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308 Lasani Town, Sargodha Road, Faisalabad - Pakistan
Mob: +92 300 3008585, Fax: +92 41 8815544
E-mail: editorijps@gmail.com

Economics of Small Scale Deep Litter System of Egg Production in Oredo Local Government Area of Edo State, Nigeria

P.A. Ekunwe, O.O. Soniregun and J.O. Oyedeji
Department of Agriculture, Benson Idahosa University, Benin City, Nigeria

Abstract: The general objective of this study is to examine the economics of small-scale deep litter system of egg production in Oredo Local Government Area Edo State, Nigeria. The Specific objectives are to determine the profitability in deep litter system of poultry production among small-scale farmers, to examine the socioeconomic characteristics of egg producers and to identify the constraints to egg production in the study area. Primary and secondary data were obtained from farmers. A purposive sampling of small-scale egg producers was carried first in the study area. Then a simple random sampling technique was then employed to select 182 egg producers using a well-structured questionnaire from the entire population of small-scale farmers. Descriptive statistics such as means and percentages were using to examine the socioeconomic characteristics. The gross margin analysis was used to determine the profitability. While the constraints to egg production was analyzed using the likert scale technique. The result of the analysis reveals that the average number of birds raised in deep litter is 760 birds. The study also shows that 68% and 32% of women and men produce eggs at this level respectively. The result of the study reveals that the fixed capital investment per bird was N 624.17 and total fixed cost less depreciation per bird was N.208.88 and total variable cost per bird was N 331.62. The study also reveals that total revenue from the sales of eggs per and other sources were N 3,749.22 per bird with a gross margin per bird of N 3,417.6 and a net profit of N 3,208.72. Finally the major constraints faced by the farmers are in the order of inadequate finance, high cost of feed, low egg price and high cost of medicine and vaccine Investments on Poultry building.

Key words: Small-scale, deep litter, egg production, Nigeria

Introduction

The study area is Oredo Local Government Area of Edo State, Nigeria. The State is one of the 36 states in Nigeria. It is located in the Southern part of the country. The total population in the Local Government Area (LGA) is 352,918 persons, with male population of 178,327 (50.5%) and female population 174,591 (49.5%), (FOS, 1996). It occupies an area (km squared) of 249.1971 and population density (person/kmsq) of 1416. The LGA is agrarian and well suited for the production of permanent crop such as Rubber and Oil palm and Arable crops (maize, yam and cassava) because of favorable climatic conditions. The people are predominantly peasant farmers cultivating food and cash crop. They also embark on small, medium and large-scale livestock production such as rearing of goats, sheep, pigs, rabbits and poultry as well as marketing of their products. The people live mostly in organized settlement towns and cities. Poultry production is predominant among livestock production in the State. Poultry production is an important part of farming in Nigeria agriculture. People depend on poultry for food and poultry farming serves as an additional occupation to supplement the income of small and marginal farm families. Poultry occupies an essential position because of its vast potential to bring about rapid economic growth, particularly benefiting the weaker section. Further, it needs low capital investment and yet

assures quick returns within weeks and months in case of broilers and layers respectively. Egg production is the major index of performance of commercial layer business because it accounts for about 90 percent of the income from the enterprise. Egg production is of great economic and nutrition importance on a pullet-rearing venture which many poultry entrepreneur approach with more enthusiasm rather than the actual knowledge of basic poultry production techniques. The maximum that a fowl is capable of producing in the first laying year is about 300 eggs in the tropics, production has averagely remained at 180-200 eggs although higher levels have been reported, (Oluyemi and Robert, 1979) and (Kumar and Pandey, 1999).

The recent ban of poultry products by the Federal Government of Nigeria has cause a turn around in the poultry industry. In the year 2004 poultry production grew by 10.3 percent as compared to 0.3 percent in 2003. This growth partly due to the ban can also be attributed to improved disease control and the use of veterinary services by lots of farmers, (CBN, 2004). However poultry production in Nigeria still has a long way to go to fulfill its role as a valuable tool of socio economic improvement of the rural populace.

Materials and Methods

The data used in this study were collected from a survey of egg producers in Oredo Local Government Area in

Table 1: Fixed Capital Investment per Birds in Naira

Particulars	Amount (N)
Investments on Poultry building, Store and Cage	182.15 (29.14)
Investment on borehole and Overhead tank	165.24 (26.43)
Investment on equipment and machinery	51.42 (8.23)
Cost of land	226.17 (36.2)
Total	624.17 (100)

Note: figures in parentheses indicate percentage to total

Table 2: Cost of production per Bird (in Naira)

Variable cost	
Cost of feed	220.71 (84.44)
Medicine and veterinary charges	19.76 (7.56)
Cost of litter	2.81 (1.08)
Miscellaneous	10.41 (3.98)
Cost of labour	7.68 (2.94)
Total Variable Cost	261.37 (100)
Fixed cost	
Amount (N)	
Depreciation on Building store and Cage	22.72 (10.88)
Depreciation on borehole and overhand tank	7.89 (3.78)
Depreciation on equipment and Machinery	9.24 (4.42)
Depreciation on land	15.03 (7.20)
Cost of day old chick	144.99 (69.41)
Cost of Electricity	9.01 (4.31)
Total Fixed Cost	208.88 (100)

Note: figures in parentheses indicate percentage to total

Source: Field Data 2005

Edo State; Nigeria. A purpose sampling and random sampling technique was used to identify farmers to be interviewed. A total of 200 questionnaires were administered to small-scale deep litter egg production farmers and responses of 182 copies were suitable for analysis. The questionnaire incorporated open ended and close-ended questions and was designed to obtain data to meet the objectives of the study. The variables covered in the questionnaires were output of eggs, inputs, prices of output (eggs) and inputs and some major socio-economic characteristics of the farmers in the study area. Primary and secondary data for the period of April - June 2005 were collected from the study area.

The socio-economic variables were analyzed using descriptive statistics such as tables, percentages, mean etc. Gross margin (GM) analysis was used to estimate the costs and returns, gross profit and net profit in egg production. Gross margin is the difference between the Total Revenue (TR) and the Total variable cost (TVC) per unit of a fixed input required to produce the particular livestock product, (Utomakili and Aganmwonyi 1995).

$$GM = TR - TVC$$

$$\text{Economic profit} = TGM - TFC$$

Where GM = Gross margin

TR = Total Revenue

TVC = Total variable cost

TGM = Total gross margin

TFC = Total fixed cost

Likert scale method was used to determine the

constraints. This scale is a 5 point scale and employs an ordinal level of measurement. The responses to the various constraints were scored in a way that the response indicating the most serious constraint is given the highest score (that is, 5). As a 5 point scale the response were grouped into 5, that is Very serious

(VS) = 5

Serious (S) = 4

Moderately serious (MS) = 3

Least serious (LS) = 2

Not serious (NS) = 1

For a given constraint, the mean was completed by taking the sum of the products between the number of responses and grade point and then divided by the total number of responses. This method of determining the constraints is important because it tells us exactly those constraints that are not important, that is when the mean is less than 3, it also show us those very serious constraints, that is , those with mean equal to or more than 3.

Results and Discussion

Socioeconomic characteristics: The results of the analysis revealed that 32% and 68% of the farmers are male and female respectively. This shows that females are more involved in small-scale deep litter system of poultry management than their male counterpart. The results also revealed that most of the farmers are below 30 and between 31-35 years of age (22% and 33% respectively and they outnumber farmers from other age group. The results showed that 74% of the farmers are married while 26% are single. The educational status of sampled farmers shows that 5% are illiterate, 5% has primary education, 32% has secondary education and 58% has tertiary education. This is not in agreement with Rajendran and Mohanty (2003)

All the farmers interviewed had a considerable level of experience. Those with farming experience less than 5 years accounted for 63%, those with farming experience between 5-10 years accounted for 21%, while those with farming experience between 11-15 years and 16-20 years accounted for 11% and 5% respectively. Also, the average number of birds raised was 760 birds Omotosho and Ladele (1988). The investment on land accounted for 36.19%, while the investment on poultry building, equipment tools and borehole and overhead

Table 3: Gross Margin of Small Scale Deep Litter System of Egg Production per Bird (in Naira)

Sources of Income	Amount (N)
Egg	3,461.88
Culled Bird	4.16
Manure	65.79
Others	217.39
Total Returns	3,749.22
Total Returns	3,749.22
Total Variable Cost	261.37
Total Fixed Cost	208.88
Gross Margin	3,487.8
Net Profit	3,278.97

Source: Survey Data 2005

Table 4: Constraints faced by farmers

Constraints	Mean Value
Inadequate Finance	4.68
High cost of feed	4.1
Low egg price	3.95
High cost of medicine and vaccine	3.53
Low quality of feed and feed ingredients	2.95
Lack of facilities for disease control	2.84
High cost of labour	2.53
High electricity tariff	2

Source: Survey Data 2005

tank are 29.15%, 8.23% and 26.43% respectively. (Table 1)

Profitability of egg production: Table 1 shows the fixed capital investment per bird.

The total fixed capital investment per bird is N 624.17 with the cost of land accounting for the highest percentage.

Table 2 shows the various cost of production in egg production in deep litter system

The analysis revealed that cost of day old chick accounted for about 70% of the total fixed cost. Also the cost of feed accounted for 84.44% of the total variable cost. Feed constitute the major component of total variable cost.

Table 3 shows the gross margin for egg production in small-scale deep litter system

The total return from egg production per bird and other sources is N3, 749.22 while Gross returns and Net returns per bird N 3,487.8 and N 3, 278.97. The system was highly profitable. Narahari (2002)

Constraints faced by farmers: Table 4 shows the constraints faced by small-scale poultry farmers.

The result of the analysis shows that inadequate finance ranked first among the various constraints with a mean value of 4.65. Ranked next to inadequate finance is the high cost of feed with 4.10. Constraints with mean value less than 3 are minor constraints, while those with mean value above are major constraints.

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