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PROFITABILITY ANALYSIS OF BROILER PRODUCTION IN OYIBO LOCAL GOVERNMENT AREA OF RIVERS STATE, NIGERIA.

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ABSTRACT

The aim of the study was to analyze the profitability of broiler production in five communities in Oyibo Local Government Area of Rivers State, Nigeria. These communities include Oyibo East, Oyibo West, Afam, Owaza and Amaeka a sample size of 20 poultry farmers were randomly selected from each study area giving a total of 100 farmers for the study. Data were collected through a structured interview schedule and questionnaire. They were analyzed by descriptive statistics, gross margin and return to management analysis. The study concluded that broiler production as part of a poultry investment or as a whole business venture is profitable. The results revealed that the investment after six months yielded a net profit of 100% (₦ 2, 000,000). The net profit had a positive value because the birds grew to heavy weights over a short period of time attracting high prices in return. These are clear indications that broiler production is a viable venture. The constraints that militate against broiler production are high cost of breeding stock (day old broiler chicks), high cost of feed, disease out break, unavailability and high cost of drugs and veterinary personnel, lack of capital and poor housing and equipment. Investment in broiler production is therefore recommended as this will boost quick animal protein production and improved nutritional status of many Nigerians. It will also provide economic empowerment and poverty reduction in the economy.

KEY WORDS: Broiler production, Profitability, constraints, Rivers State

INTRODUCTION

One of the major developmental challenges facing most developing countries is their inability to adequately feed their ever-increasing population with the right proportion of animal protein, (Effiong 2005). The nutritional status of many Nigerian is therefore characterized by low animal protein and high calorie intake. Most animal proteins are delicious but not easily affordable. Animal proteins sources include livestock, poultry meat, fish, egg, beef, milk, port, bacon etc. the three most popular are fish, beef and poultry egg and meat. The level of poultry productivity is not commensurate with the level of poultry technologies being generated by Nigerian poultry production research (Eekeren, et al., 1995, Aparataku et al., 1998).

Broilers are rapid growing meat birds which have been confirmed by such research reports as seen in the work of Olomu and Offiong (1980b) Doughlas and Harms (1981), Hullan and Proud foot (1981), Christmas et al, (1982). This implies that more protein and income can be derived from increased broiler production and consumption. The development of the poultry industry has also been described as the fastest means of bridging the protein deficiency gap prevailing in the country. Most African diets (Including Nigeria) are deficient in animal protein which results in poor and stunted growth as well as increase in spread of disease and consequently death (Apantaku et al., 1998).

The consumption level of protein in Nigeria according to F.A.O. 1990 is 3.5g/kg/ day which is far below the recommended level of 6.5g/kg/day.

Poultry production needs improvement in its method of production so as to increase the supply of livestock/poultry product supply. For investment in any venture, the investor must be convinced that it is a profitable one by carrying out an economic analysis of the project. The economic aspect of project preparation and analysis require a determination of the likelihood that a proposed project will contribute significantly to the development of the total economy and that its returns will be great enough to justify using the scare resources that is available. This analysis therefore can convince producers to invest their limited resources in broiler production using intensive technique.

This profitability study will create awareness that investment in broiler will pay off better than alternative poultry projects like layers, turkeys, ducks productions. Poultry production is popular in every parts of Nigeria. There are no taboos restricting its production. Broiler is a part of poultry production that is lucrative in the sense that the birds are ready for market weight at about eight weeks of age. And if well fed and diseases free condition maintained, their weights per kilogram compared to the cost of production offsets the high cost incurred in keeping them intensively. Okorie (2000) reported that although there has been an increase in broiler production, the industry is usually affected by high cost of say old chicks, high cost of feeds, high cost of unavailability of drugs and veterinary personals. Ekpeyong (1992) reported that broiler production was directly affected by prices of input and output.

Adegeye (1997) emphasized that subsistence oriented production especially among small scale farmers, poorly developed inputs and product markets, non policy implementation low investment in broiler enterprises, weakened extension services, poor utilization of superior varieties of live stock species, drudgery are some of the manifestations of these constraints which influence efficiency use of resource.

This review was therefore embarked upon to determine an average capital requirement for broiler production and the possible profit that can accrue from it. The data from this study was collected and analyzed to determine the profitability or otherwise of investment on these farms for a six months cash flow production period.

METHODOLOGY

The study was carried out in five autonomous communities namely Oyibo East, Oyibo West, Afam, Owaza and Amaeke in Oyibo local Government area of Rivers State. The State lies between latitude 6^0 and 8^0 South and longitude 9^0 and 6^0 West and situated in Southern boundary of the humid zone. Mean annual rainfall in the area is 330mm, lasting from March to October. Mean daily temperature during the wet season is 24^{oc} with mean relative of humidity of 96 %. The dry season lasts from November to February with mean daily temperature ranging from 24 - 32^{oc} and mean relative humidity of 25-40% (Meteriology department, Rivers State Ministry of Information). The study areas were preferentially selected because of their high involvement in farming practices.

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Data collection

Twenty farmers from each community that has broiler units in their poultry farms were randomly selected; they have farm size ranging from 200-2000 broilers. The sample size is small because it is not every poultry farmer that had broiler section. The study lasted from June to December 2006. Structured questionnaire and oral interview were used to collect data on socio-economic changes such as age parity of farmers, family size and level of education, ,marital status etc Data were collected on production and marketing variables which included cost and returns. Data were also collected on the constraints of broiler production.

Analytical Techniques

The tools of analysis used in the study include:- Simple descriptive statistics such as means, ranges and percentages used to report the socio-economic characteristics of the respondents and the reasons why they embark on broiler production The farm budgeting model was used to analyze the profitability of broiler production. The budgetary method emphasized the cost and returns of the broiler rearing unit. The level of profit and profitability index were estimated using gross margin and return to management. The profitability index were estimated using gross margin and return to management. The profitability index (PI) is the Net farm income (NFI) per unit of Gross Revenue (GR)

Therefore, PI = NFI/GR

The equation for obtaining the Net farm income can be stated in the following manner:

NFI = TR – (TVC + TFC). (Farm budgeting Model).

Where;

NFI = Net Farm Income in Naira

TR = Total Revenue in Naira

TVC = Total Variable Costs in Naira

TFC = Total Fixed costs in Naira

Net farm Income signifies the difference between total returns in Naira for the farm and total expenses of production in Naira.

The total Revenue is defined as the total money value of all broiler produced whether sold, consumed or in stock. Total fixed costs are those costs incurred which do not vary when output changes and therefore have no influence on production decisions. Total variable cost is the cost of variable input such as feeds, labour and drugs used in production. They change directly with the level of production. Gross margin is the difference between Total Revenue and Total variable costs.

The following profitability measures were calculated:

(i) Rate of Returns on investment: RRI (%) = NFI/TC x 100
Where TC = Total cost
Hence, TC = TFC + TVC

(ii) Rate of returns on fixed costs (%) = $\frac{TR - TVC}{TFC} \times 100\%$

(iii) Rate of Returns on variable costs (%) = $\frac{TR - TFC}{TVC} \times 100\%$

(iv) Capital Turnover (CTO) = TR/TC

A five point numerical rating scale with 1 representing the lowest and 5 the highest values on the scale, was used to determine the constraints associated with broiler production in the study area. A score of 5 represents very high constraints while 1 represents very low constraints.

Against each constraint area, respondents were expected to circle number between 1 and 5 including the constraint area in broiler rearing.

The total scores of respondents for the number of constraint areas were expressed in:

(i) Weighed Average $Xw = \frac{5(N_1) + {}^{4}(N_2 + {}^{3}(N_3) + {}^{2}(N_4) + (N_5)}{5}$

Where; Xw = weighed average

$N_2 + N_5$ = Rating scale

F = Frequency of respondents = 100

(ii) The mean score of respondents was set at 3.00 that is

$\frac{x = 5 + 4 + 3 + 2 + 1}{5} = 3$

RESULTS AND DISCUSSION

Personal and Socio Economic Characteristics of Broiler Farmers.

The result in Table 1 showed that the respondents 80% were males while the remaining 20% were females. This implies that broiler production in the area was dominated by men. All the producers interviewed are married men and women. The model age range of broiler producers was 30 – 50 years. About 70% of the broiler farmers in the study areas were 45 years and below. This implies that most of the broiler farmers were middle aged. Most (70%) of the respondents were illiterates while only 30% of the respondents had formal education. This showed that most of the respondents had great potentials for broiler farming once some of these farmers could adopt new innovations that could promote and boost broiler farming in the study area as it has the necessary prospects. About 80% of the broiler producers were part-time farmers, while the rest 20% were full-time farmers and fishermen. Hence Poultry (broiler) was essentially a part-time activity, with respondents major occupation ranging from crop farming, fishing, trading artisanship to civil service job. Commercial broiler production therefore is popular but not practiced by many in Rivers State because of interest and focus on oil businesses that is predominant in the South-South zone.

The average size of broiler farm in the study area as represented by the annual total value of four hundred thousand naira (₦400, 000) only, this appears to be big for commercially oriented part-time or full-time venture. This is still encouraging since most of the poultry farmers have other units like layers and cockerels.

Table: 1:- Percentage distribution of selected personal and socio-economic characteristics of broiler producers.

Characteristics Sex	Number of Respondents	% Distribution
Male	15	75
Female	5	25
Total	20	100
Marital Status		
Married	18	90
Single	2	10
Total	20	100
Age (years)		
25	4	20
22 – 32	6	30
31 – 43	7	35
44 – 50	3	15
Total	20	100
Mean age 38 years		
Level of Education		
No formal education	4	20
Primary education	8	40
Secondary education	5	25
Tertiary education	2	15
Total	20	100
Broiler keeping as only occupation		
Yes	2	10
No	18	90
Total	20	100
Broiler keeping experience years		
6 – 10	8	40
11 – 15	8	40
16 – 20	4	20
Total	20	100
Type of broiler		
Anak broiler	15	75
Cobb broiler	25	25
Total	20	100

Survey: - Field Survey 2006

Analysis in Table 1 revealed that majority (75%) of the respondents are males with less (25%) females in the business. This could be due to the fact that poultry business is risky and women are generally not good risk takers. Some women also join their husbands and make it a family venture as a lot of tedious operations are involved.

According to this table, most of the respondents (90%) are married. This shows that broiler keeping is a responsible business through which farmers make enough money to maintain their families. Mostly middle aged (30%) people are involved in broiler keeping. This involves people who combine it with other trades or some are into it as a means of making a living in the absence of white collar job.

Most broiler farmers according to this research (40%) had formal education. This has enabled them to accept farm extension and veterinary experts which improved their outputs. This has enlightened them to join poultry farmers associations through which they can now obtain loans to expand their operations. The mean broiler keeping experience is about ten years, implying that it is not a new verdure in the study area. The most popular broiler kept in the area is anak broiler (kept by 57% of farmers.) while the least is the cob. The choice of breed is dependent on the one that was first introduced in the area which has appeared to be resistant to disease attack in the area. There are different reasons why people embark on only enterprise including broiler and poultry in general.

Table 2: Distribution on the basis of their reasons for keeping broiler in addition to other poultry.

Main reasons for keeping broiler	Frequency	Percentage
Emergency cash	4	20
Consumption	2	10
Employment	2	10
Cash and consumption	5	25
Employment and cash	7	35
Total	20	100

Field: Survey 2006

Analysis is Table 2 revealed that the primary reason for keeping broiler as part of a poultry farm given by 35% of the respondents was for both employment and cash while 25% of the respondents raised broilers mainly for cash and consumption as away of meeting the protein needs of their households. About 20% of the respondents kept broiler serves as "savings account" for their keepers. Since they are stoked and targeted for sale at specific periods like during festivities. They come up to market weights of 1. 8- 2.5kg within 8- 10 weeks of age: Withdrawals in the form of sales are made from these saving accounts to attain to household needs. Thus the commercial poultry industry is largely based on broiler production. Other reasons advanced by keepers accounted for 10% SAR it as a source of valuable meat (delicacy) during festivities. Another 10% also represented educated class that could not find white collar jobs and decided to employ themselves, practices what they studied in order to earn money and boost animal protein production.

Table 3: Cost and Profitability Analysis

Item	Value(₦)	Percentage of total cost
Gross Revenue (GR)	4,00000	
Broilers sold twice a year 2,000 broilers at ₦2,000.00 each	4,000,000.00	
Broilers unsold for the year 2,000 broilers at ₦2,000.00 each (at first half of the year)	4,000,000.00	
Variable costs		
Labour	100,000.00	5
Feed/Feeding	800,000.00	40
Repairs and maintenance	200,000.00	10
Drugs/Veterinary services	100,000.00	5
Total variable cost	1,200,000.00	60
Fixed cost		
Purchase of land Plus building	300,000.00	15
Breeding stock	400,000.00	20
Drinkers, feeder and equipment	100,000.00	5
Total fixed cost	800,000.00	45
Gross Margin		
Total cost	2,000,000.00	

Net farm income (Return management) 2000000 Profitability Index (NFI/GR)

Rate of Returns on fixed cost (%) = NFI/TC x $\frac{100}{1}$

= $\frac{2000000}{2000000}$ x 100 =100

Rate of Return on fixed costs

% = $\frac{TR - TVC \times 100}{TFC}$

$\frac{4000000 - 1200000 \times 100}{800000}$

$\frac{2800000 \times 100}{800000}$

= 350%

Rate of Return on variable costs

(%) = TR – TFC

$\frac{400000 - 800,000 \times 100}{1200000}$

$\frac{3200000 \times 100}{1200000 \quad 1}$

= 267%

= TR = 4000000

TC = 2000000

= 2.0

Table 3 shows the annual cost and returns that accrued to an average broiler farmer in Oyibo area of Rivers State. The total revenue per poultry farmer that invested on 2000 broilers was found to realize four million naira (₦ 4, 000,000) while the total cost incurred per farmer was two million naira (₦2,000, 000) every six months. Cost of breeding stock amounted to four hundred thousand naira (₦ 400, 000) which represents 20% of the total cost of production. Cost of feeding eight hundred thousand naira (₦ 800, 000) constituted the highest share of the cost, amounting to 40%. This supports the claims by (18) that cost of feed is the largest single variable cost in general animal production. Cost of labour one hundred thousand naira (₦100, 000) constituted about 5% of the total cost while purchasing of land / building and maintenance, purchasing of drugs / veterinary services accounted for 20%, 10% and 5% respectively of the total cost of production. Other items such as feeders, drinkers, shovels, head pans, brooms cutlasses water, woods shaving etc contributed negligible percentage to total cost of production. Table 3 reveals that fixed cost takes only about 40% of the annual investment in poultry production, whereas variable costs accounts for the remaining 60%.

The farmers generate revenue through the sale of the animals at different times. Income generated by the enterprise was ploughed back into the business.

At the end of the production period (Six months) the broiler farmer in the study area sold 2000 broiler at ₦ 2, 000 each. This is done two times within one year. During the production period, the average farmer had invested a total of ₦ 2000000 out of which ₦ 1200000 and ₦ 800,000 were variable costs and fixed costs respectively. The net farm income (NFI) which represents the return to management and labors accounted for ₦ 2000000, hence a return to investment of about 100%. However, this net income was sufficient to keep a broiler farmer fully occupied; he can use it to maintain other units of his poultry farm. Hence the need to increase the level of broiler production to alleviate poverty and boost animal protein production and consumption.

The profitability index (PI) was 0.100, indicating that for every naira earned as revenue, about 100 kobo returned to the farmer as net income. With a CTO of 2.0 and PI of 100, improvement in broiler productions is likely to increase (Gross Revenue) of ₦ 2, 000000 every six months resulted in a net income (return to managements) of ₦ 2,000000 per farmer every six months.

This indicates the profitability of broiler production as a part time or full-time venture in Oyibo local government area of River State.

The rate of return on fixed cost was estimated at 350%. Hence on every six months basis, generated ₦ 3.50 while the rate of return on naira cost incurred on variable assets, generated ₦ 2.67. This implies that to maximize profit accruing from broiler production, there has to be effort directed at increasing the efficiency or optimal use of all variable inputs for example maintaining healthy environment will minimize ill health of the birds and money spent on drugs and veterinary services will also be reduced. Feeding good quality feed under healthy environment will make the birds to come to market weight (2.5kg) in less than twelve weeks. All these will bring about increased revenue from broiler production in the area.

Constraints to Broiler Production:

Analysis in Table 4 revealed some constraint area in broiler production such as acquiring parent stock, high cost of feed, disease outbreak, lack of capital, Poor housing, unavailability and high cost of drugs and inaccessibility to veterinary services and management skill.

The constraint on disease may be partly due to poor management practices done by inexperience and non experts. There is also the problem of lack of good foundation stock as a result of the fact that some respondents acquired their stock from inheritance. Hence the common cases of in-breading depression within the herd.

Table 4: Distribution of respondents by their constraint areas in broiler production

Constraint areas	Very Constraint	High Constraints	Moderate Constraints	Low Constraints	Very Low Constraints	Constraint Area raw score	Mean score (xs) Rank
High cost of feeds	10	6	4	3	2	250	5.00 1st
Stock procurement	8	7	5	3	2	240	4.80 2nd
High cost drugs	9	6	5	3	2	230	4.60 3rd
Inaccessibility of veterinary							
Services	9	9	5	2	2	222	4.40 4th
Disease outbreak	7	4	3	4	2	210	4.20 5th
Lack of capital	10	9	6	2	3	198	3.95 6th
Poor housing	5	8	5	2	4	180	2.60 7th
Lack of management	5	8	4	3	3	180	2.60 8th

CONCLUSION AND APPLICATION

Despite the above mentioned constraints that confronts farmers in Oyibo, broiler production in the study areas have proved to be profitable. The study therefore concludes that adequate funding to livestock farmers with much emphasis on poultry (broiler in particular) will bridge the wide gap that exists in animal protein production and consumption which will therefore make enough meat available for the general populace. Also Government can support through the provision of loans to existing, farmers, funding Universities of agriculture and Faculties of Agriculture in Universities existing in their areas of operation, as this will encourage them to research and come up with new funding in livestock/poultry production.

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