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ANALYSIS OF THE PROFITABILITY OF BROILER PRODUCTION IN CHIKUN LOCAL GOVERNMENT AREA OF KADUNA STATE, NIGERIA.

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ABSTRACT

The study focused on the analysis of profitability of broiler production in Chikun Local Government Area of Kaduna State, Nigeria**.** A combination of purposive and random sampling techniques was used in selecting one hundred and thirty-seven (137) respondents. Primary data was collected through the use of structured questionnaire and analyzed using descriptive statistics and farm budgetary techniques. The results of the socio-economic characteristics of the respondents revealed that majority (61%) of the respondents were male with the mean age of 40 years. The broiler farmers were having one form of education or the other with a flock size of 50-250 birds. On the average, the sum of ₦512,744.00 was realized from the sale of birds and droppings with investment of ₦ 276,202.6 as the cost in broiler production. Net farm income of ₦ 236541.4 and return per naira investment of ₦ 2.17 were realized**.** Consequently, the cost of feeds constituted the highest (49.7%) contribution to the variable costs of broiler production with the cost of water being the lowest in the study area. It was concluded that broiler production in the study area was profitable. It is therefore, recommended that since the cost of feeds contributed the highest to variable cost of production, government, poultry association and NGOS should provide adequate extension and support services to broiler producers with the view of training them on how to compound their own feed in order to reduce the cost of feeds.

Keywords: Analysis, Profitability, Broiler Production

INTRODUCTION

Nigeria is the second largest chicken population in Africa comprising of about 180 million birds. Of these, 80 million chickens are raised in extensive systems, 60 million in semi-intensive, and the remaining 40 million in intensive systems. Poultry production in Nigeria amounts to 300 metric ton of meat per year with about 85 million Nigerians engaged in poultry production (many on a small to medium scale). In 2019, production of poultry meat for Nigeria was 239,947 tons. Production of poultry meat of Nigeria increased from 56,700 tons in 1970 to 239,947 tons in 2019 growing at an average annual rate of 3.26% (knoema.com, 2019). Poultry meat is a good source of high quality protein, minerals and vitamins to balance the human diet (Adeniran *et al.,* 2018). Broiler production is an important enterprise in the poultry subsector in Nigeria (Osuji, 2019). It has incredible potentials for expanding protein supply because of the fast growth rates and productivity of the animal (Omolayo, 2018). Broiler production is carried out in all parts of the country, with no known religious, social or cultural inhibitions associated with their consumption. Broiler farming can be a main source of family income or can provide subsidiary income and gainful employment to farmers throughout the year depending on the farm size (Nwigbo *et al.,* 2016).

The value of broiler production cannot be overemphasized. It not only provides the greatest potential of bridging the protein

deficiency gap in the country, but it is also an enterprise that can yield adequate return which ultimately increase the household income of the poultry marketers. The popularity of chicken production can be explained by the fact that chicken has many advantages over other livestock, chickens are good converters of feed into useable protein in meat, the production costs per unit remain relatively low, and the return on investment is high. Farmers need a relatively small amount of capital to start a poultry farm. Consequently, this study focused on analysis of profitability of broiler production in Chikun Local Government Area of Kaduna State, Nigeria.

METHODOLOGY

Study area

The study was conducted in Chikun Local Government Area of Kaduna State. The State is located between latitude 9˚ 03' and 11˚ 32' North of the equator and longitudes 6˚ 05' and 8˚ 38' East of the Greenwich Meridian (Kaduna State Agricultural Development Agency KADA, 2007; Kaduna State Government, KSG, 2015). The State has a total land mass of 46,053 square kilometre (KSG, 2015) with a population of 6,113,503 people as at 2006. The projected population of the state is put at 9,476,054 people in 2021 at a growth rate of 3.18% per annum. It shares boundaries with 5 other local government areas within the state, namely, Birnin Gwari to the northeast, Kaduna North and Igabi to the north, Kajuru to the east and Kachia to the South. Chikun is bordered to the west by Niger State.

Annual rainfall ranges between 850mm to 1200mm. The mean monthly temperature varies between 20°C and 29°C, depending on the season, but may increase up to 35°C at the end of the dry season (Ishaya and Abaje, 2008; Abaje *et al*., 2015). The area witnesses two major seasons (dry and rainy seasons). The dry season starts from October-April while the rainy season commences in May and climaxes in September. The area is drained by a network of rivers. The drainage pattern is dendrite and the streams are all subject to seasonal water level fluctuations.

Agriculture, traders and civil servants are the economic mainstay of the dwellers of Chikun LGA with a variety of crops grown in the area; other important economic enterprises in Chikun LGA include pottery, mat making and cloth weaving. The area also has a vibrant trade sector and is home to several markets. They also reared livestock such as goats, sheep, pigs, cattle and poultry. The people of the state are engaged in broiler enterprise activities ranging from small-scale, peri-urban operators to very large, vertically integrated facilities. The state is also known to have a large chicken market which is reputed to be the biggest in Northern Nigeria (Sabiu, 2018).

Sampling procedure and sample size

A combination of purposive and random sampling techniques was used to select the sample size for this study. Reconnaissance survey was conducted in 2020 by the researcher with the help of an extension agent. A list of broiler producers was produced and the list was adopted for the study. Firstly, Chikun Local Government Area was purposively selected based on high volume of broiler production. Then, two (2) wards were randomly selected, these wards are Nasarawa and Kakau. One hundred and thirty-seven (137) broiler producers were selected by probability proportional to population size, based on the formula of Yamane (1967). The formulae are given as follows:

$$n = \frac{N}{1+N(\alpha)^2}$$

Where,

n = Sample size,

N = Population size (Sampling Frame) and

e = Significance level (0.05)

$$n = \frac{209}{1+209*(0.05)^2} = 137.27$$

Data collection

Primary data were collected with the aid of well-structured questionnaire by the help of trained field enumerator under the supervision of the researcher. Information was collected on; socio-economic characteristics of the broiler producers such as age, household size, educational qualification, number of years in broiler production, flock size, source of credit, input availability and price. Inputs and outputs information were also collected.

Analytical techniques

Descriptive statistic was used to achieve the socio-economic characteristics of the broiler producers. Net farm income (NFI) was used to measure the profitability of broiler production. Gross income or revenue was computed from the quantity of output of broilers sold, droppings and cost of empty bags of feeds used. The total variable cost comprises of costs of birds or chicks, purchase of feeds, drug and vaccines, transportation cost, bulb, broom and labour while the fixed cost was the rental cost of broiler house, equipment, and water source (Olukosi and Erhabor, 1988; Kainga and Seiyabo, 2012). NFI is given as follows:

$NFI = TRTC$ ... ... (1)

Where

NFI = net farm income,
TR = total revenue, while
TC = total cost of production
$TC = TVC + TFC$ ... ... (2)

TVC = Total variable costs
TFC = Total fixed cost
NFI = Net Farm Income
ROI = Return on Investment???

RESULTS AND DISCUSSION

Socio-economic characteristics of broiler producers in the study area

The results of the socio-economic characteristics of broiler producers is presented in Table 1. It showed that about 40.9% of the respondents were within the age bracket of 25-35 years while 2.2% of them were above the age of 69 years with the mean age of 40 years. This implies that broiler producers were within the active working age bracket. These producers were particularly young people who could afford to venture into the poultry business which is known to be characterized by risks such as disease, fire outbreak and theft. This finding agrees with the findings by Folawole *et al.* (2014) who reported a mean age of 44 years for broiler farmers in Nigeria.

It was found that about 42% of the producers had household size of 1-3 persons, while only 2% had 10-12 person with a mean of 4 persons. The implication of this is that large household size contributes to family labour. Most of the studies that confirmed large house size among the farming households where they see family size as a work force that supply the most needed labour requirement for broiler production activities (Emaikwu *et al.*, 2011).

It can be deduced that majority (48.9%) of producers had tertiary education, while those who had only secondary and primary education were 27.7% and 1.5%, respectively. This indicates that about 95% of broiler farmers were literates. Education is very important in the management of broiler birds as it affect the various activities. The high literacy level would afford a person the opportunity to understand and adopt modern production practices thereby enhancing productivity and profitability. This finding is similar to findings by Ezeh, Anyiro and Chukwuji (2012) who stated that the level of educational attainment increases productivity and enhances capacity development to understand and evaluate new production technologies.

Majority (76%) of the producers had between 1-5 years of experience in broiler production while only 2.9% had between 21 years and above experience. The mean years of experience was found to be 9 years. This suggests that the majority of the broiler producers in the study were new entrants into the business. However, it is expected that their productivity will increase

as they advance in the activities with years of experience (Umar, 2013). The longer the years of production experience, the more the knowledge acquired, the more efficient the producer will be. Experienced broiler producers are likely to make better decisions to enhance productivity and increase income. This is because experience usually determines the effectiveness of farmers' decision with respect to inputs combinations or resource allocation.

It was discovered that majority (64%) of the broiler farm stocked less than 250 birds while only 3% kept above 650 birds. It implies that broiler production in the study area, is dominated by small-scale farms (Netherlands Enterprise Agency (RVO), 2020). The dominance of small-scale farmers is attributed to the high cost required to operate large scale enterprise and inadequate capital associated with production.

The result of the source of credit revealed that (49.6%) of the broiler farmers used their personal savings for the business. This personal savings possibly might have been accumulated over time and from sale of their broilers or other businesses. This is closely followed by relatives and friend as asserted (24.2%), while 10.9% got credit from money lender. Access to credit is one of the major determinants of outputs and profitability of producers.

Table 1: Socio-economic characteristics of broiler producers in the study area

Age	**Frequency**	**percentage**
25-35	56	40.9
36-46	35	25.5
47-57	33	24.1
58-68	10	7.3
69 and above	3	2.2
Total	**137**	**100**
Mean	**40**	
Standard Deviation	**12.045**	
Household Size		
1-3	57	41.6
4-6	44	32.1
7-9	34	24.8
10 and above	2	1.5
Total	**137**	**100**
Mean	**4**	
Std. Deviation	**3.02505**	
Educational Level		
No formal education	7	5.1
Qu'ranic education	11	8

Adult education	12	8.8
Primary education	2	1.5
Secondary education	38	27.7
Tertiary education	67	48.9
Total	**137**	**100**
Broiler production Experience		
1-5	104	76
6-10	18	13.1
11-15	7	5.1
16-20	4	2.9
21 and above	4	2.9
Total	**137**	**100**
Flock Size		
Less than 250	88	64.2
250-449	25	18.2
450-649	11	8
650-849	4	2.9
850 and above	9	6.6
Total	**137**	**100**
Source of Credit		
Cooperative	5	3.6
Commercial bank	10	7.3
Bank of Agriculture	2	1.5
Relative/friend	33	24.2
Money lender	15	10.9
Donor agency	4	2.9
Others (Personal savings)	68	49.6
Total	**137**	**100**

Source: Field survey 2020

Profitability of Broiler Production in the Study Area.

The result of the profitability of broiler production is presented in Table 2. An average of ₦512,744.00 was realized from the sale of birds and droppings. However, an average of ₦276,202.6 was invested as the cost incurred in broiler production with a net return of ₦236541.4. The return per naira investment of 2.17 was realized**.** On the average, it implies that a profit of 1 naira, 17 kobo for every naira was realized. In addition, costs for feeds and birds accounted for 49.7% and 40.0% of the total variable costs, respectively. The cost of feeds constituted the highest (49.7%) contribution to the variable costs incurred in broiler production. The lowest cost incurred by the farmers in the study area was the cost of water, this is because most producers have boreholes while others acquire their water from government taps. This finding agrees with the findings of Oluwatayo, Machethe and Senyolo (2016) who also stated that broiler production is profitable in the study area.

Table 2: Estimate of the profitability of Broiler production

Variables	**Average value(₦)**	**Contribution (%)**
Sales of bird (kg)	509771.9	99.42035
Sales of dung (kg)	2972.131	0.579652
Total Revenue (TR)	512744	
Variable costs:		
Cost of birds or chick	102540.9	40.03712
Purchase of feeds	127295.6	49.70262
Vaccine	3271.168	1.277229
Transportation cost	787.4074	0.307443
Bulbs and broom cost	1676.715	0.654674
Labour cost	18304.38	7.146951
Miscellaneous	2238.343	0.873962
Total variable cost (TVC)	256114.5	
Fixed cost depreciated		
Equipment	14245.25	70.91397
Water source (well, tap)	720	0.260678
Housing	5122.824	2.165719
Total fixed cost (TFC)	20088.07	
Total cost (TC)	276202.6	
Net Farm income (NI)	236541.4	
Return per naira invested	2.17	

Source: Field survey 2020

CONCLUSION

Based on the findings of this study, it is concluded that broiler production in the study area is profitable.

RECOMMENDATION

Since the cost of feeds contributed the highest to variable cost of broiler production, it is therefore, recommended that the government, poultry association and NGOs should provide adequate extension and support services with the view of training the broiler producers on how to compound their own feed in order to reduce the cost of feeds.

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