AFM -04

Accessibility and Frequency of Quality Fish Seed Supply among Fish Farmers in Benue State, Nigeria

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Abstract
Accessibility and frequency of fish seed supply are major determinants of the quality and quantity of fish production available for consumption by the citizen. The study examined the accessibility and frequencyof quality fish seed supply among fish farmers in Benue State. Data were obtained from one hundred and thirty three fish farmers using multistage random sampling technique. Structured questionnaire was used to obtain information from the respondents; data obtained were analyzed using descriptive statistics such as frequency and percentage. The results showed that 92.5% of fish farmers were male, 85.0% married and 56.7% had tertiary education. Respondents that had accessibility to quality fish seed 97.0%. Frequency of accessibility was not regular 95.5%, *Clarias sp* 93.2% was accessible in rainy and dry seasons (82.7%). It is recommended that concerted efforts be made by fish farmers, individuals and government at all levels to invest in modern fish hatcheries for quality fish seed production.

Keywords: Accessibility, fish farmers, fish seed, frequency,season

Introduction

Aquaculture includes the husbandry, management, and multiplication or breeding of all useful aquatic organisms in artificial ponds, cages or other enclosures in lakes and coastal waters' (Ogunremi and Oladele2012). Aquacultural practice has gained an unprecedented acceptance across the country in improving protein intake and livelihood prospects of a growing segment of the population (Ashley-Dejo *et al,* 2013). In recent years, there has been a general trend in the rural Aquaculture shifting from extensive traditional fish seed supply practices where fish seeds are obtained by either collecting them from the wild or through natural spawning of fish to more intensely managed systems using new technologies. Reasons for these changes have been taken place include decrease in availability/capture of wild fish seeds, increased availability of fish seeds of various non-traditional culture species, better access to information as well asproduction for sale rather than home consumption (Phillips, 2002).

Availability of technology, demand for fish seed and low cost breeding and seed production systems offer opportunities for rural poor people to enter into the fish seed supply chain. With increasing concern on decentralizing fish seed supply, small farmers in rural areas have the opportunities to participate in fish seed supply and even to produce their own fish seed without conventional hatcheries (Edwards, 2000). As a critical basic input for successful aquaculture, fish seed supply plays an important role in providing a food and an income, thus contributing to the Millennium Development Goals. It is expected that this important role will continue to meet the projected aquaculture production to 2020 (Siriwardena, 2017).Apart from a few large fish farmers who produce their own fish seed, limited fingerlings are available for sale in Nigeria.

There remains a vacuum in demand for fish seed across the country and this has been a major constraint to the aquaculture industry, Hitherto, there was no record on the accessibility of quality fish seeds supply of for various fish farms within the State.

Methodology

The study area was Benue State located in the North Central region of Nigeria. It lies between longitudes 7º47'and 10º East and latitudes 6º25' and 8º North. The major ethnic groups in the State are Tiv, Idoma and Igede. Majority of the people in the State are farmers and those in riverine areas are artisanal fishers. The prominent rivers in the State are Rivers Benue and Katsina-Ala. However, there are other small rivers, streams and lakes scattered all over the State that serve as sites for intensive artisanal fishing (Okwu *et al,* 2011).

Multistage sampling technique was adopted in selecting respondents for the study. One local Government was purposively selected from each of the three agricultural Zones in the State, North bank were selected, this is because of the high number of fish farmers in the selected areas. Finally, 80% of fish farmers were randomly selected from the three Local Government Areas to make a population size of 133 respondents.

Data for the study was obtained from the respondents using a well-structured questionnaire and scheduled interview.

Data obtained from the study were analyzed using descriptive statistics. Descriptive statistics used were frequency distribution and percentages.

Results and Discussion

Demographic characteristics of fish farmers

Table 1 indicated that majority (92.5%) were male which means that there is more participation of males in fish farming than females in the study area. This is because of the strength, handling and drudgery nature of fish farming. Many (69.2%) of the respondents were aged 41-50 years.This means that greater most of the fish farmers are at their active age (Oladoja and Adeokun, 2009). Married respondents were (85.0%), marriage is perceived to confer responsibilities on individual, (Oladoja *et al.,* 2008). The level of education showed that 56.7% of the respondent had tertiary education. This suggests that the high level of education of the respondentswould assist information dissemination by extension agents through leaf lets and other print media to improve fish farming activities. Only 33.8% of the respondents have 6-10 years of fish farming experience, however there was an indication that some of the fish farmers have been in the profession for many years.

Table 1: Showing demographic characteristics of the fish farmers

Variable		Frequency	Percentage
Gender			
	Male	123	92.5
	Female	10	7.5
	Total	133	100
Age (years)			
	21-31	14	10.5
	31-40	15	11.3
	41-50	92	69.2
	51-60	12	9.0
	Total	133	100
Marital status			
	Single	20	15.0
	Married	113	85.0
	Total	133	100
Educational back ground			
	Non-formal education	17	12.7
	Primary	5	3.8
	Secondary	35	26.3
	Tertiary	75	56.7
	Total	133	
Fish farming experience (years)			
	1-5	26	19.5
	6-10	45	33.8
	11-15	6	4.5
	16-20	35	26.3
	>21	21	15.8
	Total	133	100

Source: field survey 2017

Accessibility and frequency of quality fish seeds among fish farmers

In the table 2 below, majority (97.0%) have access to fish seed while (3.0%) do not have access to fish seed. Many of the fish farmers source their fish seeds from the wild, this accounted for high level of accessibility since it was free. Also, few of the respondents produce their own quality fish seeds from their hatcheries on farms which reduced costs and increase profit. The major step to boost aquaculture is through quality fish seeds supply. Increased cost of production, despite several efforts to make Nigeria self sufficient in fish production is still a mirage, Azionu *et a.* (2005). Majority (95.5%) though had access to quality fish seeds; it was not regular

while (4.5%) said it was regular. The implication here is that as a result of lack of fund and credit facilities to boost fish seed production, fingerling and fry production require little investment and risk and profit are made quickly (Philips 2006). The problem of sourcing fish seeds from the wild accounted for the irregularity in supply because of either dry season or rivers over flow their banks. Sometimes use of chemicals, explosives and discharge of effluents into water bodies leads to high mortality of fish seeds which also affected regularity of supply.Irregular fish seed supply can also be attributed to serious pressure on land for other uses. Without local networks, seed are b transported over large distances with an attendant risk of genetic mixing of fish stocks and spread of diseases (Phillips, 2002)

Table 2: Accessibility and frequency to quality fish seeds among fish farmers

	Frequency%	
Accessibility		
Yes	129	97.0
No	4	3.0
Total	133	100
Frequency		
Regular	6	4.5
Not regular	127	95.5
Total	133	100

Source: Field survey 2017

Type of fish seed accessibility to the respondents

Table 3 showed that majority (93.2%) had access to Clarias *sp* while (6.8%) had access to Tilapia, this is because Clarias *sp* indigenous and can be easily managed, less capital intensive and disease resistant compared to other catfish species. In rearing, Tilapia cannot with stand wide temperature range and water with high turbidity like cat fish family; also it is referred to as bony fish by consumers which drastically reduce its accessibility among the fish famers. Adewumi and Olaleye (2011) in a similar study reported that Clarias *sp* are the most widely cultivated fish in Nigeria.

Table 3: Type of fish seed accessibility to the respondents

Accessibility	Frequency	%
Clarias species	124	93.2
Tilapia species	9	6.8
Total	133	100

Source: Field survey 2017

In table 4, the results indicated that majority (82.7%) had access to fish seed mostly both raining and dry season, while (9.1%) in dry season and (8.2%) in raining season. The implication is that some fish farmers combined fish seeds from the wild which they got in dry season with wet season and also source from either personal hatcheries or source from other farms to continue fish production as it is their source of income.

Table 4: Seasonality of fish seed accessibility to respondents

Season	Frequency	%
Raining season	9	8.2
Dry season	10	9.1
Raining and dry seasons	91	82.7
Total	133	100

Source: Field survey 2017

Conclusion and Recommendation

Many of the fish farmers were male, married and had tertiary education. Respondents had accessibility to quality fish seed but the frequency of accessibility was not regular while *Clarias sp* was mostly accessible during raining and dry seasons.

It is recommended that concerted efforts should be made by fish farmers, individuals and government at all levels to invest in modern fish hatcheries for quality fish seed production. Youths should also be encouraged to invest in fish farming through incentives which will attract them and awareness campaign should be made starting from the grass root.

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