

MANAGEMENT OF CATFISH FARMING DURING COVID-19 PANDEMIC IN IBADAN, OYO STATE NIGERIA

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ABSTRACT

Catfish farming is management-intensive. It requires daily routine management activities for the realization of optimum profit. The incident of the novel coronavirus disease (COVID-19) halted and disrupted this daily routine management, which invariably affected the profit of the enterprise. Therefore, this study aims to assess the management challenges in catfish production during the COVID-19 pandemic in Ibadan, Oyo State, Nigeria. This study employed a structured questionnaire to elicit information from the respondents through the snowball sampling method. The collected data were analyzed using descriptive and inferential statistics. The results show that the mean age was 46.46±1.55 years, and they were literate. The average years of experience of the catfish farmers were 9.30±0.82. The majority (88%) observed the COVID-19 protocol, and most (80%) agreed that COVID-19 protocols changed their usual ways of managing their farms. Among the challenges faced during the pandemic are poaching and loss of profit. Although the government distributed some palliative items to cushion the effects of COVID-19 on the masses, most (84% of farmers) confirmed that they did not receive any or even the services of extension agents during the period. It was observed that gender and educational background were the only socioeconomic characteristics that influenced catfish management during the COVID-19 lockdown and were significantly different at $P < 0.05$.

Keywords: Covid-19 protocols, routine management, catfish, challenges, poaching.

INTRODUCTION

Catfish farming is a management-intensive business that requires farmers' attention daily. Daily routine management involved in catfish farming includes daily and periodic feeding, especially of the fry, fingerlings, and juveniles; monitoring of pond water; pond management; and security against unexpected poachers (Engle, 2010). The breakout of the novel coronavirus disease (COVID-19) from the family Coronaviridae (subfamily Orthocoronavirinae) in the early year 2020 halted and disrupted every human business activity, most especially the daily management of catfish farming.

Many of the governmental measures that was introduced to limit the spread of COVID-19 have caused significant disruptions to human movement, physical business contact, and the transport of goods (Farrell *et al.*, 2020). Therefore, aquaculture, especially catfish farming in Nigeria, suffers a great loss due to limited resources, expertise, and technologies to combat such unexpected risk and uncertainty. This is in line with the report of the FAO (2021) that the fisheries and aquaculture sectors in particular faced great difficulty during the period of the COVID-19 pandemic, mainly due to the perishability of the products. Vanguard (2020) reported that catfish farmers in Nigeria experienced various challenges during the COVID-19 lockdown. The challenges include inadequate fish supply, production challenges, personal sacrifices, fish glut, abysmally low pricing, and the inability to harvest and evacuate fish ponds and other fish-holding water bodies, thereby preventing restocking to break the production cycle.

Therefore, this study aims to assess the management challenges in catfish production during the COVID-19 pandemic in Ibadan, Oyo State, Nigeria. This is to forestall such a huge loss in case such unexpected risk and uncertainty hit the aquaculture and fisheries sectors in the future. It is to create

awareness of what to expect by identifying common or likely challenges that catfish farmers can encounter and how they can be handled in the most profitable way.

MATERIALS AND METHODS

This study was carried out in Ibadan, the capital of Oyo State. The population of the study are catfish farmers in Ibadan. A multistage sampling method is employed in this study. Three local government areas were purposefully selected among the eleven local government areas in Ibadan, Oyo State. The selected local governments were Oluyole, Ido, and Lagelu. Then, the snowball sampling method was employed to administer the prepared structured questionnaire since the number of respondents could not be ascertained during the sampling period. The sampling relies on the introduction of different catfish farmers by their colleagues who have met and responded to the questionnaire. Some visited areas in these three local government areas are Fodacic Adeoyo, Omi Panada, and Olodo. A structured questionnaire was used to collect data from the respondents. The questionnaire focused on issues such as the socioeconomic characteristics of catfish farmers in the study area and the management protocol observed during COVID-19. Out of 150 copies of the questionnaire that were prepared to be administered, only 125 were able to be attended to within the aforementioned places, such as Fodacic Adeoyo (43), Omi Panada (44), and Olodo (38). Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to assess the management in catfish production during the COVID-19 pandemic in Ibadan, Oyo State.

RESULTS AND DISCUSSION

Table 1 shows the socioeconomic characteristics of the fish farmers. It was shown that the ages of the fish farmers range between 23 and 67 years, with a mean of 46.46 ± 1.55 years. This implies that the catfish farmers are in their productive years. This corroborates the findings of Yisa *et al.* (2015). There are more male fish farmers (64%), than female (36%). Most catfish farmers (96%) are literate in the study areas since only 4% of them have no formal education. This, according to Ajayi and Egware (2021), encourages the use of technological information that will enhance productivity.

Table 1: Socioeconomic characteristics of the fish farmers

Variables	Frequency	Percentage	Mean
Age: 21 – 30	15	12	46.46±1.55
31 – 40	25	20	
41 – 50	33	26.4	
51 – 60	42	33.6	
61 -70	10	8	
Gender: Male	80	64	
Female	45	36	
Education: Tertiary	60	48	
Secondary	50	40	
Primary	10	8	
No formal education	5	4	
Marital status: Married	115	92	
Divorced	5	4	
Single	5	4	
Family size: 1 – 3	38	30.4	
4 – 6	72	57.6	
7 – 9	10	8	
10 – 12	5	4	
Years of experience: 1 – 5	52	41.6	9.30±0.82
6 – 10	23	18.4	
11 – 15	30	24	
16 – 20	20	16	
Member of catfish association: No	90	72	
Yes	35	28	

Likewise, most farmers (92%) are married, and the majority (58%) of them have a family size range of 4–6. The years of experience of the fish farmers in the study areas varied between 2 and 20 years, with an average of 9.30 ± 0.82 . This implied that the catfish farmers in the study area are experienced farmers who could have become experts over the years in handling certain production, climatic, and economic problems in order to achieve greater efficiency (Onuche *et al.*, 2020). The majority (72%) of the respondents do not belong to any association, especially the catfish farmers' association.

Table 2 shows the strategies that the catfish farmers employed to manage their farms during COVID-19. The majority (88 % of the farmers) observed the COVID-19 protocol as directed by the government. Although many farmers (48%) confirmed that it was not easy to manage their fish farms during the period, many (38%) decided to live on their farms while the rest took a break from fish farming. Likewise, most (80%) farmers agreed that COVID-19 protocols changed their usual ways of managing their farms. Compliance with COVID-19 protocols forced the farmers to reduce the number of times they used to feed their fish per day (46%), as well as their production capacity (26%). Normal management routines like pond water quality monitoring were not easy (60%), while some (40%) used security agents to do that on their behalf. Therefore, most (72%) of the farmers reduce the number of fish they usually stock on their farms.

Table 2: Management of catfish during Covid-19

Variables	Frequency	Percentage
Observation of Covid-19 protocol: No	15	12.0
Yes	110	88.0
Ways of fish farm management: Not easy to manage	60	48.0
Take a break off the farm	18	14.4
Live in the farm	47	37.6
Did Covid-19 protocol changed how you manage your farm: No	25	20.0
Yes	100	80.0
If yes how? None	25	20.0
Reduced feeding	58	46.4
Reduced production	32	25.6
High cost of feed and other things in the market	10	8.0
How were you monitoring the pond water:		
Monitoring not easy	75	60.0
Use of security agent	50	40.0
Did the number of the fish you stock increase/decrease: Decrease	90	72.0
Increase	15	12.0
The same	20	16.0

CONCLUSION

Catfish farming is management-intensive, and failure to keep to the daily routine may hinder the profitability of the business. The breakout of COVID-19 in early 2020 halted and disrupted the daily management routine of catfish farming. This study assessed the management challenges in catfish production during the COVID-19 pandemic in Ibadan, Oyo State, Nigeria. It was revealed in this study that the farmers compliance with COVID-19 protocols affected their routine management of catfish farming, which forced many catfish farmers to live on their farms.

REFERENCES

- Adebayo, O. O., and Daramola, O. A. 2013. Economic analysis of catfish (*Clarias gariepinus*) production in Ibadan metropolis. *Journal of Agriculture and Food Sciences*, 1(7): 128-134.
- Ajayi, H. I. and Egware R. A. 2021. Problems of small-scale catfish (*Clarias gariepinus*) farming in Benin Metropolis of Edo State, Nigeria. *BIU Journal of Basic and Applied Sciences* 6(2): 159 – 167, 2021.
- Chinese Center for Disease Control and Prevention. (2020). Distribution of new coronavirus pneumonia. Retrieved July 20, 2020, from <http://2019ncov.chinacdc.cn/2019-nCoV>

- Engle, C. R. 2010. *Aquaculture Economics and Financing Management and Analysis*. Wiley-Blackwell. Pp: 259
- FAO. (2020). *How is COVID-19 affecting the fisheries and aquaculture food systems*. Rome, Italy: FAO.
- FAO. (2021). *The Impact of COVID-19 on Fisheries and Aquaculture Food Systems, Possible Responses*; FAO: Food and Agriculture Organization of the United Nations: Rome, Italy, 2021; ISBN 978-92-5-133768-4.
- Farrell, P.; Thow, A.M.; Wate, J.T.; Nonga, N.; Vatucawaqa, P.; Brewer, T.; Sharp, M.K.; Farmery, A.; Trevena, H.; Reeve, E. (2020). *COVID-19 and Pacific food system resilience: Opportunities to build a robust response*. *Food Secur.* 2020, 12, 783–791.
- Gilbert, S. M., and Gubar, S. (2020). *The madwoman in the attic: The woman writer and the nineteenth-century literary imagination*. Connecticut, USA: Yale University Press. <https://doi.org/10.2307/j.ctvxkn74x>
- Omega, S., Nuer, A. T. K. and Ametepey, E. 2021. Effect of Coronavirus on Aquaculture in Oyo state, Nigeria. *Journal of Agricultural Science*; 13(11): 153 – 166.
- Onuche, U., Ahmed, T. A. and Ebenehi, O. 2020. Assessment of the Constraints to Catfish Farming in Kogi State, Nigeria. *Asian Research Journal of Agriculture* 12(3): 39-46.
- Shitote Z., Wakhungu J., China S. (2013). Challenges Facing Fish Farming Development in Western Kenya. *Greener Journal of Agricultural Sciences*, 3(5): 305-311, <http://doi.org/10.15580/GJAS.2013.5.012213403>
- The Vanguard, 2020. COVID-19: Fish farmers lament huge losses, glut, and business collapse. The Vanguard, 20 July, 2020.
- World Health Organization. (2020). WHO Director-General's remarks at the media briefing on 2019-nCoV on 11 February 2020. Geneva: WHO
- Wu, C., Chen, X., Cai, Y., Zhou, X., Xu, S., Huang, H., & Song, J. (2020). Risk factors associated with acute respiratory distress syndrome and death in patients with coronavirus disease 2019 pneumonia in Wuhan, China. *JAMA Internal Medicine*, 180(7), 934-943. <https://doi.org/10.1001/jamainternmed.2020.0994>
- Yisa, E. S., Adebayo, C. O., Mohammed, U. S. and Anaweta, P. U. 2015. Profitability analysis of catfish farming in Suleja Local Government Area of Niger State, Nigeria. *Journal of Agriculture and Food Sciences* 13(1): 1 – 16.