

SOURCES OF INFORMATION OF FISH FARMERS IN ENUGU STATE.

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ABSTRACT

This study examined the source of information of fish farmers in Enugu State, Nigeria. A purposeful sampling technique was used to select Udi Local Government Area, Enugu East Local Government Area and Nsukka Local Government Area because of the high level of fish farming and agricultural activities in the areas compared to other Local Government Areas in the State. One hundred and twenty respondents were reached by random selecting of 40 respondents from the three Local Government Areas in the State. Data was analyzed using descriptive statistics while Hypotheses was analyzed using regression analysis. The result showed that the respondents had mean age of 37.3 years, 77.4% of the respondents had higher level of education. Also 69.2% of the respondents were part time fish farmers while 30.8% of the respondents were full time fish farmers. The respondents had a mean household size of 6 members with a mean farming experience of 4 years. Furthermore, 20.8% of the respondents had above 5000 stock size of fishes with a mean stock size of 2,409 fishes. The study showed that the respondents are involved in non fishing activities such as trading (21.7%), artisanship (11.7%) civil service (23.3%) and (12.5%) were into other occupation. It was recommended that Extension agencies should be well funded and assisted by Government to enable effective communication and dissemination of improved innovations.

Key Words: Fish Farming, Information Sources, Effective Communication, Nsukka.

INTRODUCTION

Pisciculture or fish farming involves raising fish commercially in tanks or enclosures usually for food or commercial purposes. Fish and fish products are known worldwide as a very important diet because of their high nutritive quality and significance in improving human health. Fish plays a vital role in feeding the world's population and contributing significantly to the dietary protein intake of millions of the populace (Amao, Oluwatayo and Osuntope, 2006). The role of fish farming in achieving household and national food security and poverty alleviations cannot be over emphasized. Fish farming remains the only possible option for increasing fish production in order to meet the protein need of the people because of decline in capture fisheries. Nigeria remains one of the largest consumers of fish with demand estimate at 1.4 million metric tons,

however, demand supply gap of at least 0.7 million metric tons exists nationally with import making up the short fall at a cost of almost 0.5 billion US dollars per year (Chilaka, Nwabeze and Odili, 2014). Fisheries technology is continuously changing in Nigeria as it has moved from culture fisheries to capture fisheries. In Nigeria fish farmers are relatively simple, often based on small modifications that improve growth and survival rates of the target species and so these fish farmers are not able to maximize their productivity thereby creating a gap between fish production and demand (Salau, Lawee, Luka and Bello, 2014).

As population increases, the demand for fish and fish products increases, especially with its nutritional advantage over meat; also there are numerous challenges confronting fish farming. Adewumi and Olaleye (2010) found out that a number of problems confront the production of catfish; being a major species in Nigeria. Prominent among these are: poor management skills, inadequate supply of good quality seed, lack of capital, high cost of feed, faulty data collection, lack of environmental impact consideration and marketing of products. According to Oyakhilomen and Zibah (2013), high cost of input, lack of credit facilities to fish farmers at low interest rate, lack of skilled manpower and lack of aquaculture extension service are attributes contributing to underdevelopment of aquaculture in the country.

These challenges have linkage to under – utilization of resources and technical inefficiency of fish farmers which affect fish growth, pond productivity and profitability of enterprise across the country. These constraints are indications of disparity on know-how of practicing fish farmers which affects knowledge, skills and attitude with serious consequences on adoption, productivity and performance. These calls for improved fish farming technologies and other information needed for improved production level. Furthermore information on fish farming covers the whole process from the construction of the fish pond, the technology needed for fish farming, stocking rate, breed selection, water management, spawning, sorting, harvesting, processing, storage, record keeping and marketing (Ofuoku, Emah , Itedjere, 2008). However, according to ijatuyi (2016) the major sources of information used by fish farmers in accessing agricultural information are family, friends, personal experience, radio, neighbor and agricultural extension officers. Formatting and packaging of agricultural information

is important in order to suit fish farmers in their geographical area, information delivery and dissemination should be consistent and continuous by stakeholders in agricultural sector in Nigeria. The objectives of this research were to: examine the socio economic characteristics of the fish farmers in the study area; identify the source of information in the study area and identify constraint affecting farmers in the study area. Hypothesis tested was: there is no significant relationship between the institutional characteristics of fish farmers and their constraints. This research work has contributed to existing knowledge in the area of access to information on fish farming especially in Enugu State, Nigeria; since access to information is a pre-requisite to achieve business goals.

METHODOLOGY

Area and Scope of Study

The study was carried out in Udi Local Government Area, Nsukka Local Government Area and Enugu East Local Government Area of Enugu State, Nigeria. Most of the rural people in Nsukka agricultural zone are farmers and they cultivate crops such as groundnut, rice, cassava, yam and vegetables. Other farming activities include honey production, sheep and goat rearing. The land close to 9th mile corner is blessed with a natural aquifer which is very close to the surface of the pipe borne water which is used in all parts of Enugu State and even beyond, this also makes the people of the area active in fish farming.

Sampling Frame/Sample Size

To achieve the objectives of the study one hundred and twenty respondents was reached by randomly selecting 40 respondents from each of the three Local Government Areas in the State. Primary data collection method was used to collect data through the use of structured questionnaire administered using interview scheduled method. Data obtained from the field was subjected to descriptive statistics while the hypothesis was analyzed using regression analysis.

RESULTS AND DISCUSSIONS

Data in Table 1 shows that 73.3% of the respondents were males while 26.7% of the respondents were females. This is contrary to Worby (2001), who reported that females are often motivated than males and this result agrees with F.A.O, (1995) which stated that most women in fishing communities have little or no say in making decisions in area affecting their lives in the fishing industry and that they are more involved in marketing compared to integrated fish farming. Data in Table 1 also shows that 57.5% of the respondents were married; this means that married people were more in fish farming in the study area. This result corroborate with Olaoye, Akintayo, Adekoya, Aje and Bamidele (2011) who

researched on socio economic constraints to fish farming integration and impediments to the acceptability of fish cultured fed with maggots in Abeokuta zone of Ogun State in Nigeria and showed that majority of fish farmers were married, they further stated that it might be due to the labor intensive nature of integrated fish farming thus family labour play an essential role in feeding, sorting and digging of ponds. Data in Table 1 shows that 4.2% of the respondents had primary education, 18.3% had secondary education, 25.8% had NCE/OND, 43.3% had HND/first degree and 8.3% had MSC/PHD. This implies that the respondents are literate with diverse educational levels. Ifejika, Uzokwe, and Oladosu (2013) research on educational qualification of fish farmers also conforms to this findings they stated that majority of the respondents (82.8%) were found to be graduates of various degrees compared to few secondary holders (15.5%) and no schooling (2.7%). They further stated that the outcome indicates that fish farming is attractive to educated elites with various degrees. The Result also shows that 30.8% of the respondents are full time fish farmers, 21.7% are traders, 23.3% civil servants and 11.7% are artisan while 12.5% had other occupation. This is slightly in agreement with Olaoye, Akintayo, Adekoya and Bamidele (2011) who observed that 17% of fish farmers in Ogun State were full time fish farmers while 83% were part time fish farmers, among the part time fish farmers 59% were civil servants, 14% were crop farmers, 11% of respondents were traders, 9% were livestock farmers and 7% were into other occupation. This is an indication that fish farming is a good livelihood activity to supplement family nutrition and income. Table 1 revealed that 14.2% of the respondents practiced extensive system and 85.8% of the respondents practiced intensive system of farming. This disagrees with Benedict, Gabriel and Fidelis (2010) who showed that 54.48% of the commercial private fish farms in South Western Nigeria practiced extensive farming while 43.52% of them practiced semi-intensive system. From Table 1, 32.5% of the respondents sell Fingerlings, 45% sells fry, 70.8% sells table sized fish and 52.5% of the respondents sells smoked fish, this may be as a result of the fact that rearing table seized fish do not require much care compared to fry, fingerlings and smoked fishes. Table 1 also shows that, fish farmers in social organization are 48.3% while 51.2% do not belong to any social organization. Data in Table 1 shows that 52.5% of the respondents belong to thrift association, while 69.2% belong to catfish association, 35.8% of the respondents belong to farmers association of Nigeria and 80.3% of the respondents belong to farmers' cooperative society. This is in agreement with Ofuoku and Itedjere, Emah (2008) who showed that 63% of fish farmers in Delta State belonged to cooperative society. Their results also revealed that 41% of the farmers belonged to fish farmers

association, 11%, belonged to Esusu daily contribution and 5% of them belonged to none. The implication is that farmers who belong to cooperative society or fish farming association would have easy access to vital information needed for fish production.

Table 1 show that among fish farmers, 2.5% of the respondents were visited by extension personnel within one year. This finding disagrees with Olaoye, Akintatayo, Aje and Bamidele, (2011) who showed that 67% of the respondents said that extension agent visited their farms every fortnight, 32% said every month extension agent visited them and 1% said that extension agent visited occasionally. This is an indication that the fish farmers lack professionalism in the study area. Table 1 show that 45.8% of the respondents have access to institutional credit while 54.2% of the respondents do not access institutional credit source. This disagrees with Olaoye, Akintatayo, Aje and Bamidele (2011) who stated that 10% of the respondents do not have access to institutional credit while 90% of the respondents have access to institutional credit. Table 1 shows that 80.8% of the respondents finance the fish farm by themselves, 52.5% source for credit from money lenders, 70.8% source for credit from friends and

neighbors, 35.8% from Thrift association, 80.8% from co-operative association while 25.8% source for credit from other sources. This result also disagrees with Olaoye, Akintatayo, Aje and Bamidele (2011) who stated that 35.6% source for credit from cooperatives, 60% from personal savings and 4% from friends and relatives. Table 1 also shows that 40.8% of the respondents get their credit from agricultural bank loan, 5% from government grants/NGO, 32.5% from Micro Finance Banks, 4.2 from Commercial Bank and 2.5% from other institutional sources. Lem, Tietze, Ruckets and Van (2004) stated that many farmers operating fish ponds do not have access to institutional financing, small scale farmers of fish ponds, on average received 11% of variable cost in credit while medium and small scale fish farmers obtain all their variable cost in fish farming production, however fish farmers sources to credit is still limited. Table 1 also shows that 45% of the respondents use family source of labor, 41.7% use hired labour and 13.3% use exchange labor. This finding disagrees with Olaoye, Adekoya, Aje and Bamidele (2011) who stated that 63% of the respondents use hired labor to carry out progress of the business enterprise, 32% uses their family labor for work and 4% use friends as source of labor.

Table 1: Socio Economic Characteristics of Respondents

Variable	Frequency	Percentage	Mean
Sex			
Male	88	73.3	
Female	32	26.7	
Marital status			
Married	69	57.5	
Single	38	31.7	
Widowed	9	7.5	
Divorced	4	3.3	
Education			
Primary	5	4.2	
Secondary	22	18.3	
NCE/OND	31	25.8	
HND/first degree	52	43.3	
M.Sc/PhD	10	8.3	
Primary Occupation			
Full time fish farming	37	30.8	
Trading	26	21.7	
Civil service	28	23.3	
Artisanship	14	11.7	
Others	15	12.5	
Type of fish farming			
Extensive	17	14.2	

Intensive	103	85.8	
Stock size			
0-1000	37	30.8	
1001-2000	34	28.3	2409.3
2001-3000	12	10	
3001-4000	3	2.5	
4001-5000	9	7.5	
5001 and above	25	20.8	

Table 1 Continued: Socio Economic Characteristics of Respondents

Variable	Frequency	Percentage	Mean
Stage of sales of fish			
Fingerlings	39	32.5	
Fry	54	45	
Table fish	85	70.8	
Smoked fish	63	52.5	
Membership of social org			
Yes	58	48.3	
No	62	51.7	
Type of social organization belong			
Thrift	63	52.5	
Catfish association	83	69.2	
Farmers ass of Nigeria	43	35.8	
Farmers' coop society	97	80.8	
Visit by ext personnel	3	2.5	
Access to institutional credit			
Yes	55	45.8	
No	65	54.2	
Type of Institutional credit sources			
Agric. Bank Loan	49	40.8	
Govt. Grants	6	5	
Micro finance bank	39	32.5	
Commercial bank	5	4.2	
Others	3	2.5	
Type of Non institutional credit sources			
Self financing	97	80.8	
Money lenders	63	52.5	
Friends/neighbors	85	70.8	
Thrift association	43	35.8	
Co-operative association	97	80.8	
Others	31	25.8	
Source of labor			
Family labor	54	45	

Hired labor	50	41.7
Exchange labor	16	13.3

Source: Field survey, 2017.

Results in Table 2 revealed the various sources of information used by fish farmers. It was observed that 44.2% of the respondents got their information from extension agents, 71.7% of respondents got their information from veterinary doctors, 81.7% of the respondents got their information from feed sellers, 78.3% of the respondents got their information from friends and neighbours, 26.7% of the respondents got their information from radio, 33.3% of the respondents got their information from television, 45% of the respondents got their information from magazines, 83.3% of the respondents got their information from internet, a more advanced way, 78.3% of the respondents got their information from computer and 67.7% of the respondents got their information from training centers. Highest number of respondents got more information from the internet, which reflects the high educational status of respondents, as in Table 1. The farmers however have neglected primary sources such as radio and television which could be more accessible. Also important formal sources such as extension agents have been neglected by the farmers.

Feed sellers ranked second in information source of fish farmers with 81.7% may be because fish farmers have easy access to feed sellers and this could be because they often get feed from them. It may also be because fish farmers have confidence in the information they get from feed sellers since they seem to have knowledge on fish farming.

Sourcing for information from computer ranked third with 78.3%, this shows that fish farmers source for information from computer at a high rate, this could be because most of farmers were educated and can easily operate a computer system.

Fish farmers also have access to information from friends and neighbors at a high rate of 78.3% which also ranked third with computer, this may be because friends and neighbors are easily assessable by the farmers, this may also be due to the fact that fish farmers could easily express themselves when relating to their friends and neighbors about fish farming. This may also be because friends and neighbors show concern towards the fish farmers enterprise compared to other sources of information.

Source of information from training centers by the fish farmers ranked fifth with 67.5%, this shows that fish farmers are willing to pay for training in order to boost their enterprise; it also shows that fish farmers crave for training.

Fish farmers have access to veterinary doctors at a high rate of 71.7%, this may be because fish farmers also have easy access to them since they call upon

the veterinary doctors when they have challenges in the farm, this may also be because fish farmers have confidence on the information they get from these doctors since they are professionals and so they tend to access them at a regular basis.

Radio, television, magazines and extension agents are assessed by the fish farmers at low level. The assess of radio and television by 26.7% and 33.3% of the respondents respectively may be because information from radio and television are not disseminated at the right time, it may also be because information from radio and television about fish farming are not of importance to the fish farmers so the farmers neglect sourcing for information from radio and television. This finding on radio disagrees with Ijatuyi (2016) who stated that radio ranked second in sourcing for information by the fish farmers in Osun state but agrees with his findings on source of information from television that television ranked eleventh out of twelve sources of information. Information source from extension agents is also low at 44.2%, this implies that extension agents do not visit the fish farmers on a regular basis, it could also be because these fish farmers do not have knowledge on the different channels use in getting information from extension agents. This finding slightly conforms with Ijatuyi (2016) who stated that 25% of the respondents source for information from extension agents.

This findings on the sources of information is slightly in line with Olaoye, Ashley-Dejo and Adekoya (2014) who showed that farmers in Abeokuta claimed to always get their information from the following sources: extension agent 67%, radio broadcast 12.5%, television broadcast 10%, newspapers 10%, friends and relations 65.0%, extension guide/bulletin 11%, telephone 27.5%, village criers 5% and posters 15%. The result is against Salau, Lawee, Luka and Bello (2014) who stated that two information sources were most frequently used by the respondents, which are the private consultants with a mean of 3.36 and from other fish farmers with a mean of 3.04. They further stated that most of the farmers patronized conventional sources of information rather than the electronic sources such as internet, mobile phones, computer online magazine etc. Agbamu (2006) supported the differences in the various information sources by stating that the sources of information mostly used by farmers in developing countries are influenced by the farmer's age, level of education, available sources of innovations, and the extent of modernization in the locality.

Table 2: Distribution of respondents based on their source of information

Sources of information	F	%
Ext. agents	53	44.2
Vet. Doctors	86	71.7
Feed sellers	98	81.7
Friends and neighbours	94	78.3
Radio	32	26.7
Television	40	33.3
Magazines	54	45
Internet	100	83.3
Computer	94	78.3
Training centres	81	67.5

Source: Field survey, 2017.

Result in Table 3 show areas of constrains which the respondents faced in the study area. It revealed that fish farmers are faced with varying constraints. The area of constraint that had above the grand mean score of 2.0 were Lack of startup capital (mean=2.02; SD=0.66), Erratic electricity or power supply (mean=2.04; SD=0.80), Inadequate water supply (mean=2.00; SD=0.90), High cost of fingerlings (mean=2.10; SD=0.76) and high cost of feed (mean=2.64; SD=0.59).

The significance in lack of capital in fish farmer's constraints may be because the fish farmers do not have access to credit facilities, this can be traced down to the fact that most of the fish farmers in the area do not belong to any social organization in as shown in Table 1. Inadequate water supply may have been significant because the farmers do not have enough funds for borehole construction. The significance in cost of feed may be as a result of the fact that fish farmers have to buy their feed at a very

high price, it may also be because the ingredients for making these feeds are expensive thereby increasing the cost of feeds. High cost of fingerlings was also significant and may be because most of the fish farmers were not in fingerlings production, so they have to purchase their fingerlings from a far distance thereby leading to the high cost of the fingerlings. This finding is in agreement with Salau, Lawee, Luka and Bello (2014) who stated that high cost of feeds, inadequate capital, poor storage and processing facilities and high cost of fingerlings are the major constraints faced by fish farmers in Nasarawa State, Nigeria. Also Adewumi and Olaleye (2010) confirmed that the prominent problems faced by fish farmers in Nigeria include poor management skills, inadequate supply of good quality seed, lack of capital, high cost of feed, faulty data collection, lack of environmental impact consideration and marketing of products.

Table 3: Distribution of respondents based on constraints faced by them

Constraints	Mean	Std. dev
Lack of farming space	1.63	0.66
Lack of start up capital	2.02*	0.66
Inadequate labor	1.38	0.62
Waste management problem	1.56	0.63
High tax rate in urban centers	1.40	0.67
Lack of readily available market	1.45	0.66
High cost of feed	2.64*	0.59
Slow growth rate of catfish	1.58	0.68
Environmental laws in urban centers	1.35	0.66
High cost of living in urban centers	1.89	0.79
High administrative activities	1.49	0.74
Inefficient preservation technique	1.78	0.74

Spoilage problem	1.63	0.76
Preservation and processing method	1.79	0.79
Erratic electricity or power supply	2.04*	0.80
Insufficient time to devote to it	1.34	0.72
Transportation difficulty	1.58	0.71
Inadequate water supply	2.00*	0.90
Stealing	1.43	0.68
Harassment by land owner and neighbors	1.38	0.59
Lack of storage facilities/equipment	1.64	0.75
Lack of technical know how	1.78	0.65
Poor quality of fingerlings	1.73	0.67
High cost of fingerlings	2.10*	0.76
High mortality rate	1.77	0.68
Poor prices	1.86	0.74
Low demand for catfish	1.41	0.60

Source: Field survey, 2017; Mean ≥ 2.0 = serious constraints

Result in Table 4 shows that number of institutional credit source used by the respondents (wald=5.71;p≤0.02) is the only institutional factors that influenced the constraints faced by fish farmers in the study area. This implies that fish farmers who used multiple institutional credit sources had lesser constraints. This could be connected to the availability of credit for production purposes. The R² value of 0.038 is an indication that shows the fitness of this model. It also reveals that about 3.8% of the variation in fish farmers constraints can be

explained by the number of credit source used by fish farmers in this model. This finding conforms to Daramola and Fakoya (2005) who stated that credit source is an important factor for expansion of aquaculture. Also this finding agrees with Bolatito *et al* (2011), who stated that respondents who source for credit from co-operatives are likely to get better yield than their fellow counterparts because they readily buy equipment needed for fish farming activities.

Table 4: Result of multiple regression showing the influence of institutional characteristics on fish farmers constraints

Variable	B	S.E.	Wald	Sig.	Exp(B)
Ext. visit	0.63	0.44	2.05	0.15	1.87
Access to credit	0.05	0.24	0.04	0.85	1.05
No. of inst. Credit source used	-2.13	0.89	5.71**	0.02	0.12

Source: Computed from the Field survey, 2017. **sig. at 0.01 level of significance
 2 Log likelihood= 114.994; Nagelkerke R Square= 0.038

CONCLUSION

The study established that most of the fish farmers are educated thereby sourcing information from a more advanced way with 83.3% of them using the internet as their source of information. The study also showed that the respondents access those sources of information that are available, easy to access and reliable, so they access extension agents at a low rate since extension visit to them is low (not available). The study shows that increase in number of credit sources would reduce the constraints faced by fish farmers in the study area.

- 1) Extension agencies should be well funded and assisted by Government to enable effective communication and dissemination of improved innovations.
- 2) Radio messages should be targeted on farmer's interest and be broadcasted at appropriate time when farmers would have returned home in the evening (Since most of them are part time farmers).

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