

Measuring profitability in Small scale Aquaculture Enterprises in South West Nigeria

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Objectives

- **This paper presents the results of the study carried out to investigate the profitability of small scale aquaculture enterprises in South West Nigeria. The study focussed on measures based on basic and rudimentary techniques which examined :**
 - 👉 returns to resources used,**
 - 👉 benefit/cost analysis,**
 - 👉 welfare contribution to households/society, improvement to rural livelihoods and**
 - 👉 value addition.**

Introduction

- 🔥 Aquaculture is relatively new in Nigeria. For this reason many things go wrong with the culture and the culturists.
- 🔥 Like any economic activity in life, balancing investment costs and returns is important to the culturists.
- 🔥 In Nigeria, aquaculture is promoted for its potential contribution to food security, directly by producing food fish and other products, and indirectly through employment creation and generation of income for the purchase of food.

Aquaculture in Nigeria

Types of fish pond: - *Earthen, Concrete, Barrage pond, Diversion pond, Rosary pond and Parallel ponds*

Level of management input: *Extensive culture; Semi-Intensive culture and Intensive*

Fish Culture Practices: *Monoculture, Polyculture and Integrated*

Examples of some ponds



Some examples



Aquaculture in Nigeria.....*contd*

Scale of Production: *Homestead/Backyard*
(Subsistence); Small scale and Commercial fish pond;

Commonly cultured fish species:

The Tilapias:- Oreochromis niloticus, Tilapia melanopleura,
Sarotherodon galilaeus and

The Catfish:- Clarias gariepinus, Heterobranchus
bisordalis, Hybrid Clarias

There are others: Depending on location and availability

Some examples



Critical Focus on Small-scale Aquaculture

- ▶ Small-scale aquaculture has its place in the broad aquaculture business environment of Nigeria.
- ▶ Small-scale production has relatively lower overall operational costs compared to large commercial operations that involve large capital investments and large amounts of operating capital.

Critical Focus.....*Contd*

- ▶ Small-scale operations generally do not require expensive equipment or structures,
- ▶ The resources needed for production could be available on your farm already.
- ▶ Some farm materials and structures have low opportunity costs or low costs associated with alternative uses and could be used as resources for fish farming.

Materials and Method

- This study was conducted in April 2009 – May 2010 in 40 randomly selected small-scale fish farms in South West Nigeria.
- The choice of these farms was purposive and based on the following reasons:

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- ◇ First, a number of small-scale fish farming projects have been operating in these areas for many years.

Materials and Method

- ◇ Secondly, over 90% of the farmers are not scientifically/ economically equipped to operate under any fiscal/ budgetary policy.
- ◇ Thirdly, low income and animal protein intake, both of which characterize the South West states of Nigeria, increases the need to continue and intensify fish farming.

Materials and Method

- ☞ 40 randomly selected fish farms were visited, and data were collected based on their production operations.
- ☞ The interviews, lasting about two to three hours, solicited information on:

Research Questions

- ☞ *Number of years in the aquaculture business,*
- ☞ *Types of operation,*
- ☞ *Species cultured,*
- ☞ *Product forms,*
- ☞ *Marketing strategies and*
- ☞ *Income generated from aquaculture.*

Research Questions

Other information collected included:

☞ *Characteristics of the farmer,*

☞ *Production cycle,*

☞ *Credit accessibility,*

☞ *Group linkages,*

☞ *Record keeping and*

☞ *Access to extension services.*

Results and Discussion

This presentation will cover 8 research areas of the results obtained from this study as follow;

Results and Discussion

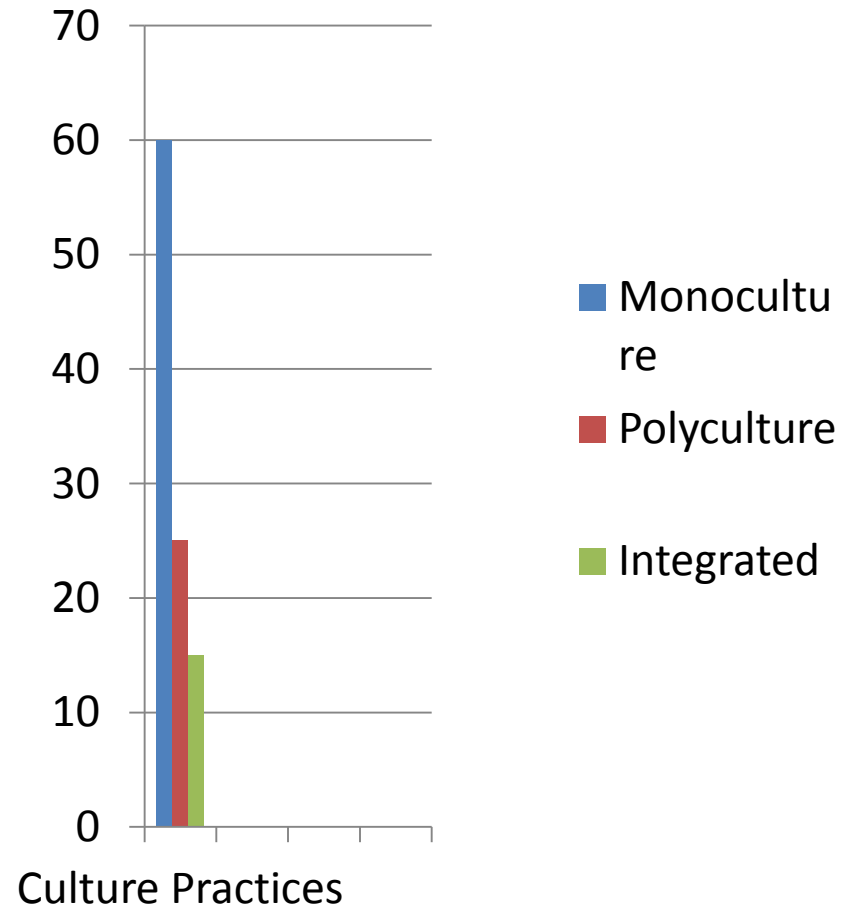
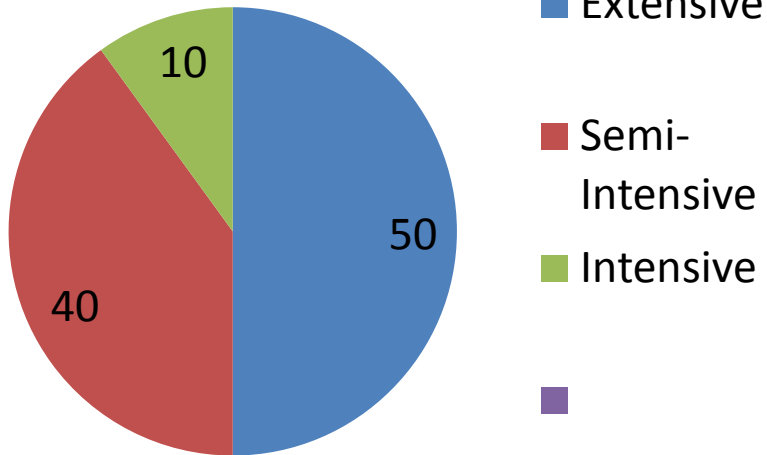
- (i) Number of years in the aquaculture business,*
- (ii) Types of operation,*
- (iii) Species cultured,*
- (iv) Product forms,*
- (v) Income generated from aquaculture.*
- (vi) Marketing strategies*
- (vii) Welfare contribution to households/society*
- (viii) Value addition*

Number of years in the aquaculture business,

- ▶ *The average age of the fish farmer is 43.5 years, with 27.5% in 16-35 years category and 55.5% between 36 and 45 years age category.*
- ▶ *Average age in aqua-business is between 6 and 10 years*
- ▶ *About 36.2% of the fish farmers are male with average of about 12 years of formal education, however the business is male dominated, with 75 per cent of the respondents being men.*

Types of operation

Management Inputs



Types of operation

Culture Fish spp

- i. 75% of the farms raise Clarias gariepinus*
- ii. 10% raise Tilapia with C. gariepinus*
- iii. 15% raise Hybrid Clarias with Tilapia*

Products form

- i. 85% of farms sell their products live and fresh;*
- ii. 10% of farms sell dead and unsmoked fish (Tilapia spp)*
- iii. 5% , smoked*

Farm operation

» *Depending on the experience of the fish farmer, production (culture) period ranges from 4 to 6 months*

» *45% of the farmers had a 3-cycle production regime, 53% had 2-cycle regime while 2 % had 1-cycle regime*

Income generation

Costs and returns

- 65% of total cost is expended on feeds and feeding ingredients, while about 45% is used to cover stocking of fish feeds yearly.
- Variable inputs such as stocking, feeding and pond maintenance constitute the major factors of production in all the fish farms.

Income generation

Characteristics

Values

Stocking density

5 catfish/m²

Initial weight of catfish stock

15 g

Cost of catfish fingerling

N25/one

Survival at harvest

65%

Cycle length

±5 months

Harvest weight catfish

Aprox=685 g

Catfish price

N350/kg

Cost/ Benefit analysis

Table 1. Estimated average costs (1 cycle) for small scale fish farms in the study area

Cost type	Average cost (Naira)	Percentage
<i>Variable Cost</i>		
Fish fingerlings	135,000	45.3
Feeds	125,000	42.0
Labor (production)	12,000	4.0
Labor (harvesting)	7,000	2.4
Net purchase	8,500	2.9
Net rental	2,500	0.8
Transportation	7,500	2.6
Total variable costs (TVC)	297,500	
<i>Total fixed costs (TFC)</i>		
Land & Available Structures	290,000	
Grand Total costs (TVC+TFC)	587,500.00	
Revenue		
Number of fingerlings stocked	9000@ N15.00	
Mortality @ 35%	3150	
Production cycle (months)	3-5 (Approx # 5)	
Price of a unit of fish (N/kg)	N350.00	
Sales from harvested fish per cycle	N1,102,500.00	

Profit analysis

Table 2. Profitability results for small-scale aquaculture farms in the study area

Variable	Nigeria Naira
Total costs (TVC+TFC)	587,500
Total revenue (TR)	1,102,500
Gross margin (TR-TVC)	805,000
Net farm income NFI (TR-TFC)	615,000
Net return on investment (NFI/TC)	1.05

Management

Marketing strategies

- ⇔ Harvested fish are sold on the farm, since well known customers are informed before the commencement of cropping.***
- ⇔ Farmers seemed to have identified and retained their customers.***
- ⇔ Farmers also harvest their stock based on seasonal or periodic demands***
- ⇔ For those who stocked Tilapia as secondary species, unsold harvests are consumed by farmers and their relatives***

Management

Welfare contribution to households/society

⇔ The results show that Tilapia is sold to the poor members of the communities, while the rich few consume C. gariepinus

⇔ In communities where some of these farmers operate, benefits from the sales of the harvests include reduce price and gratis.

Management

Value addition

⇔ Since the harvests are sold within the premises of the farm, there is no value addition mechanism in all the surveyed farmers

Summary and Conclusion

- a) Over 85% of small scale fish farmers were found not be good keepers of record***
- b) 10% feed their stock solely on imported and/ or commercial fish feed.***
- c) 40% practised semi-intensive culture while 50% were extensive.***
- d) Their financial records were half-hazardly prepared.***

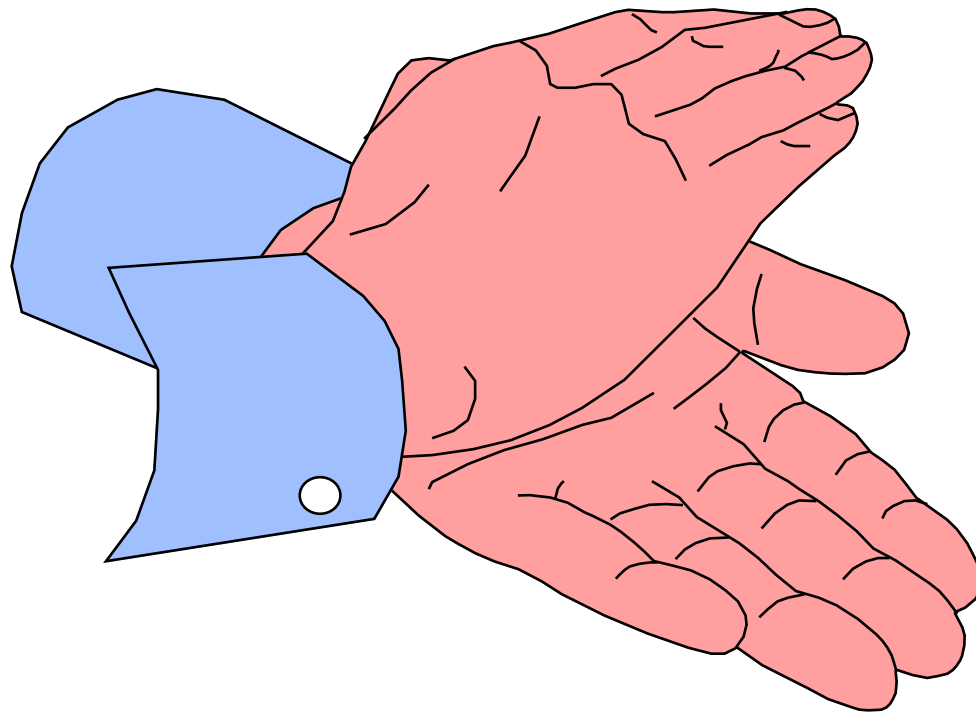
Summary and Conclusion

- e) If well practised with passion and devotion, small-scale fish culture can improve rural development.*
- f) Only 45% of the farmers have access to loans and cooperative scheme.*
- g) The need for extension and advisory services to the farmers is very apt and should be intensified.*
- h) The cost of operation of the various operators based on this primary study can act as a ready reckoner for intervention design.*

Acknowledgement

*A big thank you to NEPAD/USDM
for funding my participation*

Felicitation



Thank you for your attention