

## **Socio-economic factors influencing fish Farmers' Level of awareness of Organic Farming Practices in South -South, Nigeria.**

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### **ABSTRACT**

The study investigated the socioeconomic factors influencing the level of awareness of organic farming practices among fish farmers in South-South Nigeria. The specific objectives of the study are to describe the socioeconomic characteristics of fish farmers in the study area, ascertain the level of use of organic fish farming practices and relate socioeconomic factors to the level of use of organic farming practices. Data for the study were obtained with a structured questionnaire. The sample size for the study was One hundred and fifteen (115) fish farmers selected purposefully from the list of fish farmers provided by zone managers in the three states under study. The farmers selection were based on accessibility.. Data collected were analysed using multiple regression The findings of the study revealed that fish farmers were aware of organic fish farming practices in the study area. .Farm size (  $t = 2.462$ ;  $P < 0.05$ , contact with extension agents (  $t = 2.282$ ;  $P < 0.05$ ) had significant relationship with level of awareness of organic fish farming practices), and. As farm size increases, the level of awareness of organic farming practices increases whereas increased extension contact culminated in increasing the level of awareness of organic fish farming practices.. The study therefore recommends that training on organic fish production practices should be emphasized in extension activities in the study area.

**Keywords::** Socioeconomic factors, fish farmers,, Organic Farming Practices, Nigeria

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## INTRODUCTION

Fish is an important source of protein and income (World Bank, 2000). Fish that are produced under natural condition according to the organic agricultural principles, not exposed to any protective additives or genetic modification, fed with baits prepared with completely natural materials and certificated by a control agency are called "organic fish" (Awuror and Karugu 2014). Organic fish production is a model of production which raises fishes with low stock density and attaches importance to human health without using any chemical such as pesticides or any products that are modified genetically (Do cytowanian *et al*, 2010). The Council of Europe adopted a recommendation on the welfare of farmed fish in 2005 and in 2008 the World Organization for animal health adopted guiding principles for fish welfare. (European Food Safety Authority (EFSA), 2009). Organic fish farming system rely on practices such as cultural and biological disease management and virtually prohibit utilization of synthetic chemicals in fish production. Ponds and cages are the recommended rearing system for organic aquaculture. Tank systems are permitted for hatcheries and nurseries but not for grow out operations on the farm. The stocking density of cultured species is limited and must be less than that of conventional aquaculture 10 kg/m<sup>2</sup> Organic aquaculture aims at reduce instances of diseases and emphasizes preventive treatments. Chemicals and antibiotics are not permitted but vaccines and pro biotic are permitted in aquaculture (Prein *et al.*, 2012). Feeds should come from certified organic agricultural inputs or from aquatic sources that have been cultured under controlled organic conditions.

The nutrient content of organic fertilizers varies greatly among source materials, and readily biodegradable materials make better nutrient sources in aqua cultural practices. However, it is highly recommended that the nutrient content of the organic fertilizer should be determined before its application. Ponds with fertilized water will turn into a rich green or reddish color when the plankton are abundant. This means that food will be available for the fish. Ponds/tanks with clear water are not fertile and lack plankton (Murnyak, 2010). Most farmers reported that they fertilize their ponds using manure from domestic animals before stocking the fingerlings. This is supported by the observation of Chenyambuga *et al.*, 2011 that 70 percent of the fish farmers had ponds with greenish water, indicating

abundance of plankton for fish to feed on. The commonly used organic fertilizer is chicken manure (Amisahet *et al.*, 2008), which stimulates abundant growth of zooplanktons and insect larvae and other forms of fish food organisms (Akand, 1986; Kumar *et al.*, 2014).

In spite of the benefits of organic farming, research on organic livestock and fish farming are limited. Previous studies on organic farming concentrated more on crop production. Considering the benefits of organically cultivated fish, it is necessary to find out if fish farmers are aware of the organic farming practices and **Socio-economic determinants of fish farmers' level of awareness of organic farming practices.**

## **METHODOLOGY**

The study was carried out in South-South, Nigeria. Multistage sampling technique was employed. The first stage was random selection of three states out of the six states that make up South-south Nigeria. The states sampled are: Bayelsa, Delta and Akwa-Ibom. One-third of the total agricultural zones in each selected State. Delta (Delta North, Delta South and Delta Central), and Bayelsa (Brass, Yenagoa and Sagbama) States has three Agricultural zones respectively- out of which Delta central and Brass agricultural zones were selected. Akwa-Ibom is divided into six Agricultural zones- Abak, Eket, Etinan, Ikot Ekpene, Oron and Uyo zones. Two zones Uyo and Ikot Ekpene were randomly selected from Akwa- Ibom State. From each zone, three blocks were randomly selected for Delta and Bayelsa while two blocks from each of the two zones sampled in Akwa Ibom state giving a total of ten blocks. Two circles were further sampled from each selected block in Delta and Bayelsa. Twelve circles were thus selected from the two states. Two cells were sampled from each block in Akwa-Ibom. Eight circles were sampled in the State. The total number of circles used was twenty. Two rural communities. were then selected from each circle giving a total of forty communities for Delta, Bayelsa and Akwa- Ibom states. Lastly, four fish farmers (Household heads) were purposefully selected from the forty communities giving a total of one hundred and sixty fish farmers. The lists of fish farmers were gotten from the Zonal Managers in charge of each zone. Data for the study were obtained from the respondents with the aid of structured questionnaire. The final sample size used for data analysis was 115 fish farmers ,being the number of usable questionnaire

retrieved. The instrument elicited information on the socio economic characteristics of the farmers and level of awareness of organic fish farming practices. A four-point Likert type scale which consisted: very regular = 4, regularly =3, rarely =2 never =1 was used to summarise data. A decision rule of mean score of 2.50 was used to dichotomise responses into regular and not regular.. Ordinary least square multiple regression analysis was used to determine the relationship between the level of awareness of organic farming practices and the socio-economic characteristics of the fish farmers.

## **RESULTS AND DISCUSSION**

### **Level of Awareness of Organic Farming Practices among Fish Farmers**

In Table 1 out of the fourteen organic farming practices the farmers were aware of seven of such practices. They are Eco- friendly design ( $\bar{x}$ =2.91, SD = 1.06), high quality water source ( $\bar{x}$ = 2.90, SD = 1.24), pond protection from predators ( $\bar{x}$  =  $\bar{x}$ =3.36, SD = 0.97), use of resistant species ( $\bar{x}$ = 2.95, SD = 1.21) natural treatment of diseases ( $\bar{x}$ = 2.64, SD = 1.38), cultivation without genetic engineering ( $\bar{x}$  =  $\bar{x}$  = 2.58, SD = 1.34) and management without growth hormones ( $\bar{x}$ = 2.60, SD = 1.06). Other practices that had their mean score below the cut- off point include low stock density 10kg/m ( $\bar{x}$ = 2.46, SD = 1.16), management without synthetic appetizer and colouring ( $\bar{x}$ = 2.31, SD = 1.09), organic fertilizer ( $\bar{x}$ = 2.24, SD = 1.29), location of site faraway from polluting substances ( $\bar{x}$ = 2.11, SD = 1.30), antibiotics only use in critical cases ( $\bar{x}$ = 2.10, SD = 1.32) and poly-culture ( $\bar{x}$ = 1.79, SD = 1.10).The grand mean was 2.49..

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**Table 1. Ordinary least square multiple regression analysis of relationship between socio-economic characteristics of the fish farmers and their level of awareness of organic farming practices**

**Socio-economic determinants of fish farmers' level of awareness of organic farming practices.**

Coefficients	Regression models for Fish			
	Linear	Exponential	Double log	Semi log
<b>Constant</b>	B:18.704	B:1.238	B:1.077	B:9.091
	t:4.314*	t:16.758*	t:9.672*	t:1.393
	sig:0.000	sig:0.000	sig:0.000	sig:0.166
<b>Age</b>	B:.096	B:0.002	B:.091	B:5.640
	t:1.971*	t:1.835	t:1.500	t:1.592
	sig:0.051	sig:0.069	sig:0.134	sig:0.114
<b>Sex</b>	B:-.443	B:-.008	B:-.066	B:-3.378
	t:-.442	t:-.483	t:-1.030	t:-.900
	sig:0.659	sig:0.630	sig:0.305	sig:0.370
<b>Educational Level</b>	B:-.856	B:-.012	B:-.053	B:-3.908
	t:-1.601	t:-1.362	t:-1.163	t:1.464
	sig:0.112	sig:0.176	sig:0.248	sig:0.146
<b>M.status</b>	B:-.987	B:-.017	B:-.099	B:-5.690
	t:-1.379	t:-1.389	t:-1.622	t:-1.5585
	sig:0.171	sig:0.168	sig:0.108	sig:0.116
<b>Religion</b>	B:242.	B:.006	B:.071	B:1.374
	t:1.242	t:1.854	t:.990	t:.326
	sig:0.217	sig:0.067	sig:0.324	sig:0.745
<b>Farm experience</b>	B:0.043	B:.001	B:.028	B:1.832
	t:.810	t:.652	t:1.018	t:1.130
	sig:0.420	sig:0.516	sig:0.311	sig:0.261
<b>Stock Size</b>	B:.0342	B:.001	B:.066	B:3.589
	t:-0.646	t:.900	t:2.462*	t:2.279*
	sig:0.520	sig:0.370	sig:0.015	sig:0.025
<b>House hold size</b>	B:-.005	B:1.088E-00	B:.009	B:.505
	t:.200	t:.023	t:.253	t:.235
	sig:0.842	sig:0.981	sig:0.801	sig:0.814

<b>Farmers association</b>	B:.280 t:249 sig:0.804	B:.001 t:068 sig:0.946	B:.051 t:.762 sig:0.448	B:3.944 t:.999 sig:0.320
<b>Extension contact</b>	B:-1.873 t:-1.415 sig:0.160	B:-.029 t:-1.298 sig:0.197	B:-.175 t:--2.282* sig:0.025	B:-10.374 t:-2.306* sig:0.023
<b>Income</b>	B:-1.464E-0 t:-.723 sig:0.471	B:-2.494E-09 t:-.723 sig:0.471	B:-.005 t:-.425 sig:0.672	B:-.179 t:-.287 sig:0.775
<b>R<sup>2</sup></b>	0.152	0.156	0.168	0.166
<b>F-stat</b>	1.677	1.735	1.889	1.864
<b>P-value</b>	0.089	0.076	0.049	0.053

The level of significance: 0.05 t- value significant at 0.05

Decision Rule: Reject  $H_0$  if the P (probability) value is less than 0.05 (level of significance).

### **Socio-economic determinants of fish farmers' level of awareness of organic farming practices.**

Ordinary least square multiple regression analysis was used to determine the relationship between the level of awareness of organic farming practices and the socio-economic characteristics of the fish farmers. The socio-economic characteristics were found to be significant predictors of level of awareness of organic fish farming practices. The null hypothesis was therefore rejected. (p-values of 0.049 less than level of significance 0.05), Farm size is significantly related with level of awareness of organic fish farming practices.(regression coefficients of 0.066; p = 2.462.

Contact with extension agents had a coefficient of - .175; t- value of 2.282; p = 0.025 meaning that contact with extension agents was significantly related with the level of awareness of organic farming practices among the fish farmers. The result implied that as stock size increases, the level of awareness of organic farming practices increases whereas increased

extension contact culminated in reduced level of awareness of organic fish farming practices. This could be attributed to low emphasis on organic farming practices in extension teachings. It could also be that extension agencies still dwelt on conventional farming practices.

The other variables which included education, sex, marital status, household size, farmers association, farming experience, income and religion had no significant relationship with organic farming practices.

## **CONCLUSION**

The findings of the study revealed that fish farmers were aware of organic fish farming practices in the study area. Farm size, contact with extension agents had significant relationship with level of awareness of organic fish farming practices and. as farm size increases, the level of awareness of organic farming practices increases. Whereas increased extension contact culminated in increasing the level of awareness of organic fish farming practices.. The study therefore recommends that training on organic fish production practices should be emphasized in extension activities in the study area. Socio-economic variables of education, sex, marital status, household size, farmers association, farming experience, income and religion were not significantly related to awareness of organic farming practices and as such should be discountenanced in decision making and policy implementation.

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