married while the remaining 16.0 percent were singles. This implies that a high percentage of the cat fish farmers were people of responsibility who could engage in one productive activities or the other to be able to cater for the family. The high percentage of married cat fish farmer agreed with earlier observation by Ekong (2005). That the vast majority of adult population of any society consists of married people. This result shows that all (100.0%) had one form of education or the other. The result indicates that majority (60.4%) had only primary education, 34.9 percent had secondary education while 4.7 percent had tertiary education. This implies that their low level of education may have negative effect on their technological inputs and facilities both for faming and processing because most of them are contented using manual means for their farm operations (Ogunwale, 2005). The result shows that 47.2 percent of the respondents had been in the business between 5 – 10 years while 17.0 percent had less than 5 years experience in fish marketing. This implies that they (47.2%) had been in the business for quite a number of years which put them at the advantage of understanding the rudiments of the business. It also implies that they will have very good performance in the fish business based on their fairly long years of experience in the fish business. This further agrees with Akanni (2010) who posited that year of experience influence the level of marketing ability and resourcefulness. The result further reveals that there is a high prospect of higher involvement in this business due to its appreciable level of profit in relation to sales. Table 1 also shows that 57.5 percent of them earn above N21, 000.00 per month while 42.5 earn below N21, 000.00 naira. This explains the profitability of the business since majority (57.5%) of the respondents could earn above N21, 000 per month.

Table 3 above reveals that the gross margin and Net income are positive which means that returns is greater than the cost that is being incurred. It equally reveals that fish farmers are very efficient and the result of this study shows that catfish farming in the study area is very efficient in the use of feeds and labours.

Table 4 reveals that a higher percentage of the respondents access credit for fish farming either from the bank (37.7%) or from personal savings (32.1%). However 30.2 percent indicate they source their credit from family and friends (0.9%), cooperatives (1.9%), bank loan and personal savings (15.1%), bank and cooperative loans (0.9%), personal savings

Table 3: Profitability Estimate of Catfish farming in Sagamu Local Government

Parameters	N	Min.	Max.	Mean	Std. Deviation
Total fixed cost	106	300.00	10007000.00	513813.9963	1328428.10212
Total variable cost	106	6700.00	447300.00	141561.0000	98934.44025
Total revenue	106	28000.00	1840000.00	361960.1887	299786.47339
Total cost	106	32750.00	10207000.00	655374.9963	1330605.46086
Gross margin	106	21300.00	1437688.00	220399.1887	241871.88532
Net income	106	-287100.00	1064000.00	78838.1887	216120.64946
Profitability index	106	-.47	.83	.1461	.34603

Source: Field Survey, 2010.

Table 4: Distribution of respondents according to source of credit (n = 106)

Source of credit	Frequency	Percentages
Bank loan	40	37.7
Personal saving	34	32.1
Family & friends	1	.9
Cooperative	2	1.9
Bank loan and personal savings	16	15.1
Bank and cooperative	1	.9
Personal savings & family + friends	1	.9
Personal savings & Cooperative loan	11	10.4

Source: Field Survey, 2010.

plus family and friends (0.9%) and personal savings and cooperative loans (10.4%). The result implies that almost all the respondents had access to one form of credit or the other for fish production. This refuted the findings of Okunmadewa (1999) which revealed that few of the fish farmers has access to bank credit.

Table 5 presents the frequency distribution of respondents according to types of buyers. The table indicates that 36.8 percent sold to consumers, retailers and wholesalers. Also, 13.2 sold to consumers alone, 11.3 percent sold to retailers only while 17.0 sold to wholesalers only. However, the farmers still sold to consumers and retailers only (7.5%), consumers and wholesalers (2.8%) and 11.3 percent to retailers and wholesalers. This is an indication of many distribution channels available to fish farmers.

Table 6 shows that poor transportation ranked highest (83.0%) of all the constraints parameters while shortage of

Table 5: Distribution of respondents according to types of buyer (n = 106)

Types of buyers	Frequency	Percentages
Consumers	14	13.2
Retailers	12	11.3
Wholesaler	18	17.0
Consumer & retailer	8	7.5
Consumer and wholesaler	3	2.8
Retailer and wholesaler	12	11.3
Consumer, retailer and wholesaler	39	36.8

Source: Field Survey, 2010.

Table 6: Distribution of respondents according to problems encountered (n = 106)

Problems encountered	Frequency	Percentages	Rank
High cost of feed	2	1.9	8th
Access to water	2	1.9	8th
Climatic factors	3	2.8	7th
Problems of storage	14	13.2	6th
Price variations	16	15.1	5th
High mortality	22	20.8	4th
Inadequate electricity supply	58	54.7	3rd
Shortage of labour	76	71.7	2nd
Poor transportation	88	83.0	1st

Source: Field Survey, 2010.

labour ranked 2nd with a percent of 71.7 percent in the study area. The result also shows that inadequate electricity ranked 3rd (54.7%), high mortality rate (20.8%). It shows that if transportations means and labour were available in the study area productivity and profitability will be higher. High cost of feed (1.9%), access to water (1.9%), climatic factors (2.8%), problems of storage (13.2%) and price variations (15.1%) were other constraints specified in the study area.

Table 7 shows the distribution of respondents according to marketing channels. It shows that sale to fishermen's organization has the highest percentage of 87.7percent. This implies that the fishermen organizations played a commendable role in the distribution of fish in the study area. The result also shows that 82.1 % of fish distribution was done at the local market, 71.7 % of distribution was directly to the consumer at site, 81.1 % to the restaurants while 76.4 % was distributed directly to the hotels. Some other channel of distribution includes schools (5.7%), pharmaceutical company (12.3%), factories (5.7%), and individuals at home (69.8%). However no sale was made in hospitals.

Table 8 presents factors that determine desirable fish marketing. The table shows that cost of feed is one of the major factors that determine desirable fish marketing with percentage distribution of 95.3. Among other variables that determine desirable fish marketing include climatic

Table 7: Distribution of respondents according to marketing channels (n = 106)

Marketing channels	Yes		No	
	Freq.	(%)	Freq.	(%)
Direct to consumer at site	76	71.7	30	28.3
Sales at local market	87	82.1	19	17.9
Middlemen	30	28.3	76	71.7
Fishermen's organization	93	87.7	13	12.3
Individuals at home	74	69.8	32	30.2
Direct to Restaurant	86	81.1	20	16.9
Direct to Hospital	-	-	106	100
Direct to Hotels	81	76.4	25	23.6
Direct Schools	6	5.7	100	94.3
Pharmaceutical company	13	12.3	93	87.7
Direct to Factories	6	5.7	100	94.3

Source: Field Survey, 2010.

Table 8: Frequency distribution of respondents according to factors that determine desirable fish marketing (n = 106)

Factors that determine desirable fish marketing	Frequency	Percentages	Rank
Cost of transportation	16	15.1	7th
Consumers demand	54	50.9	6th
Seasonal trend (wet/dry season)	64	60.4	5th
Prevailing market condition	64	60.4	5th
Scarcity	72	67.9	4th
Poor road network	80	75.5	3rd
Climatic condition	87	82.1	2nd
Cost of feed	101	95.3	1st

Source: Field Survey, 2010.

condition (2nd), poor road network (3rd), scarcity (4th), seasonal trend and prevailing market condition ranked 5th while consumers demand and cost of transportation ranked 6th and 7th respectively. This implies that higher percentage of fish marketing depend majorly on the cost of feed which will enhance their marketing performance and their level if production.

Table 9 presents the chi-square analysis of significant relationship between socio-economic variables and market performance. The result shows that there exists a significant relationship between age, marital status, education, experience, main occupation and market performance. However, the result also shows that no significant relationship exist between sex, religion and market performance. This implies that sex and religion has no influence of the market performance. The result also implies that market performance increase with increase in age. Market performance is also high among the married

Table 9: Chi-square analysis of the significant relationship between socio economic characteristics and market performance (n = 106)

Socio-economic characteristics	Df	X^2-Value	P-value	Remarks
Sex	1	0.863	0.353	NS
Age	3	17.966	0.000	S
Religion	1	0.134	0.714	NS
Marital status	1	51.293	0.000	S
Education	2	37.648	0.000	S
Experience	4	27.883	0.001	S
Main occupation	4	32.670	0.035	S

Source: Field Survey, 2010.

Table 10: Chi-square analysis of the significant relationship between profit level and market performance(n=106).

Variables	Df	X^2-value	P-value
Profit level	2	25.784	0.049

Source: Field Survey, 2010.

Table 11: Chi-square analysis of the significant relationship between constraints and market performance (n = 106)

Constraints	Df	X^2-Value	P-value	Remarks
High cost of feed	2	2.071	0.355	NS
Access to water	2	1.219	0.544	NS
Climatic factors	2	7.886	0.019	S
Problems of storage	2	7.992	0.018	S
Price variations	2	0.748	0.843	NS
High mortality	2	-17.93	0.033	S
Inadequate electricity supply	2	10.795	0.001	S
Shortage of labour	2	51.293	0.000	S
Poor transportation	2	8.559	0.014	S

Source: Field Survey, 2010.

folks than among the singles.

Table 10 shows that there exist a positive significant relationship between profit level of fish farmers and market performance. It implies that the more the profit made the more desirable the market performance becomes.

Table 11 presents the chi-square analysis of the significant relationship between constraints parameters and market performance. The results indicate that there exist significant relationships between climatic factors, problems of storage, inadequate electricity supply, shortage of labour, poor transportation and market performance. The results imply that when there are favourable climatic conditions, there will be desirable market performance. When transportation is improved, there will also be desirable market performance. There also exists an inverse relationship between high mortality rate and market performance. This implies that decrease in mortality rate will bring about desirable market performance. This finding is similar to the trend observed by Abdolmotalleb *et al* (2007) on the analysis of job performance of the agricultural experts of the yard province.

Table 12 presents the correlation analysis between factors that determine desirable fish marketing and marketing performance. The results show that almost all the parameters were significant but cost of transportation (r=-0.265) shows an inverse significant relationship with market performance. This implies that in cost of transportation is reduced, this will being about desirable market performance. However, the result also establish no

Table 12: Correlation analysis of the significant relationship between factors that determine desirable fish marketing and market performance (n = 106)

Factors that determine fish marketing	Correlation coefficient (r)	P-value	Remarks
Cost of transportation	-0.265**	0.006	S
Consumers demand	0.365**	0.000	S
Seasonal trend (wet/dry season)	0.358**	0.000	S
Prevailing market condition	0.350**	0.000	S
Scarcity	0.432**	0.000	S
Poor road network	0.358**	0.000	S
Climatic condition	0.294**	0.002	S
Cost of feed	0.140	0.153	NS

Source: Field Survey, 2010.

significant correlation between costs of feed and market performance. This finding also supported the finding of Adeokun (2000) which reported that women were confronted with myriads of problems which they saw as a major factor militating against job performance.

Conclusion and Recommendations

It is concluded from this study that marketing of fish by the catfish farmers in the study area is profitable despite the problems encountered. It was also found that most of the farmers are males with little education. It was discovered that poor means of transportation with changes in climatic factors from point of production to place of sales led to high mortality rate and low productivity. In addition, inadequate electricity supply and shortage of labour were seen as the major problem. In order to improve the level of market performance of catfish farmers therefore, hereby recommended that:-

- Government should continue to subsidize the price of feed in order to make it affordable for the catfish farmers.
- Government should organise an enlightenment programme that will educate and improve the knowledge and skills of both males and female fish farmer which will shed more light on fish production.
- Government should construct good roads for easy transportation in order to reduce high mortality.

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