Economics of backyard poultry production in Akure South Local Government Area of Ondo State, Nigeria

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ABSTRACT

This study examined the economic analysis of backyard poultry production in Akure South Local Government Area of Ondo State, Nigeria. The objectives of the study were to examine the socio-economic characteristics of poultry farming, determine the profitability of backyard poultry production, and identify its constraints. Primary and secondary data were collected during the study; primary data through personal interview with the respondents (farmers), using well-structured questionnaire. The simple random sampling method was used to select the farmers that were interviewed. Descriptive statistics such as tables, frequency distribution, and percentages were used to present the socio-economic characteristics of the poultry farmers. Gross margin analysis was used to determine the profitability of backyard poultry production in the study area. The analysis showed that 40 per cent of the respondents were males and 60 per cent were females. The average age of the respondents was 36 years, and the average years of schooling was 9. Also, the average household size was six persons. The study showed that backyard poultry production (layers) is a profitable venture in the area, with a net profit of ₦271.95 ($2.36) per bird. The major constraints in the study area were labour and finance. The study concluded with suggestions for increasing the productivity of poultry production in the study area in particular and in Nigeria as a whole.

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RÉSUMÉ

EKUNWE, P. A., FABGE, O., OYEDEJI, J. O. & EMOKARO, C. O.: *Le côté économique de la production de volaille dans le jardin de derriére dans la Zone de Sud Akuré du Gouvernement Local de l' Etat Ondo du Nigéria.* Cette étude a examiné de près les analyses économiques de la production de volaille dans le jardin de derrière dans la zone de Sud Akuré du Gouvernement Local de l'Etat Ondo du Nigéria. Les buts de l'étude étaient d'examiner les côtés socio-économiques d'élevage de volaille, de déterminer le côté de rentabilité de la production de volaille dans le jardin de derrière et d'Identifier les contraintes à la production de volailles de derriére. Les données primaires et secondaires étaient recueillies pendant l'étude. Les données primaires recueillies étaient faites par l'interrogation personnelle avec les agriculteurs interrogés avec un questionnaire bien structuré. La simple méthode d'échantillonnage aléatoire était adoptée pour sélectionner les agriculteurs qui étaient interrogés. Les statistiques descriptives telles que le tableau, la distribution de fréquence et les pourcentages étaient employés pour presenter les côtés socio-économiques d' éleveurs de volailles. L'analyse de la marge brute était appliquée pour déterminer la rentabilité de la production de volaille dans le jardin dans le domaine de cette étude. Le résultat de l'analyse montrait 40% et 60% des interrogées étaient des mâles et des femelles respectivement. Aussi le moyen âge des interrogées était 36 ans alors que le moyen âge de scolarité était 9. En moyenne la famille est composée de 6 persons. L'étude révélait que la production de volaille (une pondeuse) dans les jardins de derrière est une entreprise rentable dans le domaine de cette étude avec un bénéfice net de ₦271.95 ($2.36) par volaille. Les contraintes majeures dans le domaine de cette étude étaient les contraintes de main – d'œuvre et de finance. Après l'étude, on a tiré la conclusion avec des suggestions pour l'augmentation de la productivité de l'élevage de volaille dans le domaine de cette étude en particulier et au Nigéria en général.

Introduction

The importance of poultry to the Nigerian economy cannot be overemphasised, because it has become popular industry for the smallholders who make great contributions to the economy of the country.

The poultry industry has assumed greater importance in improving the employment opportunity and animal food production in Nigeria. It provides employment for 10 per cent of the Nigerian population (Okonkwo & Akubuo, 2001). Poultry has a significant effect on national economy.

The industry has been adversely affected by stringent government economic measure. The measure has been pronounced on poultry production because of high level of sensitivity of the industry to management factors and effect on live birds and productivity of the birds (Ojo, 2003). The production has now been affected by bird flu in Nigeria.

A study by Ojo (2003) also showed that the industry falls short of its aim of self-sufficiency in animal protein consumption in the country that is put at 5 gm per caput per day, which is lesser than the Food and Agriculture Organization recommended level of 35 gm per caput per day.

In Nigeria, the production of food has not increased at the rate that can meet the increasing population. While food production increases at the rate of 2.5 per cent, food demand increases at a rate of over 3.5 per cent because of the high rate of population growth of 2.83 per cent (FOS, 1996).

To increase the production of livestock products and production and demand for food in Nigeria has led to the following:

- A food demand-supply gap; thus, leading to a widening gap between domestic food and total food requirement.
- An increasing resort to food importation.
- High rates of increase in food prices.

The Federal Government of Nigeria, having sensed the urgency of ensuring food security and, especially the protein needs of its populace in Nigeria, has started a strategic intervention programme aimed at achieving food security (Federal Ministry of Agriculture and Water Resources, 2008). The various governments in Nigeria, realising the importance of animal protein, have been pursuing programmes at the national, state, and local levels to boost the mass production of livestock products to ensure that FAO's recommendation of 35 gm per caput of animal protein per day is attained. Some of these programmes include the Farm Settlement Scheme (FSS), Agricultural Development Project (ADP), Better Life Programme, and Micro Credit Scheme for livestock production. The United Nations Development Programme (UNDP) is sponsoring the establishment of livestock parent/foundation stock at the community level in Nigeria with the following objectives:

- To train farmers on improved livestock breeds for the gradual upgrading of local breeds.
- To train farmers on improved and modern rearing and production methods of livestock.

Poultry are good converters of feed to egg and meat within a short period. In nutritive value, poultry egg ranks second to cow milk. Poultry production requires low capital investment and quick returns within weeks and months for broilers and layers, respectively. Egg production is the main index of performance in the commercial layer business, because it accounts for 90 per cent of the income from the enterprise (Adebayo, 2000). Egg production is of great economic importance to a pullet-rearing venture, which many poultry entrepreneurs approach with more enthusiasm rather than the actual knowledge of basic poultry production techniques.

The general objective of this study was to examine the economic analysis of backyard poultry production in Akure, South Local Government Area of Ondo State, Nigeria. The specific objectives were to examine the socio-economic characteristics of backyard poultry producers (farmers) in the study area, to determine the profitability in backyard poultry (layers)

production, to identify the constraints to backyard poultry production, and to make recommendations on how to improve backyard poultry production.

Materials and methods

Area of study

The study was in Akure South Local Government Area of Ondo State, Nigeria. The state lies between Longitudes 4°3' and 6°60' East of Greenwich Meridian, and Latitudes 5°45' and 8°15' North of the Equator. Farming is one of the major occupations of the people, providing income and employment for over 70 per cent of the population of the local government area. The people in the study area are mainly farmers who engage in food and cash crop production and marketing. There were many poultry farmers in the area; however, the study was limited to backyard poultry farmers who kept an average of layers for egg production (FOS, 1996).

Sampling method

The sampling method used for the research was simple random sampling in which 50 farmers were randomly selected in the study area. The selection was based on identified backyard poultry farmers from the list of contacted farmers from the Agricultural Development Programme. The simple random sampling method was used to ensure that every backyard poultry farmer in the study area was given equal chance of being selected. Out of the questionnaire given out, 50 copies were retrieved and analyzed.

Data collection

The primary data used to accomplish the objectives of this study were collected from the field survey by using a well-structured questionnaire with open and close-ended questions. The questionnaire was designed to elicit the desired information from the relevant respondents, the poultry producers. Information was in four theoretical variables: socio-economic characteristics of farmers, input or cost used in producing layers, output or revenue of layers, and constraints to backyard poultry production in the study area.

Data analysis

The data sources from the questionnaire surveyed were analyzed using descriptive statistics such as tables, frequency distribution, and percentages. The gross margin analyses, return per Naira, were also used to analyze the data collected.

Socio-economic characteristics

The variables include age of farmers (poultry producers), gender, marital status, educational status, and family size.

Gross margin analysis

Gross margin (GM) is the difference between the total revenue (TR) and total variable cost (TVC).

Gross margin (GM) =TR- TVC

Net return = GM-TC (TVC + TFC)

TC = Total cost

TFC= Total fixed cost

The fixed costs were depreciated using the straight line method of depreciation. Hence,

$$D = \frac{C-S}{N}$$

where D = Depreciation

C = Original cost of asset

S = Salvage value

N = Number of useful years

Constraints

The likert scale method was used in determining the constraints faced by the poultry farmers (Ekunwe, Soniregun & Oyedeji, 2005; Ugwoke, Mathews-Njoku & Onu, 2005). The scale is a 5-point scale that uses an ordinal level of measurement. Likert scaling is a summative and bi-polar scaling method that measures either

positive or negative response to statement. The responses to the various constraints were scored so that the response indicating the most serious constraint was assigned the highest point (i.e. 5). As a 5-point scale, the responses were grouped into five:

Very serious = 5
Serious = 4
Moderated serious = 3
Least serious = 2
Not serious = 1

For a given constraint, the mean was computed by summing the score on each item and dividing by 50, the total number of responses. This method of determining the constraints is important, because it tells exactly which constraints are serious. When the mean is less than 3, it means the constraint is not very serious. Those with mean equal to or greater than 3 indicate very serious constraints.

Results and discussion

Table 1 presents the results of the socio-economic characteristics of the respondents. From the study, it was observed that 60 per cent of females and 40 per cent of males were involved in backyard poultry production. The result agrees with those of Ekunwe *et al*. (2005) and Alabi & Aruna (2005), who observed that female poultry farmers were more than their male counterparts in Edo and Niger-Delta, respectively. Table 1 also shows that a higher percentage (78%) of the respondents were within the age range of 31 to 50 years, the economic active age, and they worked for an average of 4 h per day. Sixteen per cent (16%) of the poultry producers fell below 30 years of age, and the remaining 6 per cent were those above 50 years. However, the average age of the respondents was 36 years. The result varies from that of Alabi & Aruna (2005) who showed that poultry farmers were on the average 48 years old in Niger-Delta, Nigeria.

Table 1 further shows that 62 per cent of the poultry producers were married, 22 per cent were single, 10 per cent were widowed, and only 6 per cent were divorced. It was, therefore, observed that most poultry producers in the study area were married. This is consistent with 56 per cent estimated by Ekunwe & Soniregun (2007). The size of household depended on the number of wives, children, and other dependents staying with the household. It was observed that 60 per cent of the respondents had between four and seven household members; while 18 per cent fell within the range of 1 to 3, and 22 per cent had household of above seven. The average household size was six persons. The result is at

TABLE 1

Socio-economic Characteristics of Respondent Farmers

Item	*Frequency*	*Percentage*
Gender		
Male	20	40.0
Female	30	60.0
Total	50	100.0
Age range (years)		
Below 30	8	16.0
31-40	23	46.0
41-50	16	32.0
Above 50	3	6.0
Total	50	100.0
Marital status		
Married	31	62.0
Single	11	22.0
Divorced	3	6.0
Widowed	5	10.0
Total	50	100.0
Household size		
1-3	9	18.0
4-7	30	60.0
Above 7	11	22.0
Total	50	100.0
Education status		
No formal education	6	12.0
Primary education	19	38.0
Secondary	22	44.0
Tertiary	3	6.0
Total	50	100.0

Source: Computed from field study, 2007

variance with eight persons estimated by Alabi & Aruna (2005).

The educational level of the respondents indicated that 38 and 44 per cent of the poultry producers had primary and secondary education, respectively. This implies that most poultry farmers can communicate in English, which means that they will be receptive to new techniques in poultry farming. Twelve per cent of the respondents were illiterates. Also, 6 per cent of the respondents had tertiary education. Moreover, the average years of schooling in the study area was 9. The result is similar to those of Rajendran & Mohanty (2003), who observed that most poultry farmers in India were educated.

From the study, it was observed that 64 per cent of the respondents had practised backyard poultry farming between 5 and 10 years; and 36 per cent had practised for less than 5 years. Most farmers had between 5 and 10 years' experience, a minimum of 5. This implied that the farmers had not been long in the business.

Analysis of cost and returns of respondent farmers

The cost of production is usually categorized into fixed and variable costs. The fixed costs of the farmers are those that cannot be altered in the short run. These include the cost of poultry house (building), equipment for feeding, water, and other major accessories. The rate of use of the variable cost may vary during the production period. They include cost of chicks, feed, labour, drugs, and transportation. The study showed that the average number of birds (layers) kept by a farmer was 67.

Estimated investment cost of respondents

The study showed an estimated investment outlay of ₦47, 509.60. The poultry building took the largest share of ₦31,860.00 (67%). This was followed by the cost of the cage, which constituted 11.53 per cent of the total outlay while crate took the smallest, constituting only 0.68 per cent of the total outlay (Table 2). From the analysis of the data, the total depreciation cost of the fixed assets was ₦12, 190.42 (Table 3).

Profitability analysis of respondents

On average, the farmers had invested a total amount of ₦453,410.62 (per 67 birds), of which ₦440,797.2 was total variable cost per 67 birds and ₦12,190.42 was depreciation cost for 67 birds at the end of the operation. The total revenue from the sale of eggs and old layers was ₦465,281.00 per 67 birds (Table 4). The gross margin per 67 layers was ₦24,483.8. From the results of the gross margin analysis for poultry production, the total variable cost per bird was

TABLE 2

Estimated Investment Cost of Respondents

Item	*Average quantity*	*Average unit cost (₦)*	*Average cost (₦)*	*Investment cost (%)*
Housing (poultry building)	1	31,860.00	31,860.00	67.1
Drinker	12	190.00	2,276.00	4.79
Feeding trough	12	193.00	2,312.00	4.86
Bucket	8	117.00	936.00	1.97
Crate	8	41.00	3256.00	0.68
Cage	4	1370.00	5480.00	11.53
Wheel barrow	1	4320.00	4320.00	9.1
Total			47,509.60	100.00

Source: Derived from field data, 2007

TABLE 3

Depreciation of Fixed Cost of Respondents

Item	*Total product cost (₦)*	*Average lifespan (years)*	*Annual depreciation value (₦)*
Housing	31,860.00	5	6,372.00
Drinker	2,312.00	3	770.66
Feeding trough	2,276.00	3	758.66
Bucket	936.00	2	468.00
Crate	325.6.00	1.5	217.10
Cage	5480.00	2	2,740.00
Wheel barrow	4320.00	5	864.00
Total	47,509.60		12,190.42

Source: Derived from field data, 2007

TABLE 4

Gross Margin of Backyard Poultry Production Per Average of 67 Birds

Item	*Estimated cost/annum (₦)*
Variable cost	
Chicks	143,503.20
Feed	151,978.00
Labour	140,290.00
Drug/vaccination	3,426.00
Miscellaneous	1,600.00
Total variable cost	440,797.20
Fixed cost	
Feed trough less depreciation	770.66
Drinker less depreciation	758.66
Bucket less depreciation	468.00
Crate less depreciation	217.10
Cage less depreciation	2,740.00
Wheel barrow less depreciation	864.00
Other accessories less depreciation	423.00
Battery cage/housing less depreciation	6,372.00
Total fixed cost	12,613.42
Total cost (TVC + TFC)	453,410.62
Total revenue	465,281.00
Gross margin = TR–TVC	24,483.80
Net profit = GM–FC	11,870.38

Source: Derived from field data, 2007

₦6,579.06, and the total fixed cost per bird was ₦93.13. The total cost, which was the total variable cost plus the total fixed cost, was ₦6,672.54 per bird per annum (Table 5). On the average, the profit per 67 birds was ₦11,870.38, and the net profit per bird was ₦ 271.95. The result varies from those of previous studies, especially in commercial poultry farms in which a higher net profit and gross margin was estimated (Ojo, 2003).

Constraints faced by poultry producers

Table 6 shows that the major constraints faced by the poultry farmers were labour and finance, with a mean value of 4.6 and 4.34, respectively. From the findings of the research, the factors responsible for financial constraint are large family size and inability to save. In addition, because their business enterprises are small, they are unable to acquire loans from financial institutions; and often do not consider borrowing from banks as an available option, because they do not have collateral securities. The major factor responsible for their labour constraints is the drudgery associated with layer production and the high cost of labour. Hence, all the jobs in poultry production in the study area were done strictly by the family, and the cost imputed from the average cost of labour. The result confirms the study of Alabi & Osifo (2004) who identified finance and labour as major constraints in backyard poultry production in Edo State, Nigeria.

Conclusion

Backyard poultry production is a profitable enterprise and has a high turnover rate. Despite its economic viability in the study area, it has its

TABLE 5

Gross Margin of Backyard Poultry Production Per Bird

Item	*Estimated cost/annum (₦)*
Variable cost	
Chicks	2,141.84
Feed	2,268.33
Labour	2,093.88
Drug/vaccination	51.13
Miscellaneous	23.88
Total variable cost	6,579.06
Fixed cost	
Feed trough less depreciation	11.80
Drinker less depreciation	11.32
Bucket less depreciation	6.98
Crate less depreciation	3.29
Cage less depreciation	40.89
Wheel barrow less depreciation	12.89
Other accessories less depreciation	6.31
Total fixed cost	93.48
Total cost (TVC + TFC)	6,672.54
Total revenue	6,944.49
Gross margin = T–TVC	365.43
Net profit = GM–FC	271.89

Source: Derived from field data, 2007

TABLE 6

Constraints Faced by Poultry Producers

Constraint	*Mean value*	*Standard deviation*
Labour	4.6	3.2
Financial	4.34	2.3
Transportation	3.74	1.34
Available input	1.76	0.43
Factors responsible for labour constraints		
Inadequate labour	1.34	0.34
Rural urban migration	1.25	1.11
High cost of labour	4.23	3.21
Drudgery of labour	4.56	3.53
Factors responsible for financial constraints		
Largely family size	4.70	2.34
Inability to save	4.23	2.50
Government policy on borrowing	3.82	2.54
Factors responsible for transportation constraints		
Inadequate facility	2.30	1.21
High cost of transportation	2.81	1.43
Poor facilities	1.23	0.23

Source: Computed from field data, 2007

own limitations, such as labour and financial constraints. Therefore, improving the profitability in backyard poultry production will involve addressing these constraints.

Based on the findings, the following are recommended to improve poultry farming in the study area. Micro financing should be made available to backyard poultry farmers to help improve their productivity. Also, farmers should be educated on available techniques of improved practices. Finally, more individuals or families should be encouraged to go into backyard poultry layer production, because it has been found to be a profitable venture. This will help to supplement their incomes as well as provide for their daily protein intake needs.

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