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Profitability Analysis of Local Chicken Production in Selected Local Government Areas of Kano State, Nigeria

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ABSTRACT

The study was conducted to assess the economics of local chicken production in some selected local government areas of Kano State, Nigeria. Multistage sampling procedure was used to collect data from 104 household farmers. Descriptive statistics and gross margin analysis were employed in achieving the objectives of the study. The results of the study revealed that local chicken farmers in the study area had a mean age of 40.4 years. While majority (61.54% and 87.5%) of them were females and married respectively with a mean household size of 7 members. The study further disclosed that 58.7% of the local chicken farmers had form of formal education with an average monthly income of ₦36, 653.3. The results also showed that the average total variable cost was ₦548.33, the average gross income was ₦1200, and the gross margin of ₦651.67 while the return on capital invested was 1.18. Finally, the major constraints associated with local chicken production are instability of market price (89.42%), inadequate capital (82.69%) and inadequate institutional support (60.58%). It is concluded that local chicken production in the study area is profitable. It is recommended that the community based financial outlet should support local chicken producers in providing adequate capital to produce at commercial level; adjust the utilization of inputs in such a way that reduces the cost of production thus, raises profit.

INTRODUCTION

In Africa, agriculture has remained at the forefront of economic activities, thus accounting for 30 percent of the national income and a large proportion of overall exports (Heise, Crisan & Theuvsen, 2015). Livestock production is fundamental to sustainable economic development, with poultry production accounting for 80% of its production (Food and Agriculture Organization (FAO, 2019). Poultry is a sub-sector of the livestock industry and a major component of the agricultural economy. Among livestock-based vocations, it occupies a pivotal position because of its enormous potential to bring about rapid economic growth (Odimegwe, Babatunde, Ogbonso & Ambode, 2015) and has become apparent as the most vibrant and fastest-growing division in the livestock sub-sector. Poultry refers to a wide variety of winged animal species that are nutritionally and economically useful to man (Adesiyan, 2014), and these include domestic fowl, turkey, Guinea fowl, ducks and geese, quails, pheasants, ostriches, pigeons, and doves. According to the World Bank (2017), in Nigeria, the growth rate of the livestock sub-sector (12.7%) was higher than that of the agricultural sector (6.8%) in 2017.

The demand for poultry and poultry products is high, especially in developing countries, while the production is at subsistence levels and far below the market demand, especially in developing countries like Nigeria and Ghana, for instance. Local or indigenous chickens are commonly distributed across every corner of tropical African countries where they are reared by rural farmers. Local chickens are self-reliant, possess the ability to incubate and hatch on their own, brood and scavenge for their food, have appreciable immunity from endemic diseases, and can thrive well under inadequate nutrition in different agro-ecological zones (Odah *et al*, 2019).

Keeping local chicken can make a substantial contribution to household nutrition and food security throughout the developing world, including Nigeria. It helps diversify incomes and provides quality food, energy, fertilizer, and a renewable asset for rural households, as well as a source of employment for the citizens. Despite high demand for indigenous chicken as a valuable genetic resource, nutritious food, and reliable source of income, there is a paucity of information on its economics of production in the livestock industry, especially in Kano State, Nigeria. Therefore, based on the above-mentioned background, the study intended to assess the socioeconomic characteristics of local chicken farmers, profitability status and the constraints associated with local chicken production in some selected local government areas of Kano State, Nigeria.

METHODOLOGY

The study was conducted in Kano State and it covers 499 square kilometers (193 square miles) and comprises of forty-four local government areas (LGAs). Kano State is situated in Sudan savanna within latitude 13.53ºN and 10.25ºN and longitude 7.40ºE and 10.53ºE. Kano state share boundary with Katsina to the north-west, Jigawa State to the north-east, Kaduna to the south-west and Bauchi to the south-east. The State has a population of 9,000,000 people 4,947,952 males and 4,453,336 females (NPC, 2006) and projected to be 11,349,6,239, 367 males and 5,615,657 females in 2015 at a growth rate of 2.9 percent annually. Farming is the main occupation of its people, who are predominantly Hausa/Fulani. They engaged in the production of crops like millet, sorghum, maize, rice, cowpea, groundnut, pepper, onions and rearing animals such as cattle, sheep, goat and poultry

Both purposive and simple random sampling were used to select respondents for this study. From each of the three Agricultural zones of Kano State, one Local Government was randomly selected. The LGAs are Bunkure, Shanono and Warawa. One word from each of the selected LGAs was purposively selected based on preponderance of Local chicken producers. These are Barkun from Bunkure, Kadamu from Shanono and Tanagar from Warawa. A reconnaissance survey was conducted and found 167 local chicken farmers were found across the selected wards. Therefore, using a Raosoft online sample size calculator at 90% confidence level with a margin error of 10%, 104 local ckicken farmers were recommended as a sample size for this study. Therefore, the respondents were selected at random.

Primary data was used for this study. The primary data used in this study were generated from the selected local chicken producers through the aid of structured questionnaires by the researcher with the help of trained enumerators. The captured information includes socio-economic characteristics of the respondents such as gender, marital status, level of education, source of capital, source of income, etc. cost of production such as cost of feeds, cost of transportation, labour etc. and as well as constraints to local chicken poultry in the study area.

The analytical techniques used for this study was first, descriptive statistics such as frequency, percentage, minimum, maximum, mean, standard deviation was used to describe the socioeconomics characteristics of local chicken farmers and the constraints associated with local chicken production. Secondly, Gross Margin Analysis was used to estimate the profitability of local chicken production.

Model Specification

Gross Margin Analysis

Gross margin is the difference between the total revenue and the total variable cost. It can be expressed as:

GM = GI – TVC …...……..i

Where:

GM = Gross margin (₦/annum)

GI = Gross income (₦/annum)

TVC =Total variable cost (₦/annum)

And is given as:

TVC=$\left(P_f \times Q_f\right) + TC + LC + MC + OC$ ……..ii

Where:

P_f= Price of feed (₦/Kg)

Q_f = Quantity of feeds/Kg

TC = Transport cost (₦/head)

LC = Labour cost (₦/man-day)

MC = Marketing charges (₦/head)

OC = Other cost (such as medication, water, housing and feeders) (₦)

RESULTS AND DISCUSSION

Socioeconomic Characteristics of Local Chicken Farmers in the Study Area

A socio-economic characteristic is a complete measure of a person's job experience and family's economic status based on observable criteria that combines economic and sociological aspects. The socioeconomic variables captured in the study include quantitative (Age, household size, experience and monthly income) and qualitative variables (Sex, marital status, education and source of capital). (See Table 1 and 2).

Table 1: Socioeconomics Characteristics of Local Chicken Producers (Quantitative)

Household size	Frequency	Percentage	Mean
Age (years)			
20-29	10	9.60	40.4
30-39	40	38.50	
40-49	37	35.60	
50-59	17	16.30	
Household size			
1 – 5	40	38.46	7
6 – 10	45	43.27	
11 – 15	15	14.42	
16 – 20	4	3.85	
Years of experience			
1 – 10	30	28.85	14.9
11 – 20	55	52.88	
21 – 30	14	13.46	
31 – 40	5	4.81	
Monthly income (₦)			
1000 - 20, 000	40	38.46	36 ,653.3
21, 000 - 40, 000	23	22.11	
41, 000 - 60, 000	18	17.31	
61, 000 - 80, 000	15	14.42	
81, 000 - 100, 000	8	7.70	
Total	**104**	**100.00**	

Source: Field Survey (2020)

From the results presented in Table 1 revealed that most (38.50%) of the local chicken producers in the study area were within the age category of 30 – 39 years, followed by 35.60% within 40 – 49 years, 16.30% were between 50 – 59 years and only 9.60% were within age group of 20 – 29 years. This connotes that majority (51.90%) of the local poultry producers were within 40 years and above. The average age of 40.4 years implies that majority of the respondents were relatively young with significant number of them were aged people which are married and therefore, had a better chance and even the space within their house premises to rear local chicken. This finding moves in tandem with that of Siyaya and Masuku (2013) who found that Majority (74.0%) of the indigenous chicken producers in Swaziland were between 40 years and above. However, contradict that of Bukenya and Ndzovu (2021) who found that majority (59.5%) of indigenous small-scale chicken egg producers in Kenya were below 40 years.

The results also showed that most (43.27%) of the respondents had a household size between 6 – 10 persons, 38.46% had between 1 – 5 persons, 14.42% had 11 – 15 persons and only 3.85% had 16 – 20 persons with the mean household size of 7 persons. The average household size of 7 is higher than the national average of 5 persons. This implies that the local chicken producers in the study area had a relatively large household size which serve as a source of unpaid labour to carry out certain operations such as feeding the birds, sanitation and local housing maintenance. Household size also determines the adoption process because, a larger household has the capacity

to relax the labor constraints required during the introduction of new technology (Mignouna *et al.*, 2011; Bonabana-Wabbi, 2002).

The results further indicated that majority (52.88%) of the local chicken farmers had years of farming experience of 11 – 20 years, 28.85% had 1 – 10 years, 13.46% had 21 – 30 years and 4.81% had 31 – 40 years with a mean of 15 years of farming experience. This shows that the local chicken farmers in the study area had a bit more years of local chicken production experience, which would help them solve practical problems of chicken production. The implication of these findings for local chicken farming production is that the local chicken farmers will have the opportunity to use their experience to solve practical problems of farming production as well as improve efficiency in resource use. It shows hope that it may be sustainable. This finding corroborate Bukenya and Ndzovu (2021) who found that majority (66.8%) of the indigenous chicken egg producer in Kenya had 11 – 15 years of farming experience.

The results also showed that most (38.46%) of the respondents had a monthly income of ₦1000 – ₦20, 000, 22.11% had ₦21, 000 – ₦40, 000, then 17.31% of them had a monthly income of ₦41, 00 – ₦60, 000, 14.42% had between ₦61, 000 – ₦80, 000 and only 7.70% had ₦81, 000 – ₦100, 000. The local chicken farmers had an average monthly income of ₦36, 653.3 which is higher than the ₦30, 000 national minimum wage. This implies that the farmers are relatively higher income earners. This will help them to support local chicken farming in reasonable number in terms of providing grains and remnant of food at home to give the birds as supplementary food in the morning prior to set off scavenging and in the evening when the birds return home.

Table 2: Socioeconomic Characteristics of Local Chicken Producers (Qualitative)

Variable	Frequency	Percentage
Sex		
Male	40	38.46
Female	64	61.54
Marital status		
Single	6	5.8
Married	91	87.5
Divorced	5	4.8
Widowed	2	1.9
Level of Education		
Non-formal	43	41.3
Primary	17	16.3
Post- Primary	24	23.1
Tertiary	20	19.2
Source of Capital		
Own saving	87	83.7
Family	11	10.6
Friends	6	5.8
Sources of Local Chicken		
Retailers	47	45.2
Own production	57	54.8
Total	**104**	**100.00**

Source: Field Survey, (2020)

The results in Table 2 showed that majority (61.54%) of the local chicken farmers in the study area were female while the remaining 38.46% were males. This might be as a results of women in the study area were mostly staying at home therefore, they have ample time to care for the birds by making use of waste food as a source of feed for the local chickens. This finding agreed with Aiyedun and Oludairo (2016) who found that majority (85%) of rural poultry farmers in North-central Nigeria were females. Also confirmed the work of Nondzutha *et al*. (2020) who found that females were the major decision makers with regard to indigenous chicken production in Lusikisiki making 63% of the respondents.

The results also indicated that majority (87.5%) of the local chicken farmers in the study area were married, 5.8% were singled, 4.8% divorced and only 1.9% were widowed. This connotes that local chicken farming in the study area is dominated by married people. This attributed to the fact that local chickens are mostly reared on small-scale at home and depend on supplementary feed from food waste therefore, married people stand a better chance to have a space at their backyard and a supplementary feed from the remnant of their children food to keep the birds. This is in line with the work of Siyaya and Masuku (2013) that indigenous chicken production in Swaziland was female dominated constituting 75% of the total respondents.

The results further revealed that most (41.3%) of the local chicken farmers had non-formal education, 23.1% had post primary education, 19.2% and 16.3% had tertiary and primary education respectively. This implies that majority (58.7%) of the farmers were literate though significant number of them had no formal education. Their literacy level will help them to accept new innovation like rearing improved breeds of chickens and use vaccines to enhance their farming operations. This contradict the finding of Aiyedun and Oludairo (2016) who found that majority (78%) of rural poultry farmers in North-central Nigeria were illiterate. High literacy enhances the adoption of innovation and is also a necessary apparatus for the successful implementation of innovation to maximize profit.

Moreover, the study indicated that majority (83.7%) of the local chicken farmers used their own saving as their source of income, 10.6% from family while 5.8% sourced from friends. This implies that most of the women in the study area engaged in trading of certain goods especially food additives and income generating activities like braiding at home as other source of income apart from poultry rearing which will help them to expand their stock. Majority (54.8%) of them expand their stocks from own production while the remaining 45.2% sourced their local chicken from retailers. This is because, most of them got the parent stock from their parents.

Profitability of Local Chicken Production in the Study Area

The results for the costs and returns associated with local chicken production in selected Local Government Areas of Kano State, Nigeria are presented in Table 3.

Table 3: Costs and Returns of Local Chicken Producers/head in the Study Area

Variable cost (₦ /kg)	Price (₦)	%TVC
Feed cost price	383.33	69.91
Transportation	15	2.74
Labour	80	14.60
Marketing charges	20	3.65
Other Costs	50	9.12
Total Variable cost (TVC)	**548.33**	**100**
Average Gross Income	1200.00	
Gross Margin	651.67	
Return on capital invested	1.18	

Source: Field Survey, 2020

From the results in Table 3, the cost incurred for local chicken production were variable cost which includes feeds, transportation, labour, marketing charges, and storage. Therefore, feed cost was ₦383.33 which constituted about 93.05% of the total variable cost. This is due to the fact that Costs of feed always take the largest portion of the total cost in the poultry sector (Anang, 2013; Tanko *et al.*, 2014; Mere *et al* 2017). Transportation was ₦15, labour was ₦80, marketing charges was ₦20, and other cost incurred (housing, medication, water and feeders) was ₦50. The average total variable cost was ₦548.33, the average gross margin was ₦1200, and gross margin was ₦651.67 while the return on capital invested was 1.18. This implies that for every ₦1 invested in local chicken production all things being equal, there will be a return of ₦1.18. This implies that local chicken production in the study area is profitable and it can cover its production cost and earn a revenue for the well-being of the local chicken farmers. This finding is consistent with that of Nondzutha *et al*. (2020) who reported that indigenous poultry production in Lusikisiki was profitable with a return on investment of 0.5USD.

Constraints Associated with Local Chicken Production in the Study Area

The results for the constraints associated with local chicken production are presented in Table 4:

Table 4: Constraints Associated with Local Chicken Production in the Study Area

Constraints	Frequency	Percentage
Instability of market price	93	89.42
Inadequate capital	86	82.69
Inadequate institutional support	63	60.58
Disease outbreak	25	24.04
High Marketing Charges	11	10.58

Source: Field Survey, 2020 (n = 104, Multiple response)

The results in Table 4 show that major constraints to local chicken production in the study area are instability of market price (89.42%) followed by inadequate capital (82.69%) and inadequate institutional support (60.58%).

CONCLUSION AND RECOMMENDATION

From the findings of this study, the study concludes that majority of the local chicken farmers in the study area were relatively young, literate with relatively large household size who are mostly females. Local chicken production is a viable and profitable venture and instability of market price, inadequate capital and inadequate institutional support were found to be the major problems encountered by local chicken producers in the study area. It is recommended that the community based financial outlet should support local chicken producers in providing adequate capital to produce at commercial level.

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