

## ASSESSMENT OF INFORMATION NEEDS OF FISH FARMERS IN DELTA STATE, NIGERIA

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### ABSTRACT

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*This study assessed information needs of fish farmers in Delta State, Nigeria. One hundred and fifty (150) aquaculture fish farmers were sampled from the 3 agriculture zones of the state. Data were solicited with interview schedule and analysed with frequency percentage and mean, and relationship test with Pearson Product Moment Correlation (PPMC). Result showed that majority (65.3%) of the respondents were 30 years and below, with a mean age of 29 years. Most (80.0%) (68.0%) and (54.7%) of the respondents were members of associations, never had contact with extension agents and owned two (2) ponds of (16-24)<sup>2</sup>m size respectively. There was significant relationship between age and membership of associations ( $r=-0.13$ ,  $p<0.05$ ) of respondents and their information needs. The study recommended that more well trained extension workers be mobilised to the study area on a frequent basis by the Delta State Ministry of Agriculture.*

*Keywords: Fish farmers, Information needs, Delta State.*

### INTRODUCTION

Fish is one of the most staple food in planet earth and provide rich source of protein for human consumption, the flesh of fish is also readily digestible and immediately utilized by human body, which make it sustainable and for regions of the world with high carbohydrate diet like Africa FAO (2005). According to Tobor (1977) fish apart from providing food, also has economic benefit because it serves as a good source of income to fish farmers. The global aquacultural yield at the beginning of the 21<sup>st</sup> century was 37.5 million metric tonnes, thus yield only represent about 29% of world fishery production which falls short of the estimated 53 million metric tonnes required to feed the world (Parker, 2003). Fish farming is a very popular agricultural practice in the coastal delta region of Nigeria Delta State inclusive due to its immense aquatic endowment (Bolaji, 1994). It is today considered an important source of production for meeting the world's demand for animal protein. Ayoola (2010) has reported an increasing patronage of fish products as an alternative source of cheap, high quality animal protein as opposed to beef and other animal products, due to its health and nutritional reasons. FAO (2000) reported that there is a huge gap between fish supply and demand for fish in Nigeria. The fish demand have been estimated to be 1.5 million metric tons per annum, while the total domestic fish production can only supply 511,700 metric tons, leaving a short fall of 680,000 metric tons of fish annually (Moehl, 2003). To meet local demand, Federal government imports fish worth over 50 billion annually (Nwankwo, 2005). The need to increase fish production by farming has therefore become an urgent matter (Agromisa Foundation and CTA, 2008). fish-farming information has been defined as all published and unpublished knowledge in all aspects of culture fish production (Ofuoku, *et al* 2008).

The information needs of aquaculture fish farmers is an issue of urgent concern considering the observations above, in addressing food security unemployment and poverty in Nigeria, the expected contribution of agriculture particularly the fishery sub sector to GDP and GNP. Leeuwis and Van de Ban (2004) have observed that in order to develop useful search and access facilities, it is important communication workers gain insight into their clients' information needs. Hence assessing technological information deficit of fish farmers in Delta State, Nigeria is the broad objective of this study. The specific objectives were to: examine the socio-economic characteristics of fish farmers in the study area; identify their information needs; frequency of contact with extension agents; and level of involvement in aquaculture fish farm proxied by respondents' number of fish ponds owned. A null hypothesis formulated for the study is that, there is no significant relationship between farmers socio-economic characteristics and their information needs.

### METHODOLOGY

The study was conducted in Delta State Nigeria where fish farming is very popular due to the aquatic endowment. The population of the study comprised all aquaculture fish farmers in the state. Delta state is divided into three

agricultural zones- Delta South, Delta North and Delta Central. The study's respondents were selected using a multi-stage sampling technique. One local government each from the three agricultural zones were purposively selected for the study, due to the preponderance of fish farmers in those areas, making three local government areas- Warri North from the Delta South zone; Ughelli South from Delta Central; and Ndokwa East from Delta Central. The second stage was to randomly select five communities from each of the local government areas giving a total of 15 communities. 10 fish farmers were then randomly selected from each of the communities, making a total of 150 respondents for the study. A well structured interview schedule validated by expert judgement and subjected to content and face validity was used to gather data for the study. The farmers' need for specific agricultural information was measured using a four point rating scale with responses coded as "highly needed=4", "needed=3", "hardly needed=2", and "not needed=1". Any score equal to, or greater than the mean value of 2.5 was taken to mean that the specified information was needed. Descriptive statistics such as percentages, frequencies, mean and standard deviation were used for data analysis. Pearson's Product Moment Correlation (PPMC) was used as inferential statistic for testing the study's hypotheses.

## RESULTS AND DISCUSSIONS

### Socioeconomic characteristics of the respondents

As shown in Table 1, majority (65.3%) of the respondents were below 30 years of age an indication that the respondents are in their economically active years as stipulated by the Food and Agriculture Organization (FAO, 1995), also fish farming is a source of gainful employment. A higher proportion (58.7%) of the respondents were males, this could be expected. This observation might not be unrelated to the laborious nature of fish farming which makes it easier for males to cope, as corroborated by Ofuoku, *et al.* (2008). A higher proportion (47.3%) were single, this could be attributed to the young age of respondents, and implication that marital status was not a bias in fish farming in the study areas Majority (48.7%) of the respondents have household sizes of 1-5 persons, with a mean household of 4 persons, this is a reflection of the age respondents, which may result in young families and low household size. A higher percentage (30.7%) of the respondents has no formal education, hence their awareness and desire for fish farming technology needs could be as a result of fish farming experience. The major (58.7%) source of labour was family members, while 27.3% of the respondents engaged hired labour this may be an indication that aquaculture fish farming among respondents is in a small scale. Most of the respondents (80%) belonged to associations. Membership of association could prove useful in sourcing and utilizing of the relevant agricultural information, and make the work of extension workers easier and more effective. Ofuoku *et al* (2008) opined that membership of associations like cooperatives could also be a means of gaining access to information relating to inputs, credit, marketing links and aids from government and non-governmental organisations.

Table 1: Socioeconomic Characteristics of Respondents (n = 150)

Characteristics		Frequency	Percentage	Mean
Age	≤30	98	65.3	29
	31-40	52	34.7	
Sex	Female	62	41.3	
	Male	88	58.7	
Marital status	Married	66	44.0	
	Single	71	47.3	
	Widower	13	8.7	
Household size	1-5	73	48.7	
	6-10	41	27.3	
	>10	36	24.0	
Education	No formal	46	30.7	7
	Primary	47	31.3	
	Secondary	17	11.3	
	OND/Diploma	33	22	
	HND/BSc	7	4.7	
Farm size (ha)	1-3	31	20.7	
	4-6	94	62.7	
	7-9	9	6.0	
	10 and above	16	10.7	
Source of labour	Family	88	58.7	4
	Communal	21	14.0	
	Hired	41	27.3	
Membership of association	Yes	120	80.0	
	No	30	20.0	

Source: Field Survey, 2012

**Respondents number of ponds**

Table 2 showed that majority (54.7%) of the respondents stocked 2 ponds of (16-24)<sup>2</sup>m size, with a mean of 2 ½ ponds indicating that respondents are small scale farmers, hence their desire for information (information needs) is expected in anticipation to improve their stock size.

Table 2: Distribution of Respondent by Number of ponds

Number of ponds owned (16-24) <sup>2</sup> m	Frequency	Percentage	Mean
1	18	12.0	2.5
2	82	54.7	
3	31	20.7	
4	12	8.0	
5	7	4.6	
Total	150	100.0	

Source: field survey 2012

**Agricultural information needed by farmers**

Results in Table 3 show that respondents had highest need for marketing information (M = 3.19), followed by post-harvest handling/preservation (M = 3.11), fertilizer application (M = 2.89), and pest and disease control (M = 2.87). This finding suggests that the fish farmers still require a lot of agricultural information in these areas in order to boost their levels of production. However, information relating to cooperatives, pond preparation, and harvesting had low needs. Information on farmer cooperative (M = 1.91) was needed by the respondents, this is expected as majority (80.0%) as shown in Table 1 were already members of different associations. This result agrees with the findings of Ofueku *et al* (2008) that several areas of fish farming technologies were information is needed include breeding and spawning, processing storage and marketing. But however negates Ofueku *et al* (2008) in the areas of pond preparation.

Table 3: Agricultural Information needed by the Fish Farmers

Information	Mean	Standard deviation
Marketing information	3.19*	0.98
Post harvest handling/ preservation	3.11*	0.99
Fertilizer application	2.89*	1.06
Pest and disease control	2.87*	1.09
Fish feed preparation with plant ingredients	2.58*	1.11
Fish feed preparation with animal ingredients	2.61*	1.11
Improved fingerlings and spawning	2.57*	0.70
Pond preparation	2.31	0.99
Harvesting	2.29	0.97
Farmer cooperatives	1.91	1.09

Source: Field Survey, 2012 \*needed (mean  $\geq$  2.50)

### Respondents' frequency of contact with extension agents

Entries in Table 4 showed that majority (68.0%) of the respondents have not had any contract with extension agents on aquaculture fish production technologies; while only about 12.5%, 10.0% and 9.5% respectively rarely frequently and sometime had contract with extension agents. This result explain the dare need of information of proven fish technologies by the respondents as observed in Table 3 as Aina (2007) see the need for the provision of regular information to farmers in a format that would be comprehensible to them. Considering the high rate of illiteracy (30.7%) among the respondents couple with low level of extension contract, it implies a deficit exist in proven technologies information menu of respondents. This situation could cause a negation of FAO (1997) objective to bring improvement in the overall fish production in Nigeria. This result also corroborate Aphunu and Okoedo-Okojie (2011) that small ruminant production in Delta State, Nigeria is constrained by inadequate contact of farmers with extension agents. Anyawu *et al* (2002) observed a similar situation in their studies on the extension potentials of muturu production that a high percentage of muturu farmers not visited by the extension agents appears to indicate that the extension service/agents are not playing the expected roles in promoting livestock production in Ebonyi State, Nigeria. This finding is in line with Youdeowei (1999) assertion that lack of access to relevant information by farmers in developing countries cut across all sub sectors of agriculture and different stages of agricultural production.

Table 4 Distribution of respondents by frequency of contact with extension agents

Contact with extension agents	Frequency	Percentage
Frequently (between 1 week and 1 month)	15	10.0
Sometime (once every 2 months)	14	9.5
Rarely (once between 2 and 6 months)	19	12.5
Never	102	68.0
Total	150	100.0

Source: field survey 2012

### Test of hypothesis

As shown in Table 5, only the age of the farmers ( $r = -0.13$ ,  $p < 0.05$ ) and membership of associations ( $r = -0.13$ ,  $p < 0.05$ ) were significantly related to the farmers agricultural information needs. The negative correlation reported for age implies that the younger farmers have a higher need for agricultural information than older farmers. This might not be unrelated to the fact that younger farmers are more active, adventurous and would probably patronize a wide variety of information sources (Daudu, *et al*, 2009). Membership of association also had a negative correlation with agricultural information needs. This shows that the farmers who were not members of associations sourced information more frequently than those who were members of associations. It could be implied that farmers who are members of associations may not have need for agricultural information since they could get from other members of their associations. This result is expected as those that subscribed to cooperative societies did so mainly to have credit inputs and aids from government and extension service, and those involved in fish farm association did so because of easy access to extension service, market and credit facilities Ofuoku *et al.*, (2008). On the other hand, those who are not members of any association would source for agricultural information more frequently to compensate for the information deficit that their non-membership of association brings .Education was not significantly related to respondents' fish technology information needs, but had a positive correlation. The positive correlation ( $r=0.07$ ,  $p > 0.05$ ) for education means that educated fish

farmers are more likely to need information, it means that education level increases the need for fish information increases. This finding validates the assertion of Aghaosa (2011) education is perceived as a worthwhile process with knowledge transaction as a major goal; education challenges any critical mind and would bother on what really has been the focus that requires a refocus. The implication for the subject matter is that education helps the respondent's awareness of the state of deficiency of present level of fish technology information at their disposal and they may possibly be in dire need of information to address any constraint(s) in the course of production or expertise to manage the existing fish technology information

Table 5: Relationship between socio-economic characteristics and respondents' agricultural information needs

Socio-economic variables	Information Needs	
	Correlation coefficient(r)	Probability level
Age	-0.13*	0.026
Sex	0.09	0.11
Household size	0.02	0.74
Education	0.07	0.20
Farm size (ha)	-0.08	0.19
Membership of Association	-0.13*	0.02

Source: Computed from Field survey, 2012

\*\* correlation significant at the 0.01 level \*correlation is significant at the 0.05 level

## CONCLUSION AND RECOMMENDATIONS

Based on findings the study concludes that fish farmers in Delta State are in need of agricultural information especially in marketing, post harvest handling/ preservation, fertiliser application, pest and disease control, fish feed preparation with plant and animal ingredients, improved fingerlings and spawning. Thus; the following recommendations are hereby made:

Since most of the farmers reported no contact with extension workers, more well trained extension workers should be mobilized to the study area, on a frequent basis by the Delta State Ministry of Agriculture. The deployed extension workers should place emphasis on the areas of concern raised by the farmers e.g. fertilization, post-harvesting /preservation, and fish feed preparation. Government and non-governmental organisations should set up adult education schemes for the farmers, so that they can acquire more education alongside their farm business.

## REFERENCES

- Aghaosa, I. P. 2011. Strengthening and Refocusing What? And for What Purpose in Nigerian Education. :A Critique of a Theme and Student's Private Study Habit in Nigerian Secondary Education In Nwandiani M. and Ogonor B.O. (eds) Strengthening and Refocusing Education in Nigeria. A book of reading. Ambik Press. Pp26-38
- Agromisa Foundation and CTA (2008). "Small scale fresh water fish farming" in W. Eiracarbalo (ed). *Agrodok* 15 CTA
- Aina, L. O. 2007. "Globalisation and Small Scale farming in Africa: What roles for information centres". World libraries and information congress, 73<sup>rd</sup> International Federation of Library Associations (IFLA) general Conference and Council Durban, South Africa?
- Anyanwu, A. C., Agwu, A. E., and Igbokwe, F. N. 2002. "Extension Potentials of Muturu Production in Ebonyi State, Nigeria". *Nigerian Journal of Agricultural Extension* 6: 1-9
- Aphunu, A and D. U. Okoedo-Okojie 2011. "Small Ruminant Production Constraints Among farmers in Ika North-East Local Government Area of Delta State, Nigeria". *Archives of Applied Science Research* 3(2); 370
- Ayoola, S. O. 2010. *Modern Fish Farming Technique (Aquaculture)*, Glamour books publishing, Ibadan, Nigeria, P.180
- Bolaji, J. 1994. *Interrelationship Between Population Growth and Development in two Communities in Delta State, Nigeria* FAO/DANIDA/IDAF. April 1994.
- Dauda, S., Chad, S. S. and Igbashal, A. A, 2009. "Agricultural Information Sources Utilized by Farmers in Benue State, Nigeria". *Production Agriculture and Technology*, 5(1), 39-48
- FAO 1995. Expert Consultant on Rural Urban Youth Programme. Summary of Papers on Extension Rural Youth Programmes in Selected Countries. Rome pp. 4, 26, 74, and 76

- Food and Agriculture Organisation 2000. Projected Population and Fish Demand/Supply in Nigeria 1997-2025. <http://www.fao.org/fi/fcp/en/NGA/body.htm>, March 2000
- FAO 2005. *Inventory of Fish Farms in Nigeria. Aquaculture and inland fisheries Project of the National Special Programme for Food Security with State Agricultural Development Programme* PP 1-10
- Leeuious, C. and Deban, A. 2004. *Communication for Rural Innovation: Rethinking Agricultural Extension*, Blackwell Science UK pp 243-244.
- Moehl, J. 2003. Gender and Aquaculture Development in Africa. FAO Aquaculture Newsletter, July, No. 29, Rome
- Nwankwo, B. 2005. Nigeria may ban fish import. The Guardian -Nigeria
- Ofuoku, A.U., Enalkle M and Nnodim A.U (2008), Cohesiveness Of fish farmers groups in Southern Nigeria. *ARN Journal of Agricultural and Biological Science*, 3(4), 16-21
- Parker, E. 2003. Fish Fry Development in Swampy Environment. *Journal of Applied Aquaculture* 3(1):12-15
- Tobor, J. G. 1977. Artisanal Fisheries Statistics Survey (1975-1977) Federal Annual Report Pp 19-27
- Youdeowei, P. 1999. *Agricultural Extension in Developing Countries*, Longman Publishers P. 32