

ECONOMICS OF FISH FARMING IN OWERRI AGRICULTURAL ZONE OF IMO STATE

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Abstract

A study of the economics of fish farming in the Owerri Agricultural zone of Imo State was carried out. Simple random sampling technique was used in the selection of 30 fish farmers from the zone. Data were collected using structured questionnaire while descriptive statistics and multiple regression analysis were used for analysis. The study showed that majority of the farmers (51.20%) intensively managed their fish farms which were mostly homestead concrete ponds. The application of cost and return analysis showed that fish farmers in the zone made positive net gain from the two different pond types studied, with 4.22% in homestead pond and 49.13% in commercial concrete pond. The study recommended that investors and fish farmers should adopt intensive fish farming in commercial concrete ponds as it was found to be very profitable.

Introduction

Fishery food products are potential answers to the growing problem of world dietary animal protein shortage (Egwui, 2000). This situation is not unexpected as the per capita protein consumption in a country like Nigeria is far below the international standard. The average total protein consumption of 53.8 grams per head per day in Nigeria is well below the FAO/WHO recommendation of 67 grams (Akpaniteaku, 1996). The major solution to this dietary protein problem is increased fish production.

Artisanal fishing is the major source of fish supply to the country, accounting for more than three quarters of the nation's total domestic fish production (Moses, 1983). In Nigeria (indeed Owerri Agricultural Zone of Imo State), much is not known about fish farming, probably owing to the rather low priority given to fisheries development plans (Kent, 1984). Many states and Federal Government agencies have however, made substantial stride towards boosting the level of fish farming in the country which rose from 19,000 tonnes in 1993 to 38,000 tonnes in 1997 (Obasi, 2004). In Imo State, the agricultural development programme (ADP) and the State Ministry of Agriculture have been in the forefront in the dissemination of improved technological information on fish farming. Despite these efforts and those of some international agencies like UNDP, the State is still far from exploiting its full potential in fish farming (Ebonwu, 2000).

Fish farming in the state is faced with numerous problems. These include; insufficient availability of fingerlings, feed, less attention to the fishery sector and post harvest spoilage (Ojulowo, 1986). Providing solutions to these problems will go a long way in boosting fish farming in Owerri Agricultural Zone of Imo State.

Materials and Methods

Owerri Agricultural zone of Imo State is the location of the study with 1933.63km² land area located in South Western region of Imo State. The estimated population is 1,497,210. The zone is made up of eleven Local Government Areas namely; Mbaitoli, Ngor-Okpala, Owerri Municipal, Owerri North, Owerri West, Ohaji Egbema and Uguta. The area has a remarkable diversity of vegetation. This natural vegetation has over the years been reduced to a secondary plant cover in many areas as a result of various human activities and it has a fairly level topography (Obasi, 2004).

Simple Random sampling technique was used to select thirty (30) fish farmers from the list of Imo ADP in the zone. Data were collected through the use of structured questionnaire which was administered to the respondents and through personal observation. Descriptive statistics and multiple regression analysis were used to analyze the data collected.

Results and Discussion

In view of the fact that they usually explain farmer's behaviour in production, some socio-economic characteristics and input variables of fish farmers in the area were analyzed. They include; gender, age, educational status and expenditure on fingerling, feed and labour.

A multiple regression analysis performed showed that socio-economic variables like; gender, age, marital status, educational status, farmers major occupation and input variables like; expenditure on fingerlings, feeds, labour and water were statistically significant and related to fish yield at 5 percent probability level. The cost and return analysis in Tables 1 and 2 showed positive net return for the two pond types (commercial concrete pond and homestead pond). However, about 76m² size commercial concrete pond gave the gross earning of N196, 000 and N31, 850 for homestead concrete pond of 15m² sized. Primary ratio used to evaluate the relative profitability of the two different pond types showed that commercial concrete pond gain proved more profitable with a primary ratio of 49.13% and homestead concrete pond 4.22%.

Finally, the study indicated that the constraints to fish farming in the zone included scarcity of fingerlings, high cost of feed and lack of fund amongst others (Table 3).

The scarcity was as a result of few numbers of fish breeders in the zone, this agreed with (Egwui, 2001) who described scarcity of fingerlings as major constraint to fish farming in the country. According to Central Bank of Nigeria (C.B.N, 1997) report only 1.1 percent of the total loans disbursed to the agricultural sector between 1978 and 1997 went to the fishery sub-sector and this is in agreement with the findings of lack of fund as a constraint to fish farming in the agricultural zone. From Table 4, it was discovered that labour was the highest cost item in both the homestead and commercial concrete ponds; this may be as a result of the lack of interest of the young people in agricultural sector (Adesinmi, 1988).

Recommendations

Based on the finding of the study, the following recommendations were made as a panacea to the numerous problems of fish farming in the zone. Investors and fish farmers are advised to embrace intensive fish farming using commercial concrete ponds as it has been found to be profitable. Homestead fish ponds should also be properly managed to ensure optimum yield and profit.

Government should reactivate the various fish hatcheries owned by the state to help alleviate the scarcity of good quality and sizeable fingerlings. Banks and related institutions should be encouraged to give soft loans to genuine fish farmers in the state to enable them expand their farm.

Finally, infrastructures like roads, steady power supply and pipe bore water should be established in the rural areas to check the rural urban drift of young men and women that had cause high cost of labour in the zone.

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Table 1: Costs and Returns Analysis for Homestead Concrete Fish Ponds of 15m²

| Cost Item | Quantity Unit | Unit Price Cost (N) | Total Value (N) |
|-----------------------------------|---------------|---------------------|------------------|
| Gross Income (Fish sales) | 91 | 350 | 31,850 |
| Variable costs | | | |
| Fingerlings | 101 | 24 | 2424 |
| Feed | 309.61kg | 11 | 3405.71 |
| Water | - | - | 700 |
| Labour (hired and imputed family) | 18md | 750 | 13500 |
| Transportation | - | - | 1050 |
| Marketing | - | - | Nil |
| Repairs and maintenance | - | - | 3709.8 |
| Miscellaneous | - | - | 1580 |
| Total variable cost | - | - | 26,369.51 |
| Gross margin | - | - | 5,480.49 |
| Fixed cost | | | |
| Depreciation of pond | | | 2370 |
| Total fixed cost | | | 2,370 |
| Total cost | - | - | 28,739.5 |
| Net farm earning | - | - | 3110.49 |

Table 2: Costs and Returns Analysis for Commercial Concrete Ponds of 76m²

| Cost Item | Quantity/ Unit | Cost/Price per cost (N) | Total Value (N) |
|--|-------------------|----------------------------|--------------------|
| Gross income (Fish sales) | 560 | 350 | 196,000 |
| Variable costs | | | |
| Fingerlings | 630 | 25 | 15,750 |
| Feed (kg) | 1680 | 15 | 25,200 |
| Water | - | - | 2500 |
| Labour (hired and permanent) | 41.25 | 800 | 33,000 |
| Transportation | - | - | 3450 |
| Marketing | - | - | 1750 |
| Repairs and maintenance | - | - | 1425 |
| Miscellaneous | - | - | 1500 |
| Total variable cost | - | - | 84,575 |
| Gross margin | - | - | 111,425 |
| Fixed cost | | | |
| Depreciation of pond | | | 3900 |
| Depreciation of equipment and machines | - | - | 3250.2 |
| Total fixed cost | - | - | 7,150.2 |
| Other costs | | | |
| Imputed rent | | | 14,400 |
| Imputed family | 20 | 500 | 10,000 |
| Total of other cost | - | - | 24,400 |
| Total cost | - | - | 116,125.2 |
| Net Farm Earning | | | 79,874.8 |

Table 2: Costs and Returns Analysis for Commercial Concrete Ponds of 76m²

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Table 3: Distribution of Farmers According to Major Constraints to fish Farming

| | Constraints | Number of Fish Farmers | Percentage (%) | Rank |
|-----|--|---------------------------|-------------------|------------------|
| 1 | Scarcity of fingerling | 27 | 16.67 | 1 st |
| 2. | High cost of feed | 23 | 14.20 | 2 nd |
| 3. | Lack of adequate fund | 20 | 12.35 | 3 rd |
| 4. | Poor market and low price of fish | 17 | 10.49 | 4 th |
| 5. | Lack of knowledge of improved technology | 15 | 9.38 | 5 th |
| 6. | High cost of labour | 14 | 8.64 | 6 th |
| 7. | High cost of equipment and gears | 12 | 7.41 | 7 th |
| 8. | Lack of land | 11 | 6.79 | 8 th |
| 9. | Lack of infrastructures like water, roads, electricity | 9 | 5.56 | 9 th |
| 10 | Lack of storage facilities | 8 | 4.94 | 10 th |
| 11. | Theft | 6 | 3.70 | 11 th |
| | Total | 162 | 100 | |

Table 4: Distribution of Variable Costs

| Variable cost item | Commercial concrete pond (76m ²) | | Homestead concrete pond (15m ²) | |
|-------------------------|--|------------|---|------------|
| | N | % | N | % |
| Fingerlings | 15,750 | 18.62 | 2424 | 9.19 |
| Feed | 25,200 | 29.80 | 3405.71 | 12.92 |
| Water | 2500 | 2.96 | 700 | 2.65 |
| Lbour (hired/family) | 33000 | 39.02 | 13,500 | 51.20 |
| Transportation | 3400 | 4.02 | 1050 | 3.98 |
| Marketing | 1750 | 2.07 | - | - |
| Repairs and maintenance | 1425 | 1.68 | 3709.8 | 14.07 |
| Miscellaneous | 1500 | 1.77 | 1580 | 5.99 |
| Total | 84.575 | 100 | 26,369.51 | 100 |