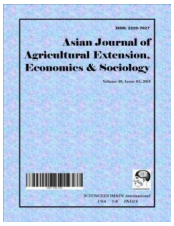

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Assessment of Factors Affecting Poultry (Broiler) Production in Imo State, Nigeria

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Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

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ABSTRACT

The study assessed the factors affecting poultry (broiler) production in Imo State, Nigeria. Multistage sampling technique was used in selecting the respondents. A total of eighty four (84) poultry producers were randomly selected with the aid of well-structured questionnaire. Data were analyzed using descriptive statistics and multiple regression models. The result shows that majority (59.5%) of the producers were male, mean age was 45 years, mean household size was 6 persons, 67.86% of the producers attended tertiary education, mean years of farming experience was 9.3 years. The multiple regression analysis showed that farm experience, drug costs, farm size and disease occurrence were statistically significant at 10% level of probability implying that these are the key factors affecting poultry production. The major constraints militating against poultry production were high feed cost, lack of fund, outbreak of disease and high transportation cost. The study recommended that the government should provide credit facilities to poultry producers to abate lack of fund and provision of appropriate vaccines in the study area.

Keywords: Assessment; factors; poultry production; Imo State.

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1. INTRODUCTION

Poultry production plays an important economic and nutritional role as well as socio cultural role in the livelihood of both urban and poor rural households in Nigeria and many other developing countries [1]. Poultry generally are domestic fowls raised for food either for meat or for egg production; they include chicken, turkey, duck, goose, quail, guinea fowl etc. Poultry products (egg and meat) are highly nutritious man and give good economic returns to farmers. According to Okunola & Olofinsawe [2], Poultry meat is a good source of animal protein which is highly preferred to beef and pork, based on its adaptability, taste, ease of preparation, health consideration, nutrient composition and contribution to food security. According to FAO [3], poultry eggs contain the highest net protein utilization (NPU) of 87% which doubles the 40% NPU value of grains except rice that contains 60% NPU. Also, poultry eggs were found to contain lutein which prevent cataract and the most important amino acids for humans such as lysine, threonine etc. Ebukiba et al. [4] stated that poultry meat is a good source of protein, contains essential elements such as phosphorus and has less fat content when compared with other livestock. Agricultural sector provides food and nutrition while poultry production accounts for 19% of the meat supply [5]. In Nigeria, poultry offers about 15% of the total annual protein intake with approximately 1.3 kg of poultry products consumed annually per head [6].

There is an increase in poultry production in Nigeria as a result of an increased rate of demand for poultry products across the globe lately. Research shows that more than 50 billion of chickens are raised annually as a source of food for both egg and meat consumption purposes, National Center for Biotechnical Information [7] as reported by Nwalieji [8]. This could be due to the fact that poultry production has less detrimental impact on the environment, greater ease of production and a short payback period which gives it an edge over other livestock. According to Effiong et al. [9] Poultry farming contributes to household food security and enhances sustainable farming in many developing economies mostly in Nigeria. Poultry supplies raw material (egg and meat) to confectionary industries, wastes from poultry serves as fertilizer used for crop production when decomposed; also it improves food quality and is highly a renewable asset in over 80% of rural household. Despite its importance and contributions, poultry production is yet to experience a sufficient growth due to some limiting factors which are yet to be addressed [9].

Many programs have been developed in other to ensure that the demand for animal protein is met. Some of these programs include farm settlement scheme, agricultural development project(ADP), better life program, micro credit scheme for livestock production and the most recent program is the united nation development programme (UNDP) which entails rendering sponsorship in establishing livestock parent/ foundation stock at community level in Nigeria with the aim of training farmers on improved livestock breeds for gradual upgrading of local breeds and also train farmers on improved modern rearing and production methods of livestock, they increase the production of livestock products and farmers income [10]. In spite of the development of these programs, the aim of poultry industry which is to ensure self-sufficiency in animal production and consumption has not been reached. This is because the 5gm/caput consumption per day of poultry products is far less than the 35gm/caput consumption per day as recommended by food and agriculture (FAO), Ojo [11] as reported by Bamiro et al. [12]. This is due to fact that poultry production is constrained by a number of factors which are not limited to inputs used in production only. According to Ogolla [13], factors influencing poultry production is not only based on physical inputs such as land area, labour, quantity of feed used, quantity of vaccine applied and quantity of energy used, but also socio-economic, demographic, institutional and non-physical factors. Socioeconomic factors like; age, level of education, number of years of poultry farming, experience, engagement in other income generating activities other than poultry farming, access to credit etc. However, studies that have been carried out on factors affecting poultry production in Imo State are insufficient and calls for attention, therefore the need to assess and pin point those factors in order to device a means to solve them and maximize output of poultry production in the study area is the knowledge gap that this study intends to fill. The specific objectives of this study were to; examine the socio-economic characteristics of poultry farmers, determine the factors affecting poultry production and examine the constraints militating against poultry production in Imo State.

2. MATERIALS AND METHODS

The study was carried out in Imo State and it lies on the South east geopolitical zone of Nigeria. The state is bordered on the east by Abia State, in the west by river Niger and Delta State to the north by Anambra State and to the south by Rivers State. It is divided into three Agricultural zones namely; Owerri, Orlu and Okigwe and comprises of 27 Local Government Area. The population of the state stands at 4.5 million people (federal Republic of Nigeria Official Gazette, 2007).

Imo State lies within the latitude $4^0 45^1$N and $7^0 15^1$N and longitude $6^0 50^1$E and $7^0 25^1$E with land area of about 5,100 km^2 [14]. The rainfall distribution is bi-modal peaks in August and September. Variation in annual rainfall is between 1900 and 2200 mm. Temperature is uniform in annual temperature of about 20℃. The annual relative humidity is 75 percent and the state lies within the rainforest agro-ecological zone. About 80 percent of the people are involved in Agriculture. 70 percent engaged in Agriculture, producing food crops like cassava, cocoyam, yam, maize, melon vegetable etc., and livestock such as poultry, sheep, goat, and rabbits at subsistence levels. A small percentage of population also engages in commercial agriculture.

The farmers in the state constituted the population for the study. The Multi-stage and purposive sampling technique were adopted. In the first stage three agricultural zones were selected namely; Owerri zone, Okigwe zone and Orlu Zone. In the second stage, one local government area was purposively selected from the three agricultural zones namely Orlu L.G.A in orlu zone, Ehime Mbano in Okigwe zone and Owerri West in Owerri zone because of high concentration of poultry farmers in the selected local government Area. Two communities were selected from each L.G.A respectively in third stage. In the fourth stage, two villages were randomly selected from six autonomous communities. In the final stage, seven households' farmers were randomly selected from twelve villages respectively giving a total of eighty four (84) respondents. The study made use of primary data which was collected with the aid of well-structured questionnaire, personal interview and observation while the secondary information was gotten from journals and relevant literatures. Data were analyzed using descriptive statistics such as mean, frequency distribution tables and percentages, and Ordinary least squares regression model. Ordinary Least Squares Regression Analysis is a statistical tool used for evaluating the relationship between one or more independent variables X_1, X_2……. X_8, to a single continuous variable Y. According to ordinary least square regression was used to analyze the effect of risks on poultry production (Iheke and Igbechina, 2016). The ordinary least squares model is expressed as shown below:

$$Y = f(X_1\ X_2\ X_3\ X_4\ X_5\ X_6\ X_7\ X_8 + e)$$

Where,

Y = dependent variables (output)
X_1= age of the producers (number in years)
X_2 = Educational level (number in years)
X_3 = experience (number in years)
X_4 = feed cost (₦)
X_5 = cost of labour (₦)
X_6 = capital (₦)
X_7 = farm size (ha)
X_8 = diseases
e = stochastic error term

3. RESULTS AND DISCUSSION

3.1 Socioeconomic Characteristics of the Respondents

The study revealed that the mean age of poultry producers was 45 years which implies that majority of the farmers are in their prime years of life and therefore can handle the strenuous activities involved in poultry production. Also 59% of the respondents were male while only 40% were female implying that poultry production enterprise in the area is dominated by male. This has been due to fact that the activities involved in poultry production are strenuous which impedes female involvement in the enterprise The mean years of education was 13.7 years which implies that most people in the poultry enterprise are literate and thus having positive impact on managerial capacity and acquisition of modern agricultural business management skills and technological innovation. The mean household size was 6 persons per household which implies that there is abundant supply of family labour in the area which would serve as source of cheap labour for operations on the farm. The mean year of experience was 9.3 years which indicated that majority of them had been in the enterprise for quite a long time.

Table 1. Shows socioeconomic characteristics of poultry farmers in the study area

Variables	Frequency	Percentage
Age		
24-33	20	23.81
34-43	19	22.62
44-53	21	25.00
54-63	14	16.67
64-73	10	11.90
Mean age=45.2 years		
Gender		
Female	34	40.48
Male	50	59.52
Years spent in school		
0	2	2.38
1-6	8	9.52
7-12	17	20.24
13-18	57	67.86
Mean=13.7 years		
Household size		
1-5	44	52.38
6-10	31	36.90
11-15	6	7.14
16-20	3	3.57
Mean=6 persons		
Marital status		
Single	23	27.38
Married	41	48.81
Divorced	8	9.52
Widow	12	14.29
Experience in poultry enterprise		
1-7	40	47.62
8-14	25	29.76
15-21	14	16.67
22-27	3	3.57
28-34	2	2.38
Mean=9.3 years		

Source: Field Survey Data, 2019

From the Table 2, farm experience, drug cost, farm size, disease occurrence was statistically significant, at 10% level of probability. The coefficients of farm experience, drug costs and farm size were found to have positive relationship with output of poultry production and were statistically significant at 5% level of probability, this implies that increase in farm experience, drug costs and farm size would increase the level of poultry farmer.

The coefficient of farm experience is positive and significant implies that the experience farmers has higher farm output than the less experienced farmers as they have better understanding of the production techniques that could increase their production. The coefficient of farm size is positive and significant which implies that the larger the farm size, the larger the number of birds reared, which poses a higher chances of productivity. The coefficient of drug cost is positive and this implies that expenses on costs have positive significant relationship on their output. It is understandable that poultry management requires significant amount of drugs and medication in terms of routine vaccination to produce high yield. The coefficient of disease occurrences is negative and significantly affect poultry output, it implies that higher disease occurrence increases birds mortality and adversely affect the production output.

From the Table 3, the major constraints militating against poultry production are high feed cost (83.33%), lack of fund to expand (80.95%), outbreak of disease (79.76%), High transport

cost (77.38%), and lack of start-up capital (64.29%), poor market demand (60.71%) and pilfering (52.38%). This implies that farmers are facing challenges that limit poultry production in the area coupled with adverse effects of climate change due to the ever increasing average annual temperature. Farmers lament that inadequate credit facilities is a major constraint in their quest towards adapting to the effect of climate change on poultry production.

Table 2. Regression results of the determinants of factors affecting poultry production

Variables	Linear	Exponential+	Semi-log	Double-log
Constant	-90.85083	4.771397	-2257.568	-1.281279
	(-0.9209)	(6.9350)	(-0.2291)	(-1.6461)
Age	1.947318	0.015891	-1108.597	0.273363
	(1.2798)	(1.4974)	(-0.4540)	(1.4567)
Educational level	-0.095939	0.007207	-354.4686	1.02e-05
	(-0.0225)	(0.2419)	(-0.3090)	(0.001)
Farm experience	-4.819708	0.036583	-1244.011	-0.081089
	(-1.6494)*	(1.79499)*	(-1.4068)	(-1.1931)
Feed cost	-7.08e-07	2.10e-07	-395.0514	0.008909
	(-0.0873)	(3.7032)	(-0.9750)	(0.2861)
Drug cost	2.74e-05	1.66e-05	-583.5236	0.030099
	(0.0325)	(2.8299)***	(-1.4470)	(0.9711)
Source of capital	-8.966528	-0.116552	-59.70732	-0.013791
	(-0.7591)	(-1.4148)	(-0.1441)	(-0.4332)
Farm size	0.99953	0.000102	3407.228	0.98724
	(352.9413)***	(5.1432)***	(5.8245)***	(21.9580)***
Disease occurrence	47.98433	-0.388648	-948.8739	0.116963
	(1.6071)*	(-1.8663)*	(-0.9012)	(1.4454)
R-squared	0.599513	0.616818	0.407292	0.43393
Adjusted R-squared	0.499461	0.575946	0.34407	0.37355
S.E. of regression	131.2194	0.915197	4576.752	0.351761
Sum squared resid	1291390	62.81898	1.57e+09	9.280167
Log likelihood	-524.0882	-106.9873	-822.4456	-26.66747
F-statistic	8.5788	15.0912	6.442242	6.2408

Source: Field Survey Data, 2018
**** = sign @ 1%, ** = sign @ 5% and * = sign @ 10%.*
+ = Lead equation

Table 3. Constraints militating against poultry production

Constraints	Frequency*	Percentages*	Rank
Pilfering	44	52.38	7th
Outbreak of Pest and disease	67	79.76	3rd
High Feed cost	70	83.33	1st
Lack of fund to expand	68	80.95	2nd
High mortality rate	35	41.67	8th
Unavailability of foreign feeds	25	29.76	11th
Shortage of water	24	28.57	12th
Lack of start-up capital	54	64.29	5th
Poor market demand	51	60.71	6th
Lack of skill to manage climate issues	29	34.52	10th
Lack of water	31	36.90	9th
High transport cost	65	77.38	4th

*Source: Field Survey Data, 2018; *Multiple response data*

4. CONCLUSION

From the study, we conclude that poultry production in the study area is male dominated. The study revealed that farm experience, drug costs and farm size have a positive influence on poultry production while disease occurrences has a negative influence on poultry production in the study area. Findings also revealed high feed cost, inadequate funds, outbreak of diseases and high transportation cost as the major constraints militating against poultry production in the study area. Therefore, it is recommended that adequate credit facilities should be provided to farmers in the study area. Also, farmers should be sensitized on how to combat the effect of disease outbreak in poultry production through adequate extension services.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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