

COST AND RETURNS ANALYSIS OF POULTRY EGG PRODUCTION IN UNGOGO LOCAL GOVERNMENT, KANO STATE, NIGERIA

S.A. Abdullahi*, A. M. Yaro, A. U. Shu`aib and K. Y. Abdullahi

Department of Agricultural Economics and Extension, Kano University of Science and Technology,
Wudil, Kano State, Nigeria

*Corresponding author Saada A. Abdullahi, E-mail address: saadahabba@yahoo.com

ABSTRACT

This study examines the cost and returns of poultry egg production in Ungogo local government area, Kano State. Specifically, the study investigates the profitability and problems of poultry egg production in the area. Primary data were used for this study. Data were obtained from 31 farmers purposively selected from the study area. Data were analysed using descriptive statistics and farm budgetary techniques. Empirical estimates of the gross margin (₦655602.8), net revenue (₦628305.63), gross ratio (0.94), operation ratio (0.93), fixed ratio (0.0028) and return per naira invested (1.0693) showed that poultry egg production is profitable in the study area. However, the results suggest low return because the farmers earned profit of less than 7% of their total investment. Lack of extension services, high cost of inputs and price instability were found to be the major problems associated with poultry egg production in the study area. The establishment of functional poultry egg producer's cooperative societies is recommended in the area to help minimize the cost of inputs. Also, extension services should be increased to teach and properly guide poultry farmers on how to improve egg production and profitability.

KEYWORDS: Cost and Returns, Poultry, Egg Production

INTRODUCTION

One of the important challenges in Nigeria is to increase food production to meet the demand of the growing populace and improve their living standard. In addition, Nigeria is characterised with high protein deficiency due to its rapid population growth, low productivity in the agricultural sector, rural-urban migration and decline in productivity of the livestock sub-sector (Abubakar, 2000). Ojo (2003) noted that, widespread hunger and malnutrition has become evident in the food requirement of the country. According to the Food and Agriculture Organisation (F.A.O), the total amount of animal protein consumed daily by an average Nigerian like in most developing countries is below average (F.A.O, 2009). Poultry is one of the major sub-sectors in the Nigerian agricultural industry that can be embarked on because it can serve both as a good source of food and protein, and means of improving livelihood by providing income to many farmers in the country.

Poultry egg production supply protein, lipids and vitamins of high zoological value to man (Bamiro et al, 2006). Egg is recognized among the best ways of bridging the gap for protein deficiency in the country (Jatto et al, 2012); it supplies good quality animal protein for human consumption to fulfill their nutrient requirement, because every part of an egg is useful for one thing or the other (Daokinai, 2008). It is a good source of vitamin A, which protects against night blindness and prevents skin infections (Binuomote et al 2008), and provides high energy nutrients (Oladeebo, 2012). Poultry egg production is also a fast means of providing income to both farmers and non-farmers because it requires little capital and provides quick return on investment.

Today, the poultry sector contributes over 25 per cent of Nigeria's Agricultural Domestic Products. The country is rated as the number one egg

producing nation in Africa, and the fourth in broiler meat production, besides South Africa and some countries of North Africa (Poultry Site, 2013). In 2011, Nigeria produced 553,000 metric tonnes of eggs and 708,000 metric tonnes of broiler meat (Poultry Site, 2013). However, there is still wide disparity between supply and demand of eggs in the country, and in turn causes an increase in prices and importation; which has great consequences on the Nigerian economy. The growth of the poultry sector has been militated by many factors such as the negligence of government on the sector which has made it remain chiefly primitive (Abdullahi, 2011). Many poultry producers operate below installed capacities and at a loss due to high cost of basic raw materials which reduced the net returns from investment. Adepoju (2008) opines that, the high cost of feed, disease and marketing problems has made it difficult for existing firms to expand while new ones are reluctant to enter into the business. Bamiro et al (2006) noted that, as a result of these and other factors the price of egg and other poultry products has been priced beyond the reach of most Nigerians. Other factors include poor quality of day old chicks, inadequate extension and training facilities (Bamgbose, 2008), high interest rate charged by commercial banks, high electricity tariff, poor infrastructure, and multiple taxes by the relevant authorities (Poultry Site, 2013).

Several studies have investigated the cost and returns of poultry egg production in Nigeria (see Abubakar, 2000; Hassan et al, 2004; Evbuomwan, 2005; Adepoju, 2008; Bamiro et al, 2009; Abdullahi, 2011; Tijjani et al, 2012; Oladeebo, 2012). However, to the best of our knowledge there is no previous study that has been conducted in Ungogo local government area of Kano State.

The study area has vast amount of land and potential of accommodating poultry egg production business due to its proximity to the city of the state and relative low cost of land. Nevertheless, there is little participation of people in poultry business in the study area. The objective of this study is to investigate the cost and returns of poultry egg production in Ungogo area of Kano State. The study is important to the government, financial institutions, farmers as well as other participants that are interested in poultry production. For the government, it can provide information that can be used in policy intervention. For farmers, it will enable them to understand their return on investment so that they can manage their market risks. The study can also provide more light to interested participants on the prospects potential of the whole business because it shows the actual level of profitability and performance of the major inputs.

MATERIALS AND METHODS

Study Area

Ungogo is located between latitude 12°11'N and 12° 14'N and longitude 7° 38'E and 8° 38'E. The study area lies within the Sudan savannah of the country's vegetation with amount of rainfall ranging between 850mm to 900mm (Olofin et al,

2008), and minimum and maximum temperature of 10°C and 38°C, respectively (KSLG, 2008). According to the 2006 National population census, the study area had estimated population of 369,657 (NPC, 2006), and the predominant ethnic groups are Hausa and Fulani. The major preoccupation of the people is crop production basically; guinea corn, rice, millet, cassava, maize while other economic activities include trading and livestock (KSLG, 2008).

Sampling Technique and Sample Size

Purposive sampling technique was used, where a total of 31 farmers were selected in the study area. The sample size was small because only 41 poultry egg farmers were registered out of which only 31 farms were functioning in the study area.

Method of Data Collection

Primary data and secondary data were both used for this study. The primary data were obtained through structured questionnaire from the selected poultry farmers in the study area while the secondary data were obtained from books, journals and other related literature.

Method of Data Analysis

Descriptive Statistics

Descriptive statistics such as the frequency and percentages were used to analyse the data collected on the problems of poultry egg production in the study area.

Farm Budgetary Techniques

Gross Margin

$$GM = GFI - TVC \dots\dots\dots 1$$

where: *GM* = Gross Margin, *GFI* = Gross farm income, *TVC* = Total Variable Cost.

$$GFI = (P_y \times Q_y + P_x \times Q_x + P_z \times Q_z) \dots\dots\dots 2$$

where

P_y = Average farm gate unit price of output (egg)

Q_y = Average quantity of output (crates of egg)

P_x = Average farm gate unit price of output (spent layer)

Q_x = Average quantity of output (spent layer)

P_z = Average farm gate unit price of poultry litters in ₦ /bag

Q_z = Average quantity of poultry litters

$$TVC = (P_1X_1 + P_2X_2 + P_3X_3 + P_4X_4 + P_5X_5 + P_6X_6 + P_7X_7 + P_8X_8 + U_c) \dots\dots\dots 3 \text{ where,}$$

P₁ = Average unit market price of layer mash (₦/25kg)

X₁ = Average quantity of layer mash (kg)

P₂ = Average unit market price of layer mash (₦/kg)

X₂ = Average quantity of chick mash (kg)

P₃ = Average unit market price of grower mash (₦/kg)

X₃ = Average quantity of grower mash (kg)

P₄ = Average unit market price of medication and vaccines (₦/ vial)

X₄ = Average quantity of medication and vaccines (vial)

P₅ = Average unit price of labor (₦/ man-day)

X_5 = Average quantity of labor (man-day)

P_6 = Average unit market price of water (₦/liter)

X_6 = Average quantity of water (liter)

U_C = Average utility cost in (₦)

Net Income

$$NI = TR - TC \dots\dots\dots 4$$

where, NI = net income, TR = Total Revenue and TC = Total cost.

$$TC = FC + VC \dots\dots\dots 5$$

where, FC = fixed cost and VC = variable cost of production. Following Bamiro et al (2009) annual depreciation value of each farm asset was calculated using the straight line method thus:

$$\text{Annual Depreciation Value} = \frac{\text{Cost Price} - \text{Salvage Value}}{\text{Life Span}}$$

Financial Ratios

The following financial ratios were

calculated to measure profitability of poultry egg production:

$$OR = \frac{TVC}{GFI} \dots\dots\dots 7$$

where, OR = operational ratio, TVC = total variable cost and GFI = Gross farm income

$$FR = \frac{TFC}{GFI} \dots\dots\dots 8$$

where: FR = fixed ratio and TFC total fixed cost

$$GR = \frac{TCP}{GFI} \dots\dots\dots 9$$

where, GR = gross ratio and TCP = total cost of production

$$RNI = \frac{GFI}{TCP} \dots\dots\dots 10$$

where, RNI = return on investment

RESULTS AND DISCUSSION

Cost and Returns analysis

Table 1 presents the cost component of poultry egg production in the study area. The results indicate that the total cost of production invested by an average poultry egg farmer was ₦9,061,894.17 in the study area. For the variable cost of production, the feed cost reported was ₦5,961,609, constituting about 65.77% of the total cost of production. The results show that the feed cost is the highest proportion of the production cost supporting the findings of Bamiro et al (2009), Tijjani et al (2012) and Oladebo and Ojo (2012). Labour cost was ₦2,222,518, accounting for 24.6% of the total cost in poultry egg production. This implies that labour cost is high in the study area and the reasons may be because farmers used excess veterinary consultations services or due to increase in the cost of labour. The investment on birds stock, water and medication and vaccines were ₦728,985, ₦75,632 and ₦33,330 which accounted for 8.05%, 0.84% and 0.38% of the total cost of production respectively. The value of water usage reported shows its availability and low price in the study area. Other variable costs of production reported constituted 0.14% of the total cost of egg production. The results of the investment on total fixed cost of production are reported in Table 1. The depreciation cost for wheel barrow are (₦15925.05), drinkers

(₦3678.407), feeders (₦2752.516), rakes (₦351) and scale (₦331.7849), accounting for between 0.004% to 0.03% of the total cost of production respectively. The generator cost was low ₦3106.695, accounting for only 0.03% of the total cost which suggests availability of electricity power in the study area. The results indicate that the total fixed cost constituted of 0.4% of the total cost of production in poultry egg production in the study area. The estimates of the costs obtained were then used to compute the cost and returns of poultry egg production in the study area. Table 1 presents that the gross income and gross margin of an average poultry egg farmer were ₦9,690,199 and ₦655,602.8, respectively in the study area. The results indicate that the farmers received return on their investment. The net income estimated was ₦628,305.63 which show that the return per naira invested was ₦1.0693. The results imply that the egg production was profitable in the study area because for each one naira invested the farmer will have return of 6.93%. Table 1 also reports the estimated results of the financial ratios. The estimated value of the operational ratio was 0.93, implying that the enterprise is financially viable and profitable. The gross ratio was 0.94, indicating that the poultry egg farmer earned 6% return from the total cost of production.

The result of the fixed ratio indicates 0.0028, implying that the investment on fixed asset was very low and insignificant. In sum, the results from the budget analysis indicate that poultry egg production is profitable in line with Rajendran and Mohanty (2003), Hassan et al (2004), Adepoju (2008), Bamiro et al (2009) and Tijjani et al (2012).

Problems of Poultry Egg Production

Table 2 reports the results of the problems associated with the productivity and profitability of poultry egg production in the study area. The problems of poultry egg production were divided in this study into management; input supply, diseases, and marketing problems. The results show that lack of extension services, poor weather condition and lack of adequate capital were the management problems indicated by 29%, 25% and 22.6% of the farmer's, respectively in the study area. The findings suggest that extension services should be increased because it

can enable the farmers to access relevant information that will increase their productivity and profitability. For input supply problem, the results indicate that 64.5% of the farmer's agreed with high cost of inputs, 22.6% with the supply of expired vaccines and 9.69% with inadequate supply of the inputs. This implies that high cost of inputs is the major input supply problem in the study area which can lead to poor utilization of resources and low production. Newcastle, Coccidiosis, Fowl typhoid and others not mentioned were the major diseases indicated by 64.5%; 16.13%, 12.9% and 6% of the farmers respectively. Lastly, the results indicate that 51.6% of the marketing problems was caused by price instability, 12.9% poor road network, 3.2% lack of enough capital and 29% other difficulties encountered in marketing activity in the study area. Price instability was the major marketing problem which can lead to serious loss in business and reduced confidence in investment.

Table 1. Estimated Results of Costs and Returns of Poultry Egg Production

Items	Amount(₦)	Total Cost (%)
Variable costs		
Feeding	5,961,609	65.77
Labour	2,222,518	25.5
Water	75,632	0.88
Stocking	728,985	8.05
Medication and vaccines	33,338	0.38
Other costs	12,515	0.09
Total variable cost	9,034,597	
Fixed costs		
Housing	15,925.05	0.18
Wheel barrow	1,151.71	0.018
Drinkers	3,678.41	0.4
Feeders	2,752.52	0.03
Rakes	351	0.004
Scale	331.7849	0.004
Generator	3,106.70	0.03
Total fixed cost (depreciation)	27,297	
Total cost	9,061,894	
Revenue		
Eggs	70,929,589	
Spent layers	117,738	
Poultry litter	141,993	
Total revenue	9,690,199	
Profitability indicators		
Gross margin	655,602.8	
Net revenue	628,305.63	
Gross ratio	0.9400	
Operation ratio	0.9300	
Fixed ratio	0.0028	
Return per naira invested	1.0693	

Source: Field Survey, 2011

Note: ₦ represents Nigerian naira

Table 2. Problems of poultry egg production

Problems	Frequencies	Percentage
Management		
Lack of capital	7	22
Poor weather condition	8	26
Lack of training	9	29
None of the above	7	22.4
Input supply		
High cost of input	20	64.5
Expired vaccines	7	22.6
Unavailability of input	7	9.67
None of the above	1	3.23
Disease		
Newcastle	20	64.54
Coccidiosis	5	16.13
Fowl typhoid	4	12.9
None of the above	2	6.5
Marketing		
Price instability	16	51.6
Poor road network	4	12.9
None of the above	9	32.3
Total	31	100

Source: Field Survey, 2011

CONCLUSION

This study investigates the cost and returns of poultry egg production in Ungogo local government area of Kano State. The results show that poultry egg production is profitable in the study area because an average farmer earned a profit of 6.93% on his total investment. Notwithstanding, the earning power of the investment is very low because farmers cannot profit with a credit/loan having interest rate of 7% or above. Lack of extension services, high cost of inputs and price instability were also found to be the major problems associated with poultry egg production in the study area.

The study recommends that cooperative society should be established for poultry egg producers in the study area because their working together will assist in reducing cost of inputs and veterinary services, and facilitate the marketing activities of their product. Private individuals should also be encouraged to invest in hatchery industry by reliable government policy in relation to risk management for consistence supply of proven breed of poultry egg stocks. More so, extension services should be increase to teach and properly guide poultry farmers on how to improved egg production and profitability.

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