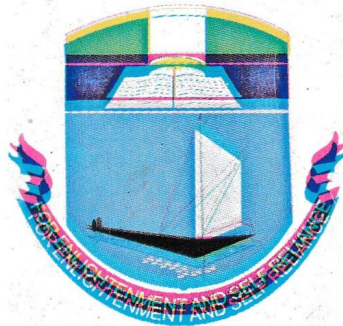


A G E E R S



AGRICULTURAL ECONOMICS AND EXTENSION RESEARCH STUDIES

Promoting Agricultural Research

OCTOBER 2012

Vol.1 No. 2

ISSN 2315-5922

**A PUBLICATION OF
THE DEPARTMENT OF AGRICULTURAL ECONOMICS AND EXTENSION,
UNIVERSITY OF PORT HARCOURT, NIGERIA**

EDITORIAL BOARD

EDITOR-IN-CHIEF
Prof. A. C AGUMAGU

ASSOCIATE EDITORS

Dr. M. G NYIENAKUNA Email: monday.nyienakuna@@uniport.edu.ng
Dr. O. M. ADESOPE Email: olufemi.adesope@uniport.edu.ng

EDITORS

Dr. S. O. OLATUNJI; Email: olajire.olatunji@uniport.edu.ng
Dr. B. HEBERT
Dr S.O Anyanwu: sixtusanyanwu@uniport.edu.ng

ASSISTANT EDITORS

DR. U. R. ETUK; Email: unyime.etuk@uniport.edu.ng
Mrs Clara C. Ifeanyi-obi; Email: clara.ifeanyi-obi@uniport.edu.ng

CONSULTING EDITORS

Prof. E.P Ejembi	Federal University of Agriculture, Makurdi, Nigeria
Prof. Y.L. Fabiyi	Ladoke Akintola University, Ogbomosho, Nigeria
Prof. E.A. Allison-Oguru	Niger Delta University, Amasoma, Nigeria
Prof. J.S Orebiyi	Federal University of Technology, Owerri, Nigeria
Prof. O.I. Olatide	North West University, Mafikeng, South Africa
Prof. Ini Akpan	University of Uyo, Nigeria
Prof. C.U. Okoye	University of Nigeria, Nsukka
Prof. Rahman	Nassarawa State University

ECONOMICS OF FISH FARMING IN AKWA IBOM STATE, NIGERIA

ASA, U. A., C. A. UWEM AND U. N. UKPONG
Department of Agricultural Economics and Extension,
University of Uyo, Uyo, Akwa Ibom State, Nigeria.

Corresponding author's E-mail: keana0772@yahoo.com

ABSTRACT

The study ascertained the economics of fish farming in Akwa Ibom State, Nigeria. Data for the study were obtained from 120 fish farmers in Akwa Ibom State, Nigeria using a two-stage sampling procedure, and were analyzed using descriptive statistics and budgeting technique. Results showed that 74.2% of the respondents were males; 68.3% were married; 40.8% had 6-10 years of fishing experience; 43.3% had 4-6 fishing ponds; and 65.0% used earthen ponds as their management system. The costs and returns analysis indicates that the fixed cost constituted 63.55% of the total cost of production while the variable cost constituted 36.45%. The total cost of production was ₦30,357,100.00; the total revenue of ₦50,082,700.00 and the net income was ₦19,725,600.00 indicating that fish farming was profitable in the study area.

Keywords: fish, farming, economics, Akwa Ibom State

Introduction

Fish provides about 16% of animal protein consumed by the world's population (Food and Agriculture Organization, FAO, 1997), and is man's most important source of high quality protein (Oken and Abang, 2007). It replenishes the human body with vitamins A and D; calcium, phosphorus and lysine; sulphur and amino acids. Fish allows for protein improved nutrition, in that it has a higher biological value in terms of high protein retention in the body (Anthonio and Akinwumi, 1991), higher protein assimilation as compared to other animal protein sources, low cholesterol content and one of the safest sources of animal protein. Fish is also a very important source of protein for livestock (Ohen and Abang, 2007).

Fish production in Nigeria has however failed to meet the domestic demand for fish (FAO, 1995). This has led to the existence of a demand-supply gap of at least 0.7 million metric tonnes in the country, according to Kudi *et al* (2008), with the import making up the short fall at cost of almost 0.5 billion US dollars per year. To solve the country's high demand for fish, Olagunju *et al* (2007) opined that Nigeria must turn to her under-utilized inland water for improved fish production and aquaculture. Asa *et al* (2011) also averred that widespread homestead/small scale fish production can substantially solve the demand-supply gap in the country. Efforts aimed at solving the country's high demand for fish must be anchored on analysis of fish production in the country (Kudi *et al*, 2008). A critical and in-depth look into the economics of fish farming – raising of fish commercially in tanks (Weaver, 2006) – is therefore imperative (Ukoha, 1998). Hence, this study examined the economics of fish farming in Akwa Ibom State, Nigeria. Specifically, the objectives were to examine the socio-economic characteristics of fish farmers in Akwa Ibom State; to identify the management systems prevalent in the study area; and to ascertain the profitability of fish farming in the study area.

Methodology

The study was conducted in Akwa Ibom State, Nigeria. The State lies between latitude 4° 31' and 5° 31' North, and longitude 7° 35' and 8° 35' East; occupies a total land area of 7, 245, 935

km²; and has an estimated population of 3, 920, 208 (National Population Commission, NPC, 2006). Primary data collected in 2009/2010 production season through the administration of a questionnaire instrument to fish farmers in the study area. Akwa Ibom State has six Agricultural Development Programme Zones (ADPs): Abak, Eket, Etinan, Ikot Ekpene, Oron and Uyo. A two-stage sampling procedure was used to select the respondents for the study. The first stage involved the random selection of four out of the six ADP Zones in the State for the study. The selected ADP Zones were Abak, Etinan, Ikot Ekpene and Oron. The second stage involved the simple random selection of thirty fish farmers in each of the selected ADP Zones. This resulted in a total sample size of 120. Analysis of data was done using descriptive statistics such as frequencies and percentages, and the budgeting technique. The budgeting technique employed was the net farm income. The difference between the gross revenue (GR) and total cost (TC) gives the net revenue (NR). Net farm income (NFI) is expressed as: $NFI = GR - TC$

where:

$$TC = (TVC + TFC) = P_X X$$

$$GR = P_Y Y$$

$$GR = \text{Gross Return/Pond}$$

$$P_Y = \text{Unit Price of Output}$$

$$Y = \text{Quantity of output}$$

$$P_X = \text{Unit Price of input}$$

$$X = \text{Quantity /Quality of input}$$

$$TC = \text{Total Cost (₦)}$$

$$TFC = \text{Total Fixed Cost (₦)}$$

$$TVC = \text{Total Variable Cost (₦)}$$

Results and discussion

Socio-economic characteristics

Table 1 shows the socio-economic characteristics of fish farmers in the study area. The table reveals that 74.2% of the respondents were males while 25.8% were females. The result agrees with the study by Asa *et al* (2011) which stated that fish production in Akwa Ibom State is dominated by males. About 48.3% of the respondents were within the age range of 31-40 years and 68.3% of them were married. Getting married is a highly cherished value in the study area (Ekong, 2003). About 43.3% of the respondents had primary education while 14.2% had tertiary education. The findings reveal that 81.7% of the respondents were functionally literate suggesting a high level of literacy among them. This high level of literacy agrees with the report of the Foundation for Economic Research and Training (FERT) which stated that Akwa Ibom State is an educationally advantaged State with numerous educational institutions and opportunities (FERT, 2001). About 48.3% lived in household sizes of 6-10 persons; 40.8% had 6-10 years of fishing experience while 43.3% had 4-6 fish ponds. About 69.2% of the fish farmers had no access to extension services in the study area while 30.8% had access to extension services; 52.5% of them had access to credit facilities while 47.5% had no access to credit facilities.

Table1: Socio-economic characteristics of the respondents (n=120)

Variable	Categories	Frequency	Percentage
Sex	Male	89	74.2
	Female	31	25.8
Age	21 – 30 years	20	16.7
	31 – 40 years	58	48.3
	41 – 50 years	29	24.2
	51 – 60 years	13	10.8
Marital status	Single	38	31.7
	Married	82	68.3
Educational status	No formal education	22	18.3
	Primary education	52	43.3
	Secondary education	29	24.2
	Tertiary education	17	14.2
Household size	1 – 5 person(s)	37	30.8
	6 – 10 persons	58	48.3
	11 – 15 persons	25	20.8
Years of fishing experience	1 – 5 year(s)	42	35.0
	6 – 10 years	49	40.8
	11 – 15 years	22	18.3
	16 – 20 years	7	5.8
Number of ponds	1 – 3 pond(s)	38	31.7
	4 – 6 ponds	52	43.3
	7 – 9 ponds	22	18.3
	10 – 12 ponds	8	6.7
Access to extension services	Yes	37	30.8
	No	83	69.2
Access to credit facilities	Yes	57	47.5
	No	63	52.5

Stocking density of ponds

Table 2 shows the stocking density of fingerlings by fish farmers in Akwa Ibom State. About 56.7% of the respondents had a stocking density of 501-1000 fingerlings while 11.7% had 1501-2000 fingerlings. The average stocking density of the respondents was 626 fingerlings.

Table 2: Stocking density of fish ponds in the study area

Stocking density	Frequency	Percentage
< 500 fingerlings	18	15.0
501 – 1000 fingerlings	68	56.7
1001 – 1500 fingerlings	20	16.7
1501 – 2000 fingerlings	14	11.7
Total	120	100

Source: Field survey, 2010

Management systems used in the study area

Table 3 reveals the management systems of fish farming commonly used by fish farmers in Akwa Ibom State. Sixty five percent of the respondents used earthen ponds; 25.0% used concrete ponds while 10.0% used both earthen and concrete ponds for fish production. The

result agrees with the work of Iniedu (2008) who reported that the use of earthen ponds for fish production is prevalent among fish farmers in Akwa Ibom State.

Table 3: Management systems used by fish farmers

Management system	Frequency	Percentage
Use of earthen ponds	78	65.0
Use of concrete ponds	30	25.0
Use of both earthen and concrete ponds	12	10.0
Total	120	100

Source: Field survey, 2010

Costs and returns analysis of fish farming in Akwa Ibom State

The costs and returns analysis as shown in Table 4 reveals that fixed cost constitutes 63.55% of the total cost of production while variable cost constitutes 36.45%. The results indicate that the cost of earthen pond excavation (46.50%), concrete pond construction (28.77%) and the cost of facilities (20.22%) were the major fixed costs incurred in fish farming in Akwa Ibom State while the costs of feed (29.57%), management and staff salaries (25.30%) and labour (16.09%) were the major variable costs. The average price of per catfish at market prices in 2009/2010 production season was ₦900.00 while tilapia was valued at ₦550.00 per fish during the same period. The total quantity of catfish sold by the respondents in the production period was 49,738 while the quantity of tilapia sold was 9670. The analysis as shown in Table 4 indicates that the total cost of production was ₦30,357,100.00 and the total revenue of ₦50,082,700.00 was realized making a net income of ₦19,725,600.00. The analysis showed that fish farming was profitable in the study area.

Table 4: Estimated costs and returns of fish farming in Akwa Ibom State

Item	Total cost for the production period (₦)	Average cost (₦)	Percentage
A. Fixed cost			
*Land (ha)	870,000.00	7,250.00	4.51
Facilities	3,901,000.00	32,508.33	20.22
Earthen pond excavation	8,970,000.00	74,750.00	46.50
Concrete pond construction	5,550,000.00	46,250.00	28.77
Total Fixed Cost (TFC)	19,291,000.00	160,758.33	100
B. Variable Cost			
Labour (mandays)	1,780,000.00	14,833.33	16.09
Transportation	225,000.00	1,875.00	2.03
Fingerlings (kg)	2,100,000.00	17,500.00	18.98
Feed (kg)	3,272,500.00	27,270.83	29.57
Cost of water (kg)	580,600.00	4,838.33	5.25
Chemicals	308,000.00	2,566.67	2.78
Management and staff salaries	2,800,000.00	23,333.33	25.30
Total Variable Cost (TVC)	11,066,100.00	92,217.49	100
Total Cost = TFC + TVC	30,357,100.00	252,975.83	

C. Revenue

Sales of catfish (49,738 table size fish)	44,764,200.00	373,035.00	89.38
Sales of tilapia (9670 table size fish)	5,318,500.00	44,320.83	10.62
Total Revenue (TR)	50,082,700.00	417,355.83	100

D. Net farm income,

$$NFI = TR - (TFC + TVC)$$

* = Cost of land is not depreciated as it leased for only production period

** = Labour was valued at ₦120/manday

Conclusion and recommendation

The total revenue realized from total cost of production of ₦30,357,100.00, was ₦50,082,700.00, making a net income of ₦19,725,600.00. Therefore, fish farming in Akwa Ibom state was profitable. With this level of profitability, it is recommended that this information should be disseminated by extension services/development agencies to all farmers in the State to encourage them to be engaged in fish farming.

References

- Anthonio, O. R. and Akinwumi, J. A. (1991) "Supply and distribution of fish in Ibadan, Nigeria", *Geog. Journal*, 14 (2): 16
- Asa, U. A., Esu, B.B. and Iniedu, M. O. (2011) "Cost and returns of fish production using concrete ponds in Akwa Ibom State, Nigeria", *Journal of Agriculture and Social Sciences*, 7(1): 38-40
- Ekong, E. E. (2003) *An Introduction to Rural Sociology* (2nd Edition), Dove Educational Publishers, Uyo, Nigeria. Pp 341-395.
- FAO (Food and Agriculture Organization) 1995 .The State of World: Fishery and Agriculture. Fisheries Department, Rome.
- FAO (Food and Agriculture Organization) 1997. The State of Fish: Aquaculture.
- FERT (Foundation for Economic Research and Training) 2001 "Poverty Profile of Akwa Ibom State".120Pp.
- Iniedu, M.O. (2008) Economics of aquaculture under different pond types in Akwa Ibom State, B. Agric Project, Department of Agricultural Economics and Extension, University of Uyo, Uyo, Nigeria. 91pp
- Kudi, T. M., Bako, F. P. and Atala, T.K. (2008) "Economics of fish production in Kaduna State, Nigeria", *ARPJ Journal of Agricultural and Biological Science*, 3(5 and 6):17-21
- NPC (National Population Commission) 2006. Population Census of the Federal Republic of Nigeria: Analytical Report at the National Population Commission, Abuja.
- Ohen, S.B and S.O. Abang (2007) "Economics of catfish farming in Rivers State, Nigeria", *Academic Journal of Plant Sciences*, 2(1): 56-59
- Olagunju, F. I., Adesiyun, I. O. and Ezekiel, A. A. (2007) "Economic Viability of Catfish Production in Oyo State, Nigeria", *Journal of Human Ecology*, 21(2): 121-124
- Weaver, D.E. (2006) "Design and Operations of Fine Media Fluidized Bed Biofilters for Meeting Oligotrophic Water Requirement", *Aquaculture Engineer*, 34 (3): 303-310