PAT June, 2016; 12 (2): 23-32 ISSN: 0794-5213

Online copy available at www.patnsukjournal.net/currentissue

Publication of Nasarawa State University, Keffi

Profitability of Medium Scale Layer Production in Kumbotso and Nassarawa Council Areas, Kano State, Nigeria.

Yusuf, M.[1] Bello, M. B[2], Ahungwa, G. T.[1] Gama, E. N.[1] Oke, F. O, [3]

Department of Agricultural Economics and Extension, Federal University Dutse, Jigawa State
Department of Agricultural Economics and Extension, Bayero University Kano, Kano state.
Department of Animal Science, Federal University Dutse, Jigawa State
Corresponding author's email: m.yusuf88@yahoo.com; Tel: +234(0)8064991560

Abstiract

The study was conducted to analyse the effectiveness of managing layers from dayold to a maximum period of one year by medium scale farmers in Kumbotso and Nassarawa Local Government Areas in Kano State. Socio-economic characteristics, costs and returns as well as constraints associated with layer production among medium scale poultry farmers were examined. Primary data was obtained from 98 farmers drawn from the study area using multi-staged sampling technique. The major tools used for data analysis include descriptive statistics and costs and returns analysis. The result showed that 68.37% of the farmers were male with the average age of 39 years and six month and 68% married. Significant proportions (98%) were formally educated with 63.27% into full time layer production. Result of costs and returns analysis showed that the Net Farm Income was ₦392, 002.13 for a farmer with 1000 flock and ₦1.11kobos the return per naira invested. High cost of inputs (92.86%), inadequate infrastructure (52.04 %) and Outbreak of diseases (51.02%) were the major constraint to layer production among medium scale poultry farmers in the study area.

***Keyword**: Profitability, Cost and returns, Layer production, medium scale poultry farmers, Nassarawa and Kumbotso*

INTRODUCTION

Livestock production plays a vital role in the economy of all nations. People depend on livestock production for supplies of food, clothing, fuel, fertilizer and draught power to sustain the economy. Livestock farming also serves as a subsidiary occupation to supplement the income of small and marginal farm families (Ekunwe and Soniregun, 2007).Among livestock based vocations, poultry occupies a pivotal position because of its enormous potentials to bring about rapid economic growth (Ekunwe and Soniregun, 2007), (Tijjani*et al.*2015).

Oladeebo and Ambe-Lamidi (2007) reported that poultry production in Nigeria as well as other warm climate countries has a high priority rating compared to other types of livestock because poultry has better energy and protein conversion ratio and that net return on investment are relatively high. Apart from these, poultry products most especially egg and meat are good sources of animal protein and can be used to bridge the wide gap in protein supply to Nigeria's teaming population.

Poultry production has been identified as a means of ensuring sustainable family income for both rural and urban dwellers. It need low capital investment and yet assures quick returns within weeks and months in case of broilers and layers respectively (Ekunwe and Soniregun, 2007). Moreover, poultry can fend for themselves on free ranges without much care and management (Awobajo*et al.,* 2007).

In recent years, eggs and poultry meat have emerged next to milk as a contributor to the output from livestock sector. The percentage contribution of eggs and poultry meat was 4.47 percent in 1951-1952, which reached to a little over 9% in 1995-1996 (RajendraandSamarendu, 2003), while in Nigeria Poultry meat and egg accounted for about 30% of the total livestock output, out of which eggs accounted for over 80% (Tijjani*et al.*2015).

Adejoro(2000) stated that a large proportion of poultry farmers in Nigeria at the early stage of the industries were small-scale holders with population fewer than one thousand birds and they constituted about 65% of the industrial set up. The medium scale farms with population range between 1,000-5,000 birds constituted about 26% and only a meager 9% could be classified as large scale farms being over 5,000 birds in population (Adejoro,2000). OluyemiandRoberts(2000) documented that egg production is the major index of performance of commercial layer production because it accounts for about 90 percent of the income from the enterprise.

For over a decade now, poultry industry has developed tremendously with most people going into small scale, medium scale or large scale poultry production. People either raised these birds on intensive, semi intensive or extensive system, nearly every household keeps poultry. Umeh and Odoh (2002). Kumar and Pandey (1999) opined that egg production is of great economic venture which many poultry entrepreneurs approach with more enthusiasm rather than the actual knowledge of basic poultry production techniques.

Poultry production as an enterprise has increased numerically over the years and this has been attributed to low capital requirement and quick returns or benefits in short term. Profit in poultry keeping depends mainly on a favourable relationship between cost involved in producing poultry products and the income received from the project (Olarinde, 2004). Costs and returns are invariably important consideration in the production process of any enterprise as they are used to determine efficiency and / or profitability of enterprise. Profit in poultry keeping depends mainly on a favourable relationship between cost involved in producing poultry products and the income received from the project (Olarinde and Kuponiyi, 2004).

Therefore, this study intends to unravel the factors affecting profitability of layer production among medium scale farmers in Kumbotso and Nassarawa local government areas and in addition, to describe the socio-economic characteristics of medium scale layer farmers, determine the costs and benefits of layer production among medium scale layer farmers and identify the constraints faced by medium scale layer farmers in the study area.

MATERIALS AND METHODS

The study was carried out in Kumbotso and Nassarawa local government areas (LGAs) in 2009. Kumbotso and Nassarawa LGAs are two of the eight LGAs within Kano metropolis in Kano State Nigeria. The two local government area have a population of about 688,406 people according to the 2006 census and a land mass of about 198sqkm (NPC, 2006). The major tribe is Hausa-Fulani and there are other tribes from different part of the country. Major occupations of the people include trading, crop and livestock farming and some of the educated population work in public or private organizations (Kano State, 2002).

The study employed the use of multi-stage sampling procedure. The first stage involved purposive selection of Kano metropolis where most of commercial poultry production is carried out. The second stage was the purposive selection of two local government areas within the metropolis that have high concentration of commercial layers farmers. The two local government areas selected were Kumbotso and Nassarawa LGAs. Prior to this, a pre-survey was conducted with the assistance of representative of Poultry farmers Association and commercial input sellers to get the available population of medium scale poultry farmers in the area. The last stage was the random selection of 20% of the farmers engaged in medium scale layer production to give a sample size of 98 pooled from Nassarawa (49) and Kumbotso (49).

Primary data were collected from a sample of 98 medium scale layer farmers from a period of April to August 2009 using a structured questionnaire. Primary data were collected to compare the socioeconomic variables of the medium scale farmers, to estimate the cost and returns as well as to find out the constraints in medium scale layer production in the study area. This was supplemented with observational and oral interview. The questionnaire was divided into sections designed to collect information on socio-economic variables, price of input and output. The result obtained from the study were analyzed using descriptive statistics such as tables, percentages and frequencies while farm budgeting analysis was carried out using partial budgeting analysis.

Model Specification: The model for the analysis is specified thus:

The partial budgeting consists of Gross margin (GM) and Net Farm income (NFI) analysis.

GM = GFI – TVC---------- (i)

GFI = $Py_1 \times Qy_1 + Py_2 \times Qy_2$ ---------- (ii)

Where,

GFI = Gross Farm Income

Py_1 = Unit Price of Output One

Qy_1 = Average quantity of output one

Py_2 = Unit price of output two

Qy_2 = Average quantity of output two

TVC = $P_1 X_1 + P_2 X_2 + P_3 X_3 + P_4 X_4 + P_5 X_5$---------- (iii)

Where,

TVC = Total variable cost

P_1 = Unit Price of feed (₦/kg)

X_1 = Average quantity of feed (kg)

P_2 = Unit price of flock size (₦/bird)

X_2 = Average quantity of flock size (birds)

P_3 = Unit price of labour (₦/labour)

X_3 = Average quantity of labour (man day)

P_4 = Unit price of vaccine (₦/vial)

X_4 = Average quantity of vaccine (vial)

P_5 = Unit price of medication (₦/g)

X_5 = Average quantity of medication (g)

NFI = TGM - TCP ---------- (iv)

Where,

NFI = Net Farm Income

TGM = Total Gross Margin

TCP = TFC + TVC

TCP = is obtained by adding the Total Fixed Cost and Total Variable Cost.

RESULTS AND DISCUSSION

The result of the socio economic analysis of the respondents is presented in Table 1 below. From the socio-economic analysis of the respondents, the table shows that the average age of the respondents was 39 years and six month where as the minimum and maximum age was 20 and 62 years respectively**.**This shows that young people are more involved in medium scale layer production in the study area. The study further reflects that the minimum and maximum years of experience of medium scale poultry farmers was 2 and 21 years respectively while the average years of experience was 6 years and 8 month, this implies that majority of the farmers have only carried out two to three production cycle and do not have much experience on the skills of poultry production and may not be able to deal with some challenges that can come up. It is also assumed that gender is important in the cultural settings of the population for the analysis of the data revealed that majority of the poultry farmers were male (68.37%) while female farmers represent only 31.63% of the medium scale poultry farmers' population sampled. This result is consistent with gender role pattern of the society where male play role of household head and also provides for the family. This agreed with Tijjani*et al.* (2015) that male farmers might have many mouths to feed as household heads. They therefore engage more in poultry egg production to supply household foods and other basic needs.

About 81.63% of the total respondents were married while only 15.31% of the respondents were single this signified that married producers would be more relatively stable in their place of farming thus can enhance layer production and also require extra income to carter for their families The result also showed that about 97.96% of the respondents had formal education (61.23%, 29.59% and 7.14% for tertiary, secondary and primary education) with only 2.04% had no formal education. High literacy level will enable the farmers to understand the intricacies of

new technology for production. This in line with the findings of Abubakar (2000) who stated that the ability and readiness with witch a particular producer accepts or rejects an innovation depends on his educational background. The result further highlights that 62.24% of the producers get their income from their poultry farm while 37.76 get their main income from off farm activities.

Table 2 indicated the result of the analysis of the cost and returns accruing to an average medium scale layer farmer with 1000 birds in the study area. The result suggested that an average farmer invested N 4,177,997.87 in the enterprise as the total cost of production. This comprised of the total variable cost and total fixed costs. The variable costs comprised of the cost of feed, flock size, labour, vaccines, medication, kerosene and miscellaneous cost. Cost of poultry feed was ₦3, 740,000 constituted the greatest share of the total cost of production representing 89.52%. This is in congruence with the findings of Effiong and Onyenweaku (2006) that feed cost is the major important single cost item associated with poultry production due to the increase costs of poultry feed ingredients. Also Kumar and Pandey (1999) stated that feed constituted of about 85% of the total cost of production. This shows the importance of feed availability and affordability if poultry production is to be improved and profit maximized. The cost of purchased chicks ₦120, 000 was next in value of the amount invested in layer production accounting for 2.87% of the total cost, this conformed with Adejoro (2002) and Ogundipe and Sanni (2002) that the cost of flock is the second most important in poultry production therefore effort should be made to reduce the mortality rate and ensure high productivity of the birds by sourcing for chicks from disease free hatcheries or from reliable distributors. The cost of labour₦ 90,000 is the third most important cost and account for 2.11% of the total cost of production (Adegbola*et al*., 1990). The fixed cost is the cost incurred on depreciation of building and equipments. The depreciated value of building was ₦ 49, 438.78 and constituted 1.18 of the total cost of production, while the depreciated value of equipments constituted 0.92% of the total cost of production and the amount was ₦ 15, 047.45. This corroborates the assertion of Sani*et al.* (2000) that poultry production requires minimal capital investment. As mentioned in table 2, this was determined by multiplying the physical output (creates of egg, spent layers and litters) by the prevailing unit price at which the respondent sold their output. The mean income or revenue ₦ 4, 177,997.87 was realized. The Net Farm Income (NFI) is the income from the business that could be withdrawn without reducing the future rate of production operation. It gives the difference between the GFI and TCP. The Net Farm Income for an average respondent was ₦392, 002.13. The return per naira invested of 1.11 obtained showed that every naira invested in medium scale layers production earned ₦1.11 while the average Gross Margin was ₦480, 000. The above values suggested that returns from layer production by the medium scale farmers were substantial not withstanding the high cost of production. Therefore layer production among medium scale farmers is profitable in Kumbotso and Nassarawa local government areas.

Table 3highlighted that the major problem faced by the farmers was high cost of inputs as indicated by 92.80% of the respondents. Inputs used include feed, day old chicks etc. therefore high cost of any these inputs seriously affect medium scale layer production in the study area.

Inadequate infrastructure was another problem that affects medium scale layer farmers and about 52.04% of the respondents encountered this problem in production. According to table 4, 51.02% of the farmers in the study area faced the problems of high prevalence of pest and diseases and this seriously caused mortality and reduction of the flock size of the farmers and therefore affects

production and income. The problem of limited access to credit or loan from either government agencies or commercial banks affected 34.67% of the farmers during the production period and makes it extremely difficult for them to expand their production. Other problems were limited access to market and high incidence of theft with 9.18% and 8.12% of the respondents respectively.

CONCLUSION

It can be clearly seen from the study that medium scale poultry production was dominated by male farmers who are highly educated with little experience. They are married and are enjoying the most active years of their live. The Cost and returns on investment demonstrated that layer production among medium scale farmers is profitable though there is great increase in total cost of production (TCP) as a result of increase in price of feed ingredients. High cost of inputs, inadequate infrastructure and outbreak of diseases are major constraints bedeviling poultry enterprise in the study areas.

RECOMMENDATIONS

Based on the result of the findings, the following measures are recommended:

1. Conducive atmosphere should be provided for poultry farmers to realize their full potentials through making policies that will protect them from undue competition of cheap and substandard table egg.
2. Farmers should take advantage of trainings and extension services provided by KNARDA and other organizations on poultry production
3. Agricultural research institutes should help farmers with relevant information on efficient use of inputs in order to maximize profit through better extension packages.

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Table 1: Distributions of Respondents According to Socioeconomic Characteristics

Variables	Frequency	Percentage	Mean
Age			
20-29	17	17.35	39.60
30-39	32	32.65	
40-49	35	35.71	
50-59	11	11.22	
60-69	3	3.06	
Gender			
Male	67	68.37	
Female	31	31.63	
Marital status			
Single	15	15.31	
Married	80	81.63	
Divorced	1	1.02	
Widow	2	2.04	
Educational qualification			
Primary	7	7.14	
Secondary	29	29.59	
Tertiary	60	61.23	
Religious	2	2.04	
Source of income			
Farm	61	62.24	
Of farm	37	37.76	
Years of experience			
2-5	48	48.98	6.82
6-9	23	23.47	
10-13	19	19.39	
14-17	5	5.10	
18-21	3	3.06	

Source: Field Survey data, 2009. *n= 98*

Table 2:- Costs and Returns Analysis of Medium Scale Layer Farmers (Mean birds value of 1,000 for one Production Cycle {72 weeks})

Items	Average Cost (₦)	% Contributions to TC
(a) i. Variable Costs		
Feed	3,740,000	89.52
Flock	120,000	2.87
Labour	90,000	2.15
Vaccination	60,000	1.44
Medication	50,000	1.20
Kerosene	10,000	0.24
Miscellaneous	20,000	0.48
Total Variable Cost	**4,090,000**	**(97.89)**
ii. Fixed Costs		
Building	49,438.78	1.18
Equipment	38,559.09	0.92
Total Fixed Cost TFC (Depreciated Value)	87,997.87	(2.11)
Total Cost (TC)	**4,177,997.87**	
b) Total Revenue (y.py)		
Crates of egg		4,050,000
Spend layer		400,000
Value of home consumed and gift		80,000
Litter		40,000
Gross Revenue		4,570,000
Gross Margin		480,000
Net Farm Income		392,002.13
Gross return per Naira invested		1.11

Source: Field Survey data, 2009.

Table 3: Constraints Associated with Medium Scale Layers Production.

Constraints	Frequency (n=98)	Percentage	Ranking
High cost of inputs	91	92.86	1st
Inadequate infrastructure	51	52.04	2nd
Outbreak of disease	50	51.02	3rd
Limit access to credit	34	34.67	4th
Limit access to market	9	9.18	5th
Incidence of theft	8	8.12	6th

Source: Field survey data, 2009