ECONOMIC BENEFIT ANALYSIS OF JUVENILE CATFISH (*Clarias gariepinus*) FED TWO DIFFERENT BRANDS OF COMMERCIAL FEEDS

[1]Mohammed, F.I., [1]Maidala, H.M.B., *[1]Bala, A. G., [1]Usman, R.Z., [2]Ikara, N.M and [1]Abdulkadir, A.

[1]Division of Agricultural Colleges, College of Agriculture and Animal Science, Ahmadu Bello University, Mando, Kaduna State, Nigeria.

[2]Division of Agricultural Colleges, Samaru College of Agriculture, Ahmadu Bello University, Zaria, Kaduna State, Nigeria.

**Corresponding Author: balaaminu@gmail.com; yawuro@gmail.com*

ABSTRACT

A twelve (12) weeks experiment was carried out to determine economic benefit analysis of juvenile catfish (*Clarias gariepinus*) fed two different brands of commercial feeds over a period of eighty four (84) days in a bath tub. A completely randomized block design was employed for the experiment with six (6) ponds and two (2) treatments diets with three replicates. The *C. gariepinus* were selected randomly with stocking density (20 fish/T) with the average weight of (30.025 + 0.2). The *C. gariepinus* were fed 3% body weight using floating and sinking pellet feeds at the same feeding rate (twice daily) morning and evening. Parameters such as cost of feeding, cost of Juveniles, cost of feed and profit were determined. Results indicated that, the price of *C. gariepinus* per kg were N7, 940.70 and N9,630.00 for sinking and floating diet, respectively. The cost of feed per kg was lower (N225.00) and more economical for sinking diet compared to the floating diet (N500.00). However, the gross profit margin was much higher (N3, 294.02) with *C. gariepinus* fed sinking diet compared to the floating diet which recorded a lower value of N1,841.70. It was concluded that, commercial sinking feed compounded is more profitable to farmers compared to using floating feed pellet in juvenile *C. gariepinus* production.

Key words: Catfish, Economic, Feeds, Floating, Sinking

INTRODUCTION

Aquaculture is the natural rearing of fish and other aquatic organism in man-made ponds, cages, reservoirs, dams or other enclosures inlets. It is one of the best ways of increasing population to meet the demand for animal protein of the ever increasing population. It provides a valuable source of animal protein (Fapohunda, 2005). As aquaculture is gaining attention all over the world as a means of improving world fish production, it currently on decline due to dwindling output from capture fishery (FAO, 2011). With the increasing population of Nigeria and only 1.5 - 20% increase in food population, the need for protein in Nigeria diet continue to increase (Ewuola and Ajibefun, 2002). This condition has created an excessive divergence between available and desired protein in Nigeria, arising from the problem of supply of the desired level of animal protein and other farm products for the country's rapidly growing population. Fishing in Northern Nigeria, has been carried out in rivers, dams and natural lakes. If the local fish production must be boosted, fish farmers must raise their yield using modern techniques of production, processing and marketing. Fish farming technologies needed for fish farmers include pond construction and breed management, fish processing, storage and marketing. Access to adequate information is very essential to increase agriculture productivity.

Some of the problems in fish culture includes the cost of feeding and quality of imported feed in terms of nutrient composition of the feed which is not known. The cost of a kg fish feed with floating feed compared with those raised with other sources of feed is not different and so the profit margin between the two mentioned above is different from the once raised with sinking feed. Therefore the profit margin the farmer can get using sinking feed is likely to be higher compared to those using floating feed pellets. The main objective of this study is to provide useful information on the economic benefit analysis of juvenile African catfish (*Clarias gariepinus*) fed two different brands of commercial feeds to the fish farmers in the study area.

MATERIALS AND METHOD

The study was carried out at the Livestock Section of Samaru College of Agriculture, Division of Agricultural Colleges, and Ahmadu Bello University Zaria-Nigeria. Samaru is located on latitudes 11°3'N and longitudes 7°42'E with an altitude of 868m and above sea level in the Northern Guinea Savanna of Nigeria (GPS, 2019). The completely randomized block design was employed for the experiment with six (6) ponds and two treatments diets with three replicates. Each pond was stocked with twenty (20) juveniles selected randomly. The One hundred and twenty (120)

juvenile of *Clarias gariepinus* of unknown parental stock was obtained and then transferred to a bath tub with dimension 60 cm x 30 cm x 30 cm which contains 100 liters of dechlorinated water and left for a period of 24 hours to acclimatized according to Mustapha *et al*., 2014. During this period, they were fed 3% of the body weight with a control diet containing 42% crude protein, multi fed twice daily, morning (8:00 - 9:00 am) and evening (5:00 - 6:00 pm). The water in each bath tub was changed every three days to remove the feaces and left over feeds.

After the period of acclimatization and the seven (7) days feed control, fish were then selected at a random and weighed individually using an Electronic meter sensitive top loading balance and recorded as initial weight. The total standard lengths were also measured and recorded using a ruler calibrated in centimeters. The weighing and length measurement of the fish were taken in every interval of two (2) weeks throughout the period of the experiment. Daily ratios were divided into three equal portions and feed were kept in cool dry place. The cost of feeds and fish were based on the current market cost of the commercial feed and market value of a kg of juvenile catfish in Nigeria at the time of the experiment. Including the cost of the bath tubs which are fixed cost taking depreciation into consideration will give a clear picture of actual profit realized. The data collected at the end of the experiment was subjected to simple descriptive statistics of statistical package of statistical analysis system (SAS, 2003).

RESULTS AND DISCUSSION

The economic benefit analysis of juvenile catfish (*Clarias gariepinus*) fed two different brands of commercial feeds is presented in Table 1. The value of juvenile *C. gariepinus* per kg were N7,940.70 and N9,630.00 for sinking and floating diet, respectively. Moreover, the cost of feed per kg was lower (N225.00) and more economical for sinking diet compared to the floating diet (N500.00). The cost of feeds and fish were based on the current market cost of the commercial feed and market value of a kilogram of juvenile *C. gariepinus* in Nigeria at the time of the study. However, the gross profit margin was much higher (N3, 294.02) with *C. gariepinus* fed sinking diet compared to the floating diet which recorded a lower value of N1,841.70. The result is in agreement with the findings of Limbu, 2015 who reported that, *C. gariepinus* farmers can reduce cost of feeding up to 30% by using sinking diet and when correctly formulated and blended can increase benefits to *C. gariepinus* farmers by lowering feeding cost. The finding of this economic analysis shows that using sinking feed is more profitable to farmers compared to using floating feed pellets in *C. gariepinus* production.

Table 1: Economic benefit analysis of juvenile catfish (*Clarias gariepinus*) fed two different brands of commercial feeds

Parameter	Sinking diet	Floating diet
Value of Fish at N500.00/kg	7,940.70	9,630.00
Cost of feed per kg (N)	225.00	500.00
Cost of feed used (N)	2,216.80	3,363.30
Total cost of production	4,646.68	7,788.30
Gross profit	3,294.02	1,841.70

CONCLUSION

It can be concluded that commercial sinking feed compounded is more profitable to farmers compared to using floating feed pellet in juvenile *Clarias gariepinus* production. It is recommended that**,** further experiments can be carried out for evaluating other locally available source of sinking diet which may have potential to serve *Clarias gariepinus* and also increase their growth performances.

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