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# ECONOMIC ANALYSIS OF BROILER PRODUCTION AT MIANGO PLATEAU STATE, NIGERIA

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# ECONOMIC ANALYSIS OF BROILER PRODUCTION AT MIANGO PLATEAU STATE, NIGERIA

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## ABSTRACT

This paper evaluate the economics of broiler production at Miango, Plateau State, Nigeria using a – 9 years record (1992 – 2000). During the period, 76 batches of broilers were reared to point of slaughter. The results shows that the enterprise incurred an average total variable cost of ₦620,6333.31 out of which feeding cost, day old chicks (stock) and mortality cost represents 58.13%, 19.13% and of 9.64% of the total cost of production, respectively. Total revenue within the period was estimated to be ₦763,969.44 which was mainly generated from the sales of broiler birds. The gross margin was found to be ₦143,334.13 with ₦0.23 as the returns per naira invested in the enterprise. Thus the broiler production is a profitable venture in the study area.

Key Words: Broilers, Income, Investment & Profitability

## INTRODUCTION

Poultry production is unique in that it offers the highest turn over rate and the quickest returns to investment outlay in the livestock enterprises (Sanni and Ogundipe, 2005). Funds invested in poultry production are recovered faster than in any other livestock enterprise. The rate of growth in production of poultry is the highest when compared with ruminants and other monogastric animals (Braenkaert *et al.*, 2002) and the cheapest, commonest and the best source of animal protein (Ojo, 2002). Ogundipe and Sanni (2002) affirmed that returns to investment can be improved by turning out batches in a year depending on the length of the production cycle.

The contribution of poultry production to total livestock output increased from 26% in 1995 to 27% in 1999, while increase in the production of table eggs accounted for about 13% during the same period (CBN, 1999). The federal government in bid to encourage the poultry industry in Nigeria, in 2002 banned the importation of poultry and products, therefore one way of bridging demand and supply in the diets of average Nigerian is through the intensive rearing of poultry and other domestic avians.

Profitable poultry farming mostly depends upon good parent stock, quality chicks and feed (Islam *et al.*, 2002) Nigeria's poultry industry depend entirely on the importation of parent stock from foreign countries (NAPRI, 1998). However, the major constraints in poultry production in Nigeria is the high and rising cost of inputs, particularly feed which accounts for more than 85% of the total cost of production day old chicks, and medication (Umeh and Udo, 2002). Analysis of cost-returns structure in poultry production would facilitate appropriate knowledge of costs implications in order to obtain optimum economic benefit from investment into the industry (Sanni and Ogundipe, 2005). The present study was therefore focused on the economic analysis of broiler production at Miango, Plateau State, Nigeria.

MATERIALS AND METHODS

*Location and climate*

Miango is located between latitude 9°45’N and 10°N and between longitude 8°35’E and 9°45’E. It has an annual rainfall of about 1400 – 1600mm per annum. Rains starts around March ending to April and extends upto early October. The highest precipitation are recorded in the month of August or September. The mean ambient temperature of the area is 22.8°C with a range of 15.0 to 31.2°C. The coldest period is from November to January while the hottest period is from June. The mean relative humidity of the area is about 50% with a range of 14 – 70% (Kalla *et al.*, 2003).

*Data collection and analysis*

The data used for this study were broiler production data from the Kent Academy Poultry unit and it comprises of a 9 – years record (1992 – 2000). During the period 76 batches of broilers were reared to point of slaughter. The data were analysed as follows:

*Analytical techniques*

1. Profitability:

Farm budgeting technique was employed to analysed the cost and return structure of the poultry farm business. This was aimed at estimating the profitability of the enterprises. In this study the model used for computing the cost and returns of the broiler enterprise is the gross margin which is presented as follows:

$$GM = \sum_{i=1}^n Py_i Y_i - \sum_{j=1}^m Px_j X_j$$

Where:

- GM = gross margin
- Y<sub>i</sub> = quantity of product (s)
- Py<sub>i</sub> = unit price of the product(s)
- X<sub>j</sub> = quantity of the variable inputs(j=1,2,3...n,m inputs)
- Px<sub>i</sub> = price per unit of variable input
- ∑ = summation sign

Also, return per naira invested was used to explain the extent to which a naira into broiler production contributes to the gross margin.

2. Viability analysis

The viability of the poultry enterprise was determined using the benefit-cost ratio (BCR) and the Net Present Value (NPV). The BCR measures how the revenue generated from the broiler production covers the cost incurred from the same enterprise. It is expressed as follows:

$$BCR = \frac{\sum_{t=1}^n \frac{Bt}{(1+r)^t}}{\sum_{t=1}^n \frac{Ct}{(1+r)^t}} \quad \dots \quad (2)$$

where:

- BCR = benefit cost ratio
- Bt = discounted value of benefits
- Ct = discounted value of cost
- n = number of years
- t=1,2,3...n = number of years
- r = rate of discount
- ∑ = summation sign

The net present value (NPV) discount the stream of cost and cash flow at a rate usually determined as the opportunity cost of investing the capital into the business. It is computed as:

$$NPV = \sum_{t=1}^n \frac{B_t}{(1+r)^t} - \sum_{t=1}^n \frac{C_t}{(1+r)^t} \quad \text{---} \quad (3)$$

where NPV is the net present value and the other variables where as specific in equation (2).

The computation of BCR and NPV where based on previous benefits (or revenue) derived and cost incurred from the broiler production enterprise between the period: 1992 to 2000. These were discounted using 18% prevailing interest rate. The first year (1992) was taken as the base year.

## RESULT AND DISCUSSION

### *Profitability of broiler production*

The costs, returns and profitability estimates of the broiler production enterprise is presented in Table 1. Accordingly, it shows that the enterprise incurred an average total variable cost of N620,633.31 out of which feeding alone accounted for 58.13% of the cost of production. This is in agreement with the findings of Haruna and Hamidu (2004) that feeding poultry birds accounted for over 50% of the total cost of production. Also the table reveals that the sourcing of the day old chicks (stock) represented 19.13% of the production cost. According to Sanni and Ogundipe (2005) any management intervention towards cutting down the cost of production in any poultry enterprise will need to lay emphasis on pullet and feed cost. Relatively high mortality rate of 9.64% was also recorded within the study period. This is however expected as managerial changes occurred from time to time which could be liable to poor management as a result of adjustments or due to natural epidemics.

Other major cost components in this enterprise are the over head and labour cost. However, the average total revenue within the period was estimated to be ₦763,969.44 mainly generated from the sales of broiler birds. The gross margin was found to be ₦143,334.13. Thus, the broiler production is a profitable venture in the area. This is further confirmed by the computed value of ₦0.23 as the returns per naira invested in the enterprise.

Table 1: Average annual cost and returns of broiler production (in naira)

Variable cost	Amount (N)	Percentage
Day old chicks (stock)	118,727.15	19.13
Feeds	360,774.15	58.13
Drug & Vaccinations	6,206.33	1.00
Labour	24,825.33	4.00
Utility	6,206.33	1.00
Transport	13033.30	2.10
Mortality cost	59,829.05	9.64
Overhead	31,031.67	5.00
Total	620,633.31	100.00
<b>Returns</b>		
Total revenue	763,967.44	
Gross margin	143,334.13	
Returns per naira invested	₦0.23	

### Viability of broiler production

The viability of the broiler enterprise was assessed using cost-benefit ratio (BCR) and the net present value (NPV). The results are presented in Table 2. It shows that a BCR of 1.2017 was found indicating the viability of the enterprise, since it is greater than one. This is similar to the findings of Mbanasor and Sampson (2004). Also the NPV of ₦430,286 was estimated. This positive value shows that it is more profitable and viable to invest in the poultry business, than to keep the money in a commercial bank at the prevailing interest rate of 18%.

Table 2: Benefit cost ratio and net present value of broiler production, 1992-2000

Year	Cost(N)	Revenue(N)	Discount Factor 18%	PVC value Cost	Present Value Rex.
1992	146683	187,6670.847		124,241158,954	
1993	172,738190,	5440.718		124,026136,811	
1994	571,857509,	2550.609		348,261310,136	
1995	319,062387,	7200.516		164,636200,064	
1996	547,704651,	8600.437		239,348284,863	
1997	892,0361,063,	170	0.370	330,053395,373	
1998	936,5731,013,	040	0.314	294,084318,095	
1999	1,431,960	2,142,251	0.266	380,901596,839	
2000	567,085730,	2000.225		127,594164,295	
Total	-	-	-	2,133,144	2,563,430
BCR	=	1.2017			
NPY	=	430,286			

### CONCLUSION

This paper has helped to highlight the major cost-returns components in the broiler production under prevailing economic conditions. It is evident through this analysis that broiler production enterprise is a profitable venture in the study area.

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