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Analysis of Backyard Poultry Production in Ondo State, Nigeria

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Abstract: The study examined the profitability of Poultry production in Ondo State. A total of 92 Poultry farmers were selected from two LGAs in the State and used for the study. The study revealed that backyard poultry production (Layers and Broilers) is a profitable venture in the study area. Layers production was observed to be more profitable than broilers production. Factors affecting the production of layers in the area include cost of feeding and veterinary cost while for broilers they include cost of feed and production experience. The study concluded with suggestions for increasing the productivity of poultry production in the study area in particular and Nigeria in general.

Key words: Poultry production, feeding cost, veterinary cost, production experience

Introduction
Poultry meat and eggs offer considerable potential for meeting human needs for dietary animal supply (Folorunsho and Onibi, 2005). Poultry production in the past was not counted as an important occupation. In some communities, the fowl is used in the past as a means of knowing the time. Nowadays poultry production has developed and occupies a place of pride among the livestock enterprises due to its rapid monetary turnover (Laseinde, 1994). This single reason, among others has made the enterprise attractive and popular among small, medium, as well as large scale poultry farmers. The poultry industry has become a diverse industry with a variety of business interests such as egg production, broiler production, hatchery, and poultry equipment business (Oluyemi and Roberts, 1979).

Egg production involves the use of good layer birds for the purpose of table egg production. The eggs are sold off fresh to the public while the layers, which are no longer laying eggs well, are culled off from the farm. Broiler production involves the keeping of chickens of heavy meat breeds for the purpose of getting good quality meat products usually sold live or processed at ten to twelve weeks of age.

Poultry are good converter of feed to egg and meat within a short period of time. In the nutritive value, poultry egg rank second to cow milk. Agriculturists and nutritionists have generally agreed that developing the poultry industry of Nigeria is the fastest means of bridging the protein deficiency gap presently prevailing in the country. It is also a promising source of additional income and quick returns from investment (Kekocha, 1994). Poultry can be established with a minimum cost and as a side project.

The objective of this study is to examine and compare the profitability of backyard layers and broilers production in Ondo State, Nigeria, the study is also set to determine the factors affecting backyard poultry production in the study area. Poultry production is one of the most promising sources of addition income to family earnings and increase household protein intake and quick return from micro level investment in Nigeria. Since broiler production is a fast growing agricultural business in developing countries (Laseinde, 1982) profitable production of broiler is essential. The need for this study can therefore be seen in the desire to increase the level of productivity in poultry production and also to throw more light on the problems associated with chicken (layer and broilers) production in the study area. Hence this study is aimed at serving as a useful guide to poultry farmers, policy makers and as basis on which chicken production program can be built.

Materials and Methods
The study was carried out in Ondo State. The State lies between Longitudes 4° 30' and 6° 60' East of Greenwich meridian and latitude 5° 45' and 8° 15' North of the Equator. Agriculture is the main occupation of the people providing income and employment for over 75% of the population of the State. The people in the state are mainly farmers who engage in food and cash crops production and marketing. The people in the state also venture into animal rearing such as poultry, piggery, dairy and fishing.

For this study, multistage sampling technique was used to select the respondents. Firstly, two Local Government Areas (LGAs) namely Ondo West and Owo LGAs were purposively selected because of the large population of poultry producers in the area. Secondly, random sampling technique was used to select the respondents (Poultry farmers). Forty-six poultry farmers (Twenty-three layers and twenty-three broiler farmers respectively) were randomly selected in each LGA. A set of 23

questionnaires was administered to layer farmers and another set of 23 to broiler farmers from each LGA making a total of 92 questionnaires.

The data used for this study are both primary and secondary. Primary data were collected through the use of structured questionnaire and interview schedule administered to the poultry producers selected in the study area. The secondary data were collected from publications of the Central Bank of Nigeria (CBN), Libraries, Magazines, Bulletins and Journals.

Data analysis was done using descriptive statistics such as frequency distribution, means and percentages. The farm budgeting analysis was also used to analyze the data in addition to econometrics techniques using production functions.

Farm budgeting model was constructed to determine (and compare) the profitability of layer and broiler production. This is the difference between the Gross Revenue and Total Cost of Production. Total Cost of production is the total expenses incurred during the production period. It includes Variable and Fixed costs. It is expressed as

$$NP = GR - TC$$
Where NP = Net Profit, GR = Gross Revenue,
TC = Total Cost of Production i.e.
Fixed Cost + Variable Cost.

In estimating the parameters of socio–economic characteristics, the explicit production function relating income realized from the sales of layer or broiler (Y) to some explanatory variables (X_i) was expressed. The multiple linear regression model was adopted as it gave the best fit. It is as follows:

For Layer:

$$y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + U_i$$

Y   =   Gross Income realized in layer production (Naira)
X_1 =   Age of respondent (years)
X_2 =   Educational level (years of formal schooling)
X_3 =   Major Occupation (1 = farming, 0 = otherwise)
X_4 =   Initial Stock (number)
X_5 =   Cost of feeding (Naira)
X_6 =   Veterinary Cost (Naira)
X_7 =   Age at laying (months)
U   =   Error term

For broiler:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + U_i$$

Y   =   Gross Income realized from broiler production (Naira)
X_1 =   Age of birds at stock (weeks)
X_2 =   Cost of broiler at stock (Naira)
X_3 =   Cost of feed (Naira)
X_4 =   Veterinary cost (Naira)
X_5 =   Cost of equipment used (Naira)

X_6 =   Age of respondents (years)
X_7 =   Educational level of respondents (years of formal education)
X_8 =   Family members involved in poultry production (number)
X_9 =   Years of poultry production experience (years)
U   =   Error term.
Where b_0 =   Intercept or constant
B_i =   Parameter estimates

The estimated functions were tested as regards their effects and statistical significance of all independent variables using R^2, Student's t and F − value.

Results and Discussion

Majority of the respondents were male (73 .9 % and 78.36% for layer and broiler producers respectively). Thus more males were involved in poultry production than females. Over 70% of the respondents were less than 50 years old for both categories of producers. Few of them were above 60 years of age. The mean age for layer and broiler farmers was 41.3 and 44.7 years respectively. Majority (78.3 % and 73.9 for layers and broiler producers respectively) are married. Those that were single were about 19.6% for both categories of producers. The farmers could therefore be expected to make rational decision since they may be relying on the farm to provide for their family members. Education is important for the adoption of new innovations. All the respondents had one form of western education or the other. Majority (80.4%) of the layer farmers had tertiary education while 65.20% of broiler farmers had tertiary education. About 19.6% of layer farmers had secondary school education as against 30.40% of broiler farmers who had secondary school education.

Most (69.57%) of the layer producers engaged in farming as a major occupation while some of them were civil servants. Few (4.35%) of the layer farmers are self-employed. Majority (60.9%) of the broiler farmers engaged in crop farming as the main occupation while some (19.6%) engaged in civil service. Some (17.4%) of the broiler farmers were self-employed. This implies that poultry producers normally engage in other secondary occupation.

Majority (73.9% and 78.3%) of the layer and boiler farmers respectively had less than ten years poultry production experience while some (26.1% and 21.7%) of the layers and broilers producers respectively had over ten years of poultry production. On management practices, many (41.3%) of the layer farmers reared poultry on deep litter system while majority (73.9%) of the broiler farmers reared broilers in deep litter system. About 58.7% of the layer farmers reared birds using battery cage system while 26.1% of the broiler farmers reared broilers on battery cage system. This may be because battery cage system makes for easy collection of eggs, supply of water and feed and safety of the eggs.

Cost and return analysis in poultry production

Table 1:   Cost and Return Analysis in Poultry Production Per bird per annum

	Layer production Amount (N)	Broiler Production Amount (N)
A. Variable Cost		
Cost of Stock	186.29	129.85
Veterinary cost	35.08	26.84
Cost of Feed	2145.97	395.79
Labour Cost	1640.96	87.00
Total Variable Cost	4008.30	639.48
B. Fixed Cost		
Depreciation cost	38.48	13.20
Total Fixed Cost	38.48	13.20
Total Production Cost	4046.78	653.68
C. Total Revenue	4481.29	747.39
D. Gross Margin	472.99	107.91
E. Net Profit	434.51	94.71
F. Net Profit Per broiler for (4) cycles		374.84

Source: Field Survey, 2004.

All the farms had an average of four (4) production cycles of broiler within one production cycle of layers enterprise. Table 1 shows that total production cost per layer in the study area was N4046.78 while the total revenue per layer was N4481.29. The analysis also shows that layer farmers earned an average of N434.51 as net profit per Layer. For broiler production, the total production cost Per bird was N653.68 while the total revenue per broiler was N747.39. The profit per broiler was N 94.71. This result is in agreement with Oluyemi and Roberts (1979); Coy (1982) and Laseinde et al. (2005). Hence, the profit per broiler for the four production cycles spread within one production of layer cycles was N374.84. The profit analysis revealed that layers production business was more profitable than broiler production business.

Production function analysis for poultry production

Table 2: The Estimated Production Function For Layer Production in the Study Area

Variables	Coefficient	T- Value
Constant	-7002807.000	-
Age	0.093	6.01*
Education	0.075	0.589
Major Occupation	1.152	0.826
Initial Stock	0.009	2.843*
Cost of Feeding	-0.026	2.144*
Cost of Vaccination	-0.420	3.21*
Age of laying	-0.006	4.051*

R^2 = 0.78, F = 5.18*, Source: Field Survey 2004.
* Significant at 5% level.

The R^2 for the estimated regression implies that 78% of the variation in the revenue from sales of layer is explained by the explanatory variables. In contrast to Leslie and Nesheim (1967) who said that egg production is determined by size of business, efficiency in the use of labour, and egg yield per hen, this study observed that Initial stock, cost of feeding and veterinary cost are the major determinants of the level of revenue from layers production in the area. Initial stock also had a positive and significant relationship meaning that the higher the number of birds, the higher the number of eggs in monetary terms. Thus a change in the quantity of initial stock of layer will increase gross income from layer production. Cost of feed had a negative coefficient which mean that the higher the output the lower the cost of feeding per bird. This implies that the cost of feed per bird for large flock will be lower compared to cost of feed per bird for small flock especially if the feed is purchased in bulk directly from the depot and fed to the birds according to prescription.

Veterinary cost had negative coefficient, which implies that the average cost of vaccination for large flock will be lower than average cost of vaccination per bird for small flock. Age at laying has a negative but significant coefficient, which means that the older the bird at laying the lower the output.

Table 3: Estimated Production Function For Broiler Production In The Study Area

Variable	Coefficient	t-value
Constant	-	-
Age of broiler at Stocking	0.060	0.547
Cost of broiler at Stocking	0.041	0.362
Cost of Feed	1.113	5.464*
Veterinary cost	-0.150	2.020*
Cost of equipment used	-0.256	1.569
Age of respondent	-0.245	2.828*
Education level	0.014	0.223
Family member involved	0.014	0.489
Production experience	0.031	2.348*

R^2 = 0.88, F = 8.61*, Source: Field Survey, 2004

From Table 3, cost of feed, veterinary cost, age of respondents and broiler production experience were the major determinants of income from broiler production. With a significant F- value of 8.61, it implies that all variables considered influenced the income from boiler production. The R^2 for the estimated regression was 0.889 this implies that about 89% of the variation in the revenue from sales of broiler is explained by all the explanatory variables. Cost of feed had positive and significant regression coefficient, which implies that the higher the quantity of feed, the higher the revenue from broiler production. Earlier woks such as Adesimi, (1988) and Emenyonu et al. (2005) are in agreement with the findings in this study regarding feed cost. Veterinary cost had a negative but significant relationship with income from broiler production, which means that the higher the

output, the lower the veterinary cost per bird. In other words, the veterinary cost per bird for large flock will be lower than for few flocks. Age of respondents had a negative but significant coefficient with revenue implying that younger producers tend to derive more revenue from broiler production than the older farmers. Production experience had a positive significant regression coefficient. Meaning that the more experience the broiler producer is, the high the output, other things being equal.

Conclusion: The study examined the profitability of Poultry production in Ondo State. A total of 92 Poultry farmers were selected from two LGAs in the State and used for the study. The study revealed that backyard poultry production (Layers and Broilers) is a profitable venture in the study area. Layers production was observed to be more profitable than broiler production. Factors affecting the production of poultry (broilers and layers) in the area included age of poultry producer, cost of feeding and veterinary cost while for broilers they included production experience. Maize is a major component of feed production in Nigeria. Therefore to reduce total cost of poultry production, fertilizer subsidy should be increased to boost maize production. Incentives such as free import duties on drug components should be put in place to increase vaccine production. Young people should be encouraged to go into poultry production to stem the tide of rural-urban migration in Nigeria.

Acknowledgement

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