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Determinants of the Profitability of Catfish Production Among Farmers in Oyo State, Nigeria.

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Target audience: Fish farmers, Researchers, Policy makers

Abstract

This study examined the profitability of catfish production in Oyo State, Nigeria. A total of 120 african catfish (Clarias gariepinus) producers were randomly sampled and data were collected through an interview guide (questionnaire). Descriptive and inferential statistics. (Frequencies, Percentages, means, and Standard deviation*, Budgetary analysis, and multiple regression analytical techniques) were employed for data analysis. Findings showed that majority of the catfish farmers were male (99.2%), and are into full time catfish farming (82.5%), this group have less than 20years experience in catfish farming* with mean fish farming experience of 12.1±5.9 years. More than half (57.5%) had tertiary education while 41.7% had either primary or secondary education. *The total cost of catfish production was estimated to be ₦2,451,881.0 per production cycle, and the total revenue generated was ₦2,752,883.3 per production cycle. The net farm income was ₦301,002.4 per production cycle. High cost of feeds ($\bar{x}$ = 3.32±0.75), high cost of pond construction ($\bar{x}$ = 3.05±1.17), inadequate fund ($\bar{x}$ = 2.92±0.73) and high cost of fish seeds ($\bar{x}$ = 2.29±1.16) were severe constraints to catfish farming.* The regression analysis showed that the quantity of catfish harvested ($\beta = 0.636$, $p \leq 0.01$), price per kilogram of table size fish ($\beta = 0.246$, $p \leq 0.05$) and kind of fish seed stocked ($\beta = 0.204$, $p \leq 0.05$) were significant determinants of profitability of catfish production. *The study concluded that catfish production was a profitable enterprise, and improving infrastructural facilities can enhance productivity and profitability.*

Keywords: Catfish; Producers; Revenue; Statistics; Table size

1. Description of problem

Aquaculture is the cultivation or rearing of fish and other aquatic resources in an enclosed or controlled system. There are several culturing devices for rearing fish such as cages, concrete tank, earthen tank etc. Many fish farmers practice fish farming for commercial purposes and few does it for individual consumption. Fish farming contributes greatly to the economy of a

country. In Nigeria, fisheries contributes about 3.00-5.00% to the agriculture share of Gross Domestic Product (GDP) [1]. Aquaculture is a key agricultural and food-producing sector throughout the world. The promoters argue that while depleted fish catches can be re-filled, aquaculture can meet the food security needs of millions of people in developing countries who will benefit from relatively cheap protein [2-3]. The aquaculture industry, which accounts for over 50 percent of global fish production, is the fastest-growing food-producing sector [4]. About 424 fish species are cultivated globally, benefiting millions through the provision of nutrition, food security and sustainable livelihood, and poverty reduction [4].

Fish farming has been a major source of food for the human race and has contributed to the reduction of the unsavory outbreak of anemia, kwashiorkor and other ailments due to malnutrition [5)] This is because fish has a nutrient profile superior to most terrestrial animals (beef, pork and chicken, etc). It is an excellent source of high quality animal protein and highly digestible energy [4]. However, despite the huge potentials of fish farming, Nigeria is still one of the largest importers of fish in the developing world. According to the Central Bank of Nigeria [6], Nigeria spends over 288 billion Naira on annual fish importation. Fish farming is not just uniquely placed to reverse the declines in supplies experienced from capture fisheries but also has notable potentials for new livelihood opportunities, providing mechanism for lower priced fish, enhanced nutritional security and employment for poor communities [7].

Fish farming constraints in Nigeria has been attributed to inadequate supplies from the local fish farmers due to the use of poor quality fish seeds, inadequate information, high cost of feeds, traditional techniques, small size of holdings, inefficiency in resource use, poor infrastructural facilities, lack of credit, high cost of industrial feed, lack of extension agents, lack of veterinary doctors and lack of fish production equipment and low capital investment [8-10]. Hence, it becomes necessary to assess the determinants of profitability of catfish production in Oyo State, Nigeria. Specifically, the objectives of the study are to ascertain the socio-economic characteristics of the catfish farmers; examine the production characteristics of the catfish farmers; determine the profitability of catfish production in Oyo State; and identify the factors affecting the profitability of catfish production in the study area. The study also tested the hypothesis that there is no significant relationship between catfish production practices and profitability.

Materials and Methods

The Study Area

The study was conducted in Oyo State, South - West Nigeria. Oyo State is one of the thirty-six states of the Federal Republic of Nigeria. It came into existence with the break-up of the old Western State of Nigeria during the state creation exercise of 1976 [11]. Ibadan, the capital which is reputed to be the largest indigenous city in Africa, South of the Sahara, had been the centre of administration of the old Western Region since the days of the British colonial rule in Nigeria. The state has an estimated population of over 5,591,589 million people [12]. The state is located in the rainforest vegetation belt of Nigeria within longitude $7^0$23"N and $3^0$55"S. It is bounded in the south by Ogun State and

in the north by Kwara State, in the west by the Republic of Benin while in the east it is bounded by Osun State. Oyo state exhibits the typical tropical climate of averagely high temperatures, high relative humidity and generally two rainfall maxima regimes during the rainfall period of March to October. Oyo State now consists of 33 Local Government Areas and the capital of the state is Ibadan. The main occupation of the people in the state is Agriculture which is the mainstay of the economy of the State. The tropical nature of the climate favours the growth of variety of food and cash crops are yam, maize, cassava, millet, plantain, banana, rice and fishing

Sampling technique and sample size

The sampling frame was 186 registered catfish farmers in Oyo State. The list was obtained from the executives of Catfish Farmers' Association of Nigeria, Oyo State chapter. Random sampling of 60 percent of the sampling frame was selected for the study. This gives an approximate figure of 112 farmers but 120 farmers were sampled for this study.

Data collection procedure

An interview guide was employed as a research instrument. Primary data were obtained from catfish farmers in Oyo State with the use of pre-tested interview guide which was administered to the farmers at their various farms. Catfish and Allied Fish Farmers Association of Nigeria, CAFFAN, Oyo State chapter, provided a list of registered catfish farmers. From this list, 120 farmers were randomly selected and interviewed using a guided questionnaire.

Method of data analysis

Data collected were analyzed using descriptive and inferential statistics. the research hypotheses were tested at 5% level of significance

Results

Socio-economic characteristics of catfish farmers

Results of the socio-economic characteristics of the fish farmers are presented in Table 1. It shows that almost all (99.2%) of the catfish farmers were male. 35.8% were at the age bracket 41-50 age bracket with mean age of 45.6±11.18. Educational background of the respondents indicates that more than half (57.5%) had tertiary education while 41.7% either have primary or secondary school certificates with 96.7% having spent at least 10 years in school. Results further show that 11.7% of fish farmers in the study areas were single while 87.5% were married. The mean household size was 5.0±2.0 person with majority of the sampled catfish farmers (70.0%) having a household size of 1 to 5 persons.

It was also revealed that most of the respondents (64.2%) were Christians while 34.2% practiced Islam and just 1.7% were traditionalist. Likewise, almost all (98.3%) of the respondents were Yorubas while 1.7% were of the Igbo extraction. Also, from the findings in Table 1, 33.3% of the catfish farmers engaged in other farming activities as other occupation while 16.7% were traders with 28.3% having no other occupation besides fish farming. Likewise, all the sampled catfish farmers were members of associations with majority belonging to fish farmers' association (80.0%) and cooperative societies (70.0%).

Table 1: Socio-economic characteristics of catfish farmers (n=120)

Variable	Frequency	Percentage	Mean ±SD
Sex			
Male	119	99.2	
Female	1	0.8	
Age (years)			
=30	12	10.0	
31-40	26	21.7	
41-50	43	35.8	45.6±11.18years
>50	39	32.5	
Education status			
No formal education	1	0.8	
Primary	3	2.5	
Secondary	47	39.2	
Tertiary	69	57.5	
School years			
<10	4	3.3	
10-20	116	96.7	14.4±3.1years
Marital status			
Single	14	11.7	
Married	105	87.5	
Widowed	1	0.8	
Household size (persons)			
1-5	84	70.0	5±2 persons
6-10	35	29.2	
>10	1	0.8	
Religion			
Christianity	77	64.2	
Islam	41	34.2	
Traditional	2	1.7	
Secondary occupation			
Corporate job	14	11.7	
Artisans	5	4.2	
Civil servant	7	5.8	
Farming	40	33.3	
Trader	20	16.7	
None	34	28.3	
***Membership of association**			
Fish farmers' association	96	80.0	
Cooperative society	84	70.0	

Source: Field survey (2021)
***Multiple responses**

Fish farming practices of fish farmers

Table 2 reveals that about 48.3% and of 46.7% of the sampled catfish farmers had 1-10 years and 11-20 years of experience in fish farming respectively with mean fish farming experience of 12.1±5.9 years. Majority (82.5%) of the respondents were full time catfish farmers. It was also observed that the highest proportion (46.7%) of the fish farmers acquired production lands through purchase while 30.0% and 17.5% acquired through by leasing/renting and or inheritance

Table 2 : Fish farming practices of fish farmers (n=120)

Variable	Frequency	Percentage	Mean±SD
Year of farming experience			
1-10	58	48.3	
11-20	56	46.7	12.1±5.9
>20	6	5.0	years
Mode of catfish farming			
Full time	99	82.5	
Part time	17	14.2	
Occasionally	4	3.3	
Mode of land acquisition			
Inheritance	21	17.5	
Lease/rent	36	30.0	
Purchase	56	46.7	
Gift	7	5.8	
Kind of fish stocked			
Fingerlings	10	8.3	
Juvenile	106	88.3	
Sub-adult	3	2.5	
Sources of finance			
Personal savings	66	55.0	
Cooperative societies	43	35.8	
Friends and family	9	7.5	
Gift	1	0.8	
Culture medium			
Earthen pond	90	75.0	
Concrete	27	22.5	
Fibre glass tank	1	0.8	
Tarpaulin	2	1.7	
Source of labour			
Family labour	15	12.5	
Hired labour	63	52.5	
Self	41	34.2	
Family and hired	1	0.8	
Sources of fish seed			
Personal farm	46	38.3	
Commercial hatchery	74	61.7	
Sources of water			
River/stream	79	65.8	
Pipe-borne	36	30.0	
Deep well	5	4.2	
Source of fish feed			
Self compounded	43	35.8	
Imported feed	62	51.7	
Local feeds	15	12.5	

Source: Field Survey (2021)

respectively. Results in Table 2 show that only 35.8% secured business finances from cooperative societies and more than half (55.0%) personal savings.

Also, 52.5% of the catfish farmers used hired labourers. The culture medium of majority (75%) was earthen ponds while 22.5% used concrete pond. Findings in Table 2, reveal further that almost all (92.5%) stocked juveniles with more than half (61.7%) sourcing the juveniles from commercial hatchery. Stream/river was the source of water for 65.8% while 30.0% of farmers made use of pipe borne water. A little above half of the sampled catfish farmers (51.7%) fed their fish with imported feed while 35.8% use self-compounded feed.

Production characteristics of fish farmers

Table 3 indicated that the average number of ponds was 8 with 45.0% of the respondents having 1 - 5 ponds with average size of 2007±8615m^2. It was also indicated that more than half of the respondents (65.0%) stocked 1000-3000 juveniles while 30.0% stocked less than 1000 with average stocking density of 1627±818 fishes. The mean price of table sized catfish was ₦883.3±197.2/Kilogramme with almost all the respondents (95.0%) selling less than or equals to ₦1000. Also, average quantity of catfish produced per production cycle by the respondents was 31933.8±524 kg with 80.0% cropping 1000 - 5000 kg while 11.7% of the sampled catfish farmers harvested less than 1000kg.

Profitability analysis of catfish production

Table 4 reveals that the average variable cost (TVC) that include cost of fish seed (fingerlings and juvenile catfish) stocked in the ponds, cost of feed, wages of temporary labour, cost of medications, transportation, pond maintenance and fuel was ₦2,234,426.4. Average total fixed cost (TFC) which includes cost of pond rented for the production, water source, scales, pipes and pumping machine was ₦217,554.60 average total. Therefore, average total cost, was ₦2,451,881.0. The average generated from the sales of table size catfish in the study area is ₦2,752,883.3.

Table 4 further shows that the total variable cost (₦2,234,426.4) accounted for 91.1% of the total cost out of which 80.8% was expended on fish feeds. The gross margin (GM) was ₦518,556.9 with net farm returns of ₦301,002.4. The analysis of profitability ratios indicated that expense structure ratio (ESR) was 0.086 while benefit cost ratio (BCR) value was 1.26.

Constraints in catfish farming

Table 5 reveal that respondents opined that high cost of feed (3.32±0.75) was a very severe constraint to catfish farming likewise high cost of pond construction (2.92±0.73), inadequate fund (2.92±0.73), high cost of fish seed (2.29±1.16) and poor marketing channel (2.26±1.02) were considered severe constraints. The highest proportion of the catfish farmers identified high cost of feed (89.1%), cost of pond construction (76.7%) and inadequate fund (79.2%) as severe constraints to fish farming. Findings also reveal that poaching (1.18±1.12), lack of technical know-how (1.25±01.7), land tenure system (1.26±1.05) and scarcity of feed seed (1.28±0.98) were not severe constraints in the study area.

There is no significant relationship between production characteristics of respondents and profitability of catfish

Table 3: Production characteristics of fish farmers (n=120)

Variable	Frequency	Percentage	Mean±SD
Number of ponds			
1-5	50	41.7	
6-10	54	45.0	8±5
>10	16	13.3	
Pond size(m^2)			
<1000	34	28.3	
1000-3000	50	41.7	2007.5±1586.5
>3000	36	30.0	
Number of production cycle/year			
1-3			
4-6	115	95.8	2.4±0.9
>6	4	3.3	
	1	0.8	
Length of production cycle (months)			
1-5			
6-10	64	53.3	
>10	50	41.7	5.4±2.1
	6	5.0	
Quantity of fish stocked			
<1000	36	30.0	
1000-3000	78	65.0	1628±818
>3000	6	5.0	
Price per Kg (?)			
=1000	114	95.0	
>1000	6	5.0	883.3±197.2
Quantity produced (Kg)			
<1000	14	11.7	
1000-5000	96	80.0	3194±524kg
5001-10000	7	5.8	
>10000	3	2.5	

Source: Field survey (2021)

farming

Table 6 shows that quantity of catfish produced per cycle (β=0.636, $p \leq 0.01$), price per kilogram of table size fish (β=0.246, $p \leq 0.05$) and kind of fish seed stocked (β=0.204, $p \leq 0.05$) were significant determinants of profitability of catfish farming while other variables were not significant determinants of profitability ($p>0.05$). All the independent variables with the exception of the years of catfish farming experience, sources of finance, number of production cycle, sources of fish seed, number of ponds and pond size were positive. It was also revealed that the overall model is statistically significant ($F=6.857$, $p=0.000$) and 0.459 coefficient of determination ® square).

Table 4: Profitability analysis of catfish production

Income/Cost items	value (?)	Percentage of TC
Revenue	2752883.3	
Variable costs		
Feed	1980616.7	80.8
Juvenile/Fingerlings	46619.2	1.9
Labour (temporary)	139591.7	5.7
Medication	5325.9	0.2
Cost of fuel	9122.8	0.4
Transportation	17703.6	0.7
Repair and Maintenance	22950.0	0.9
Water treatment	3944.6	0.2
Electricity	5195.8	0.2
Lime/fertilizer	3056.3	0.1
Total variable cost	**2554168.4**	**91.1**
Fixed cost		
Land acquisition/rent	6082.9	0.2
Depreciation on building/shed	1401.0	0.1
Depreciation on pond construction/rent	27958.4	1.1
Depreciation on pumping machine	5534.3	0.2
Depreciation on generator	4170.5	0.2
Depreciation on wheel barrow	2147.0	0.1
Depreciation on measuring scale	3943.4	0.2
Permanent labour	136039.6	5.5
Security	28063.0	1.1
Depreciation on tank	2244.2	0.1
Total fixed cost	**217554.6**	**8.6**
Total cost	**2451881.0**	
Net farm income	**301002.4**	
Gross margin	**518556.9**	
BCR	1.26	
Expense Structure Ratio	0.086	

Source: Field survey (2021)

Discussion

It was indicated that catfish farming was dominated by married men. This could be attributed to the tedious and strenuous nature of fish farming activities such as pond management. These activities were labour intensive and required some special skills which can be best offered by men. Previous studies [13-14] also confirmed that more men than women were involved in catfish farming. Also, most of the catfish farmers are in the age bracket of 31-50. This indicates that majority of the catfish farmers are within the productive economically active age. This finding is in agreement with previous findings [15-17], [13] who reported in their studies that fish farming was practiced by youths.

Findings further indicated that catfish farming was practiced as a business by people with varied levels of education with substantial proportion having post-secondary education. This implied that with higher levels of education, there is the

Table 5: Constraints in catfish farming (n=120)

S/N	Constraints	Mean	SD	Rank
1	High cost of feeds	3.32	0.75	1st
2	High cost of pond construction	3.05	1.17	2nd
3	Inadequate funds	2.92	0.73	3rd
4	High cost of fish seeds (fingerlings and juvenile)	2.29	1.16	4th
5	Poor marketing channel	2.26	1.02	5th
6	Unfavourable climatic condition	2.15	0.75	6th
7	Mortality	1.93	0.70	7th
8	Predators	1.71	0.92	8th
9	Inadequate extension service	1.69	0.94	9th
10	Scarcity of feeds	1.64	0.96	10th
11	Non-availability of quality water	1.62	0.95	11th
12	Pest and diseases outbreak	1.57	0.91	12th
13	Flooding	1.40	1.02	13th
14	Scarcity of fish seed	1.28	0.94	14th
15	Land tenure system	1.26	1.05	15th
16	Lack of technical know how	1.25	1.01	16th
17	Poaching	1.18	1.12	17th

Source: Field survey (2021) **Cut off point=2.00**

Figures in parenthesis ( ) are expressed as percentage

Hypothesis testing

Table 6: Results of multiple linear regression on the relationship between production characteristics and profitability

Variables	Unstandardized coefficients		Standardized coefficients (Beta)	T-value	p-value
	B	Standard error			
Constant-	4413049.734	1910350.816		-2.310	0.023
Years of farming experience	-10304.214	23516.912	-0.037	-0.438	0.662
Mode of catfish faming	171534.809	267510.032	0.050	0.641	0.523
Sources of finance	-215172.590	144829.845	-0.117	-1.486	0.140
Sources of labour	176029.497	139419.773	0.100	1.263	0.210
Length production cycle	81681.972	163049.729	0.104	0.501	0.617
Number of production cycle	-64661.886	391558.722	-0.035	-0.165	0.869
Quantity of catfish produced per cycle	204.259	45.674	0.636	4.472	0.000*
Price per unit kg	2049.692	801.495	0.246	2.557	0.012*
Sources of fish feeds	-16912.549	216609.030	-0.007	-0.078	0.938
Number of ponds	-51228.028	37050.619	-0.144	-1.383	0.170
pond size	-181.991	92.624	-0.175	-1.965	0.052
Stocking density	320.430	218.886	0.159	1.464	0.146
Kind of fish seed stocked	746480.450	350933.702	0.204	2.127	0.036*

Source: Field survey (2021)
***Indicates significant determinant at p=0.05**
R^2= 0.459
F=6.857, p=0.000

possibility of getting higher profits from the enterprise as educated persons are likely to adopt improved means of production which have the potential of improving their productivity. Fregene [18] also reported high levels of education among fish farmers in Oyo and Osun States of the country. Clearly, these set of farmers were educated farmers seeking to tap into the rich fish market to make financial gains. The mean household size [5] is an indication of small household size among catfish farmers. This is an indication that there will be need to hire more labour and this will lead to increase in the cost of production per cycle, thereby reducing the enterprise profitability.

The fishing farming experience is an indication that most of the sampled catfish farmers were new entrants into catfish farming. This according to Aihonsu and Olatingiri [19], is because catfish farming is a recent phenomenon and just taking effect. Finance is not available to the farmers as substantial amount of them relied on personal savings and loans from cooperative societies implying most of the farmers had little or no access to formal financial sources such as commercial banks. This was supported by Adeoti *et al* [20] who opined that credit was not always available to catfish

farmers through commercial banks to invest in enterprise. This implies that the catfish farmers mostly patronized the informal sources of finance for financing the business.

Results of production characteristics of catfish farmers reveals that culture medium in the study area was majorly by earthen and concrete pond with minimum of one month production cycle and maximum of twelve cycles in a year. This is corroborated by the findings of [21] who stated in their study that majority of catfish farmers use earthen ponds and also [22]. reported that majority of sampled catfish farmers in Kaduna state used concrete ponds. This indicates that earthen pond is cheap to construct and maintain. Average stocking density of 1628 fingerlings per 2008m^2 and average quantity harvested per production cycle per year was 3194kg. This is at variance with [23] who found an average of 200m^2 pond size in their study and also [21] who reported in their study that most catfish stocked 1850 fingerlings per 20-40m^2.

The total revenue being higher than the total cost was an indication that catfish farming was a profitable enterprise. Also, the positive values of gross margin and net farm income as well as the BCR value greater than 1.00 were additional pointers to the profitability of catfish farming. This could explain why more people are venturing into the enterprise because it has proven to be sustainably profitable. This result corroborates with the findings of [24] and [22] but opposed the findings of [25] who documented a low net farm income of ₦ 182,573.04. The costs of feeds for the fish constitute 80.8% of the total operating cost. Any policy and/or technical measure that substantially reduce the cost of feeding the fish will substantially increase farm income and hence profit.

The financial ratios show that the expense-structure ratio was 0.086. This means that fixed cost accounted for 8.6% of the production total cost i.e. for every ₦100 spent on fish farms, ₦8.9 was incurred on fixed inputs while ₦91.1 was spent on variable inputs. Adebayo and Daramola [24] reported ESR of 0.439. This implies that most of the input resources used for catfish production in the study area were variable resources that increase with increase in production. This would definitely increase the revenue leaving fixed cost unchanged. The fish farmers rented most of the equipment or the materials used for catfish production. This suggests that farmers can easily adjust to variations in market conditions as variable costs constitute the largest proportion of farm expenditure. However, it also implies that oscillations in the market price of variable inputs could impact gross margin realizable. Policies that will lead to a reduction in the costs of these inputs, particularly feed will significantly reduce the cost of production and make the enterprise profitable.

The benefit-cost ratio of 1.26 suggests that every ₦ 100 invested in catfish enterprise will yield additional income of ₦26.00. This supports previous findings [14], [24], [26] who reported BCR values of greater than 1.00. This indicated that catfish farming is profitable and feasible. The highest proportion of the catfish farmers identified high cost of feed, high cost of pond construction, inadequate fund and high cost of fish seeds as severe constraints to catfish farming. This is supported by [27] who reported scarcity of viable fingerlings and high cost of feed as serious constraints to catfish production in Kogi state.

Results also show that the quantity of catfish

produced per cycle, price per kilogramme of table size fish and kind of fish seed stocked have positive effect on profitability which implied that as those variables increased so will be the profitability. Also from the results, the overall model is significant. The significant nature of the regression model implies that all the explanatory variables taken together have significant effect on profitability.

Conclusion and Recommendation

This study sheds light on the critical factors that influence the profitability of catfish farming in Oyo State, Nigeria. The findings reveal that the quantity of catfish produced per cycle, the unit price of table-size fish, and the type of fish seeds used are the most significant determinants of profitability. These results underscore the importance of optimizing these factors to maximize returns on investment in catfish farming. The study's emphasis on the cumulative nature of profit in fish farming highlights the need for farmers to adopt a long-term perspective and prioritize strategies that enhance productivity, efficiency, and market competitiveness. By focusing on these key drivers of profitability, catfish farmers can improve their chances of success and contribute to the growth and sustainability of the aquaculture industry in the region.

The findings of this study have important implications for policymakers, extension agents, and other stakeholders seeking to promote the development of catfish farming in Oyo State and beyond. By supporting initiatives that enhance productivity, market access, and seed quality, these stakeholders can help unlock the full potential of catfish farming as a viable and profitable enterprise for smallholder farmers and commercial operators alike.

Based on the challenges affecting the profitability of catfish production in Oyo State, It is imperative to address these issues, focusing on the peculiarity of some, in order to promote catfish production in the area.

1. To increase its profitability, large scale production should be embarked on, which will also allow for availability of catfish throughout the year and at a reduced price. This will also encourage more families to supplement their diet with catfish regularly in order to meet the recommended protein intake of 35 grams per day by Food and Agriculture Organization of the United Nations.
2. It is recommended that prices of feeds and access to feeds by catfish farmers be regulated by the State Government in order to ameliorate the problems of high cost of feeds/inadequate supply of feeds to catfish farmers in the area. This will encourage more farmers in the study area to engage in commercial catfish production.
3. Alternatively, catfish farmers should source for locally formulated feeds, which is often cheaper. This will reduce the overall cost of production and consequently increase their profitability.
4. Catfish farmers should be encouraged to form viable co-operative societies to help them easily access incentives from the government and other development agencies who prefer giving assistance to cooperatives or associations of farmers instead of individual farmers.
5. Also, further research is recommended to ascertain the effect of type of pond system, and the level of intensive system used in catfish production on the profitability of catfish production.

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Purchasing Pattern of Animal Protein Types: A Case Study of uishopweL in University of Ibadan Campus.

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Target audience: *Animal Scientists, Economists, Agripreneurs, Consumers of food*

Abstract

Animal protein is an essential component of a balanced diet in human nutrition and it can be obtained from myriad sources. However, the patronage of animal proteins is hinged on purchasing power, socioeconomic status and relative perception of the consumer's nutritional needs. The University of Ibadan is one such University community in Nigeria where the consumers of animal protein-sourced foods are conscious of the importance of a balanced diet for healthy living. Therefore, a study was carried out at the UishopweL of the University of Ibadan, to assess consumers' purchasing patterns of animal proteins. Data from the sales of animal proteins over 8 months (228 days) were collated and used to determine the trend of purchase of animal protein types based on quantity and frequency (days per week) of patronage using descriptive statistics. The results revealed that mean animal protein patronage during the week was highest on Wednesdays (613.24kg) and lowest on Saturdays (169.44kg). Every week, red meat was the most purchased animal protein type, while fresh fish was the least. The mean daily patronage of red meat was highest for beef (74.12 kg, 81 days) and lowest for chevon (7.14kg, 33 days). Iced fish, chicken and table eggs were purchased daily while dried fish was once a week. In conclusion, higher daily purchases of animal protein-sourced foods in UishopweL were on Wednesdays, and the weekly purchase of beef was more than other animal protein types.

Keywords: Animal protein, Customers, Daily purchase, Patronage pattern, Uishopwel

1. Description of problem

The burden of malnutrition orchestrated by the low level of animal protein consumption among humans of all age groups in Nigeria is a challenge. According to (1), the diet of an average Nigerian is about 20 per cent less animal protein than the recommended daily requirements. Due to their high essential amino-acid profile, animal proteins are quality food components required for the healthy functioning of the body cells and metabolic systems of humans. Though they are from different sources, the demand for and acceptability of animal protein foods are