

Constraints to Indigenous Chicken Production in Enugu State, Nigeria

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Abstract. This study sought to ascertain perceived constraints to indigenous chicken production in Enugu State, Nigeria. A total of 100 poultry farmers were selected using multi-stage sampling technique. Data were analyzed using percentage, frequency, factor analysis and multiple regression. Results of the study revealed that the respondents kept an average of 14 birds annually indicating that they were small scaled producers. Findings of the multiple regression analysis showed that sex ($t = -3.606$; $p < 0.001$) had a significant and negative influence on the flock size of the birds. The respondents perceived poor disease and parasitic control ($M=2.98$), low body weight of birds ($M=2.94$) and predators such as hawks, cats, dogs, mongoose, snakes etc ($M=2.92$) among others, as constraining factors to indigenous chicken production. The study therefore recommended that the government should provide incentives to extension agents so that they can adequately educate the farmers on improved management practices of indigenous chicken so as to increase its sustainable production.

Keywords: Agriculture, Constraints, Indigenous Chicken, Management Practices, Sustainable Production.

1. Introduction

Over the last decade, the consumption of poultry products in developing countries has grown by 5.8 percent per annum, faster than that of human population growth; and this has created a great increase in demand [1]. Indigenous chicken has the potential to satisfy at least part of this demand through increase productivity and reduced wastage and losses.

However, low productivity of indigenous chicken has limited their potential to improve the living standard of farmers in terms of income earning, animal protein required and significant contribution to rural development. As a result of this, indigenous chicken production has been neglected and is frequently considered by farmers as an insignificant occupation compared with other agricultural activities [2]. Hence the study identifies the constraints of indigenous chicken production in Enugu State Nigeria.

2. Objectives

The specific objectives of the study were to:

- ascertain the flock size and structure of the indigenous chicken;
- determine the socio-economic characteristics influencing the flock size of indigenous chicken farmers; and
- determine respondents' perceived constraining factors to indigenous chicken production.

3. Methodology

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The study was conducted in Enugu State, Nigeria. Enugu state is one of the 36 states in Nigeria, located at the southeast geopolitical zone of the country. It lies between latitudes 5° 56' North and 7° 06' North of the equator and longitudes 6° 53' East and 7° 55' East of the Greenwich meridian [3].

The state has seventeen local government areas (LGAs) and is divided into six agricultural zones namely; Agwu, Agbani, Enugu, Nsukka, Enugu Ezike and Udi agricultural zones. Crop and livestock farming is the major occupation of people in the state.

The population for the study comprised all indigenous chicken farmers in Enugu State. A multi-stage sampling technique was employed in selecting the respondents. In the first stage, two agricultural zones were selected through simple random sampling technique from the six agricultural zones in the state. In the second stage, two blocks were selected through simple random sampling technique from the 3 blocks in each zone giving a total of 4 blocks. In the third stage, five cells were selected through simple random sampling technique from each of the 4 blocks giving a total of 20 cells. In the fourth stage, a list of all indigenous chicken farmers was compiled by the community leaders in each cell selected. From the lists, five poultry farmers were selected from each list, through simple random sampling technique. Thus, the total sample size for the study was one hundred (100) respondents.

The flock size and structure of the indigenous chicken were determined. Multiple regression analysis was used to determine the socio-economic characteristics influencing the flock size of indigenous chicken farmers. The regression model was specified as: $Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + \dots + b_9X_9 + u$, where Y = Flock size of indigenous chicken production measured by the number of chickens kept by farmers (dependent variable); a = constant term; b_1 - b_9 = regression coefficients; X (X_1 = age (years), X_2 = sex, X_3 = marital status, X_4 = educational status (number of years spent in formal education), X_5 = household size (number of persons in the household), X_6 = farming experience (years), X_7 = extension contact, X_8 = access to credit facilities, X_9 = participation in social organization); and U = error term. The hypothesis was tested at 5% level of significance. Exploratory factor analysis was employed in grouping the constraint variables into major constraints factors. However, only variables with loading of 0.4 and above 10% overlapping variance [4] were used in naming the factors.

4. Results and Discussion

4.1 Flock Size and Structure of Indigenous Chicken

Data in Table 1 revealed that the average annual number of cocks, hens, growers and chicks reared per year was 5, 4, 4 and 9 respectively. Also, the respondents kept an average of 14 birds annually. This shows that the farmers were small scaled producers and this may be because of poor management in the farm. The small number of hens indicates that productivity would be poor since hens are mainly used by farmers for breeding. This finding is in agreement with the finding of [5] who reported that rural household keep about 6-16 chickens. Farmers should be advised on the proportion of hens to cocks and other management practices in the farm for better productivity and efficiency.

4.2 Socioeconomic characteristics influencing the flock size of indigenous chicken farmers

General results of the multiple regression analysis between the socio-economic characteristics and flock size of indigenous chicken (Table 2) shows a significant influence ($t = 2.923$; $p < 0.05$) between the socio-economic characteristics of the farmers and the flock size. The R squared (R^2) value and the adjusted R square value were 0.226 and 0.149 respectively. This shows that about 23% of the variance in the flock size of the farmers was explained by the socio-economic variables included in the model. The result in Table 2 further shows that sex ($t = -3.606$; $p < 0.001$) was the only variable that had a significant and negative influence on the flock size of the farmers. This shows that gender influences the flock size of the farmers. This could be as a result of females having inadequate information on indigenous chicken production such as treatment of birds, giving supplementary feed, provision of house and water for the birds by the farmers to be able to carry out management practices on a reasonable flock size [6]. However, other socioeconomic variables such as age, marital status, years spent in formal education, farming experience, household size, extension contact, participation in social organization and access to credit facilities have no significant influence on the flock size of indigenous chicken farmers.

Table 1: Distribution of respondents according to the flock size and structure of indigenous chicken

Variables	Percentage	Mean
Flock size		
Cocks		
1-5	76.0	5
56-10	14.0	
>11	10.0	
Hens		
1-5	84.0	
6-10	13.0	4
>11	3.0	
Growers		
1-5	85.0	
6-10	10.0	4
>11	5.0	
Chicks		
1-5	68.0	
6-11	16.0	9
>11	16.0	
Number of indigenous chickens reared annually		
1 -10	53.0	14
11 – 20	32.0	
21 – 30	11.0	
< 31	4.0	

Field survey, 2013

Table 2: Multiple regression analysis of the influence of socio-economic characteristics on the flock size of indigenous chicken farmers

Variables			Unstandardized	Standardized	
	B	Std Error	Beta	t	Sig
(Constant)	58.156	18.574		3.131	0.002
Age	-00.111	0.130	-0.128	-0.857	0.394
Sex	-210.799	6.044	-0.389	-3.606	0.001**
Marital status	-2.694	2.814	-0.105	-0.957	0.341
Years spent in formal education	0.061	0.334	0.025	0.183	0.855
Farming experience	0.091	0.153	0.082	0.591	0.556
Household size	0.259	0.552	0.047	0.470	0.640
Extension contact	1.890	6.451	0.029	0.293	0.770
Participation in social organization	2.803	4.520	0.061	0.620	0.537
Access to credit facilities	-0.460	2.761	-0.016	-0.167	0.868

Dependent variables: Flock size of farmers.

R square = 0.226; Adjusted R² = 0.149; F-value = 2.923; p < 0.05

4.3 Perceived Constraints to Indigenous Chicken Production

Constraints were named based on the item loadings (Table 3). Factors 1, 2 and 3 were named production cost/technical management, marketing factor and productivity factor respectively.

Factors that loaded high under production constraints (1) were; poor income (0.773) and poor sales of chicken products (0.761), among others. Poor income and poor sales of chicken products have a relationship. This suggests that productivity may remain low until farmers find better ways of increasing demand. This can be achieved by capitalizing on the better taste of the local chicken which gives it advantage over the exotic strain. Also indigenous chicken are cheaper to purchase than exotic breed. The constraints could be attributed to the low performance of extension services, inadequate access to credit sources/lack of collateral to access credit facilities and poor and expensive veterinary services in the study area. According to [7], feed resources as one of the major inputs in chicken production system account for the largest amount in total production cost in the commercial poultry sector.

Marketing constraints (2) includes: lack of means of transportation (0.682), harsh climatic conditions (0.641), theft of chicken (0.635) and unavailable market (0.617). It was observed that farmers practice total free range system, which could also be attributed to the low growth rate led to poor demand of the indigenous chicken. However, in Botswana [8] marketing of chicken products does not impose any problem on farmers as they always command price over the products of commercial poultry industry.

Productivity constraints (3) include: poor disease and parasite control (0.839), low body weight of birds (0.814), predators like hawk, cat, dog etc (0.640), poor growth rate (0.543) and low educational level of farmers (0.446). According to [9], diseases and prey had continued in retarding the productivity of poultry

industry and is more with scavenging indigenous chicken due to lack of organized disease control programs through vaccination and proper hygiene.

Table 3: Constraining factors to indigenous chicken production

Constraining factors	Production factor	Marketing factor	Productivity factor
Inadequate disease & parasite control	0.113	0.007	0.839
High cost of feed	0.694	0.119	0.102
High mortality rate due to disease out break	0.582	0.007	0.273
Predators like hawks, cats, dogs etc	-0.117	0.084	0.640
Unavailable market	0.087	0.617	-0.005
Poor sales of chicken products	0.761	0.351	-0.002
Poor income to purchase inputs for chicken production	0.773	0.319	0.016
Harsh climatic condition	0.075	0.641	0.028
Poor access to information on chicken	0.742	0.066	0.121
Theft	0.066	0.635	0.055
Inadequate poultry production skills	0.585	-0.013	0.182
Lack of adequate pasture lands	0.095	0.480	0.092
Inadequate access to credit	0.739	0.065	0.033
Inadequate extension services	0.646	-0.350	0.128
Inadequate housing	0.673	0.199	0.032
Inadequate veterinary services	0.645	-0.225	0.147
Inadequate modern farm inputs	0.402	0.096	0.151
Poor participation in farmers organization	0.673	0.087	-0.017
Scarcity of chicken stock from available sources	0.761	0.107	0.036
Poor breeding stock	0.761	0.271	-0.011
Poor egg production	0.676	0.219	-0.109
Lack of means of transportation to markets	0.152	0.682	-0.033
Poor growth rate	0.051	-0.069	0.543
Low body weight of birds	0.169	0.056	0.814
Low education level of farmers	0.263	0.120	0.446

5. Conclusion

Indigenous chicken production is characterized by small scaled producers who used extensive system of production. Poor diseases and parasitic control and inadequate access to credit, among others were identified constraints to indigenous chicken production in the study area. Hence, it has been recommended that to improve the sustainable production of indigenous chicken, the government should ensure that the farmers are provided with adequate veterinary services as well as loan so as to increase chicken productivity. Also, extension agents should focus their dissemination of information on female indigenous chicken producers since they dominate indigenous chicken production so as to enhance their management practices.

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