

**AWARENESS OF POULTRY FARMERS ON QUAIL PRODUCTION IN KWARA STATE, NIGERIA:
IMPLICATION FOR PROTEIN NUTRITIONAL SUSTAINABILITY IN NIGERIA**

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ABSTRACT

This paper examined the awareness of poultry farmers on quail production in Kwara State, Nigeria. A well structured questionnaire was used to elicit information from eighty (80) randomly sampled poultry farmers from the Poultry Association of Nigeria (PAN) Kwara State Chapter. Majority (75.0%) of the poultry farmers had a low awareness level on the characteristics of quail birds and its products. Three (3) sources of information were most preferred by the respondents in accessing information on poultry practices. Correlation analysis revealed a significant relationship between the educational level, their age and their awareness/knowledge level on quail production. Recommendations made among others include an urgent need to enlighten the poultry farmers on quail birds and its products in order to leverage on the potentials that quail farming offers in terms of food and nutritional security for the growing population in Nigeria and improved livelihood for the poultry farmers.

Keywords: Awareness, Poultry farmers, Protein nutritional sustainability, Quail production, Kwara State, Nigeria.

INTRODUCTION

Poultry production stands as a major sector in the livestock industry in Nigeria (Ijaiya *et al.*, 2013). Rearing of domestic chickens has hitherto dominated the sector. However, in recent times there are new entrants into the sector. One of the birds slowly gaining prominence is the Japanese quail (*Coturnix coturnix japonica*) which are suited for commercial rearing, meat and egg production under intensive management (Egbeyale, Fatoki and Adeyemi, 2013). Quails have lower feed requirement compared to the chicken and also require minimal space for rearing (Ijaiya *et al.*, 2013). They thrive well in small cages and can be reared at a cheaper cost within a relative short time (Ojo, Ayorinde and Fatoki, 2011). Quails are resistant to most poultry diseases hence requiring less vaccination and they have a high rate of egg production between 200 – 300 eggs in 360 days.

Their meat and eggs are renowned for their high quality protein, high biological value and low caloric content, making it a choice product for hypertensive patient (Tuleun, Adenkola and Afele, 2011). As revealed by Hemid, Abd El-Gawad, El-Wardy, El-Daly and Abd El-Azeem (2010), quails have early sexual maturity resulting in a short generation interval, high rate of lay and much lower feed and space requirements than the domestic fowl. Quail eggs are very rich in Vitamin D, antioxidants which according to Sahin, *et al* (2008) improve the quality of food from animal origin in terms of colour, oxidative stability, tenderness and storage properties. It has great positive effect on people with stress problems, hypertension, digestive disturbance, gastric ulcer, liver problems, bronchitis illness, depression, panic and anxiety illness. The nutritional value of quail eggs is 3 – 4 times greater than chicken eggs (Tunsaringkam, Tungjaroenchai and Siriwong, 2013). Quail eggs are also known to increase sexual appetite, stimulate brain functions which improve intelligence quotient and generally rejuvenate the body. Consumption of quail eggs fortifies the woman's body during pre and post-natal periods as well as after surgery and radiotherapy (Onyewuchi, Offor and Okoli, 2013). Quail meat is tastier than chicken and has less fat content.

Protein nutritional insecurity is still prominent in most developing country (including Nigeria) and chicken meat and egg which has been the major source of animal protein is still now unable to meet the protein hunger of the world (Igado and Aina, 2010). In spite of the profitability potentials and health benefits of quail birds and its products, a lot of poultry farmers are yet to spring up with intensified husbandry. This might be as a result of their lack of the detailed knowledge and capacity on the profitable production of both meat and egg from quail birds. Therefore, there is the need to fill this lacuna and widen the scope of poultry meat and egg by focusing more attention on the relatively underutilized poultry species called quails which has great potentials to ensure a sustainable supply of the additional needed meat and egg to feed the teeming population in Nigeria.

Income and protein nutritional sustainability from quail birds is based on its high prolific tendency, short gestation period, short generation interval and rapid growth. Sustainability as it relates to awareness of poultry farmers on quail production is premised on the need to enlighten the poultry farmers for diversification into quail farming in a bid to enhance sufficient and continuous provision of animal protein nutrients for the present and future generation in Nigeria thus meeting the social, health and economic needs of the people.

This is why this study in a bid to enhance provision of the desired food and nutritional security for the people and enhancing increased income for poultry farmers from quail production intends to focus on the awareness of poultry farmers on quail production in Kwara State, Nigeria. Specifically, the study sought to:

- describe the socio-economic characteristics of poultry farmers in the study area;
- identify the poultry farmers preferred sources of information;
- examine their awareness level on quail birds and its products;
- determine the poultry farmers interest to start-up quail poultry production;

METHODOLOGY

The study was carried out in Kwara State, Nigeria. The state is geographically located between latitude $7^{\circ}20'$ and $11^{\circ}05'$ north of the equator longitude $2^{\circ}5'$ and $6^{\circ}45'$ east of the prime meridian (Ogunlade, Oladele and Babatunde, 2009). It is located in the North Central Nigeria and it has a population of about 2,365,353 (NPC, 2006). The State is divided into 3 senatorial districts which are Kwara South, Kwara Central and Kwara North and it has 16 local government areas. The state provide food crops such as maize, cassava, banana, cocoyam, onion, fruits, sweet potatoes, vegetables and livestock such as goat, cattle, sheep, fishing, pig and poultry.



Figure 1: Map of Nigeria indicating Kwara State.

 Kwara State

Source: Wikipedia, 2014. (www.wikipedia.org)

The population for this study was the total number of poultry farmers in Kwara State, Nigeria. A well structured interview schedule was used to elicit information from eighty (80) randomly selected poultry farmers who are members of the Poultry Farmers Association of Nigeria, Kwara State Chapter. This constituted about eighty percent of the one hundred and four registered members across the State.

Data were collected on the socio-economic characteristics of the poultry farmers, their preferred source of information, their interest to start-up quail poultry production while the dependent variable was their awareness level on quail birds and its products. These variables were measured as follows:

Preferred sources of information among the poultry farmers was measured also using a 3-point likert type scale of highly preferred (3), moderately preferred (2) and not preferred (1).

Awareness/Knowledge level on Quail birds and Products: Respondents were asked to indicate their awareness/knowledge on 20 statements about the characteristics of quail birds and its products. Their level of awareness/knowledge was measured using a 5-point likert scale of Extremely aware (4), Moderately aware (3), Somewhat aware (2), Slightly aware (1), and Not aware (0). The awareness/knowledge score of the respondents was determined from a range of zero (0) being the lowest awareness level score to eighty (80) being the highest awareness level score obtainable. From their responses the poultry farmers were then classified into whether they have a low, moderate or high awareness/knowledge on the characteristics of quail birds and its products. Respondents with a total awareness score of 0 – 39 were categorized as low awareness, a score of 40 – 59 was categorized as moderately aware while those with a score of 60 - 80 and above were considered to be very aware on quail birds and its products.

Interest to Start-up Quail Poultry Production: The poultry farmers were asked to indicate whether they are interested to start-up quail poultry production and their responses was rated on Yes (2) and No (1).

Data analysis was carried out using descriptive statistics such as frequency counts, percentages, mean scores, and ranks while Pearson Product Moment Correlation analysis was used as an inferential statistics to test the proposed hypothesis in the study.

RESULTS AND DISCUSSION

Results from table 1 revealed that 7.5% of the poultry farmers were less or equal to 30 years , more than one-third (38.75%) were within the age bracket of 31 – 40years, 30.0% were within 41 – 50years, 18.75% were within 51 – 60years while just about a handful (5.0%) of the respondents were found to be greater than 60 years of age. The mean age of the respondents was 44years. Consequently, the poultry farmers are generally in their economically active years indicating their high degree of prospect to be more receptive to new ideas and innovations. This agrees with Adebayo and Adeola (2005) who reported that poultry farmers are more active in poultry farming operations and more innovative in the economically active years.

The results obtained indicated that there were more males (70.0%) involved in poultry farming than females (30.0%). This result is in consonance with Matanmi et al (2012) who reported that majority of poultry farmers in Kwara State were males. This could be because poultry production is a little tedious and requires more stamina that some females may not be able to cope with.

Table 1 revealed that majority (75.0%) of the respondents were married while the remaining 25.0% were single (22.5%) or widowed (2.5%). This implies that most of the poultry farmers have family responsibilities ties that will require more financial commitment which may serve as an impetus for them to diversify their production by venturing into quail production which seems to have more prospects and income potentials than the conventional chicken production which most poultry farmers are currently involved in.

More than half (52.5%) of the respondents were involved in Trading/Personal business as other occupation aside poultry farming while the remaining 26.25%, 12.5%, 6.25% and 2.5% of the poultry farmers indicated Civil service, Farming, Arts and Crafts and Politician as other occupation they are involved in aside from poultry farming. This reveals that a lot of poultry farmers are able to combine other sources of income generating activities with their poultry enterprise.

Table 1: Socio-economic characteristics of the Respondents

Variables	Frequency	Percentage	Mean
Age			
< 30	6	7.50	44years
31-40	31	38.75	
41-50	24	30.00	
51-60	15	18.75	
60 and above	4	5.00	
Gender			
Male	56	70.00	
Female	24	30.00	
Marital Status			
Single	18	22.50	
Married	60	75.00	
Widowed	2	2.50	
Educational Level			
No formal Education	1	1.25	
Primary Education	2	2.50	
Secondary Education	5	6.25	
Tertiary Education	70	90.00	
Years of Experience			
< 5	31	38.75	7years
6-10	22	27.50	
11-15	18	22.50	
16-20	5	6.25	
> 20	4	5.00	
Other Occupation			
Farming	10	12.50	
Trading/Personal Business	42	52.50	
Civil Service	21	26.25	
Art and Craft	5	6.25	
Politician	2	2.50	
Number of Poultry Birds Kept			
≤ 250			
251-500	39	48.75	
501-750	24	30.00	
751-1000	7	8.75	
> 1000	5	6.25	
	5	6.25	

Source: Field Survey, 2014.

N = 80

Sources of Information Preferred

Table 2 revealed the sources of information preference of the poultry farmers. Out of the eight (8) sources of information presented to the respondents, four (4) of these sources was prominently preferred. Using mean scores to rank the information sources according to their order of preference as indicated by the poultry farmers, Poultry farmers association ranked 1st (MS = 2.91), Extension agents was 2nd (MS =2.83), Input suppliers, Veterinary agents, Neighbours and friends both were ranked 3rd (MS = 2.68) and Radio ranked 5th (MS = 2.55). The other sources of information with mean score less than 2.5 which includes Print media, Television, and Internet and Social media with mean score 1.81, 1.73, and 1.40 respectively were less preferred. This reveals that these five information sources were accessible, trusted and adjudged effective sources which the farmers would prefer to be used in diffusing and disseminating innovations on poultry including quail production in this area. Oladeji (2011) reported a similar trend by revealing that sources used by poultry farmers to access information on poultry practices include poultry association, extension officers, and family and friends among others. The implication of this is that government and all other stakeholders should focus more attention on the usage of these four sources of information when making efforts on awareness and capacity building on quail production among the poultry farmers in the study area.

Table 2: Sources of Information Preferred by the Poultry Farmers

Sources of Information	Most Preferred	Preferred	Not Preferred	Mean Score (MS)	Rank
Extension Agents	68(85.0)	10(12.5)	2(2.5)	2.83	2nd
Print Media	15(18.6)	35(43.8)	30(37.5)	1.81	6th
Radio	48(60.0)	28(35.0)	4(5.0)	2.55	5th
Television	10(12.5)	48(60.0)	12(15.0)	1.73	7th
Poultry Farmers Association	75(93.8)	3(3.8)	2(2.5)	2.91	1st
Neighbours and Friends	58(72.5)	18(22.5)	4(5.0)	2.68	3 rd
Input Suppliers and Veterinary agents	60(75.0)	14(17.5)	6(7.5)	2.68	3rd
Computer/Internet/Social Media	10(12.5)	12(15.0)	58(72.5)	1.40	8th

MS derived from Most Preferred = 3, Preferred = 2, and Not Preferred = 1. N = 80

Note: The values in parenthesis represent the percentage while the value outside represent the frequency

Source: Field Survey, 2014

Awareness Level of Poultry farmers on Quail Birds & Products

Results from table 3 revealed that majority (75.0%) of the poultry farmers had a low awareness/knowledge level on the characteristics of quail birds and its products, while the remaining (25.0%) were moderately aware (15.0%) and very aware (10.0%) about quail birds and its products. This corroborates the report of Bakoji *et al* (2013) that there is need for enlightenment of farmers and the general public about the nutritional and medicinal benefits of quail birds. The implication of this is that most of the poultry farmers in the study area have very little awareness/knowledge about quail

birds, its products and the benefits derivable from it. This may be a pointer to why a lot of the poultry farmers are yet to diversify their poultry enterprise to include the production of quail birds which has a higher comparative advantage and prospect in terms of income and nutritional potential than chicken. This is not a good sign for animal protein nutritional sustainability in the area.

Table 3: Awareness level of the Poultry Farmers on Characteristics of Quail Birds and Products

Awareness Level Score	Frequency	Percentage
Low Awareness (0 – 39)	60	75.0
Moderately Aware (40 – 59)	12	15.0
Very Aware (60 – 80)	8	10.0
Total	80	100.0

Source: Field Survey, 2014

Interest to Start-up Quail Poultry Production

From table 4, it is shown that an overwhelming proportion (90.0%) of the respondents' indicated their interest to start-up quail poultry production while just a handful (10.0%) of them was not interested. This high level of interest exhibited by the poultry farmers is a positive sign that needs to be tapped into by all stakeholders in the bid to provide sufficient and sustainable protein security for the teeming population in Nigeria. Considering the prospects embedded in quail production in terms of nutritional, health and income benefits, Governments, Extension services and other stakeholders should leverage on this huge opportunity by packaging and developing programmes and advisory services for the farmers on quail production in its various forms.

Table 4: Interest to Start-up Quail Poultry Production

Interest in Quail Production	Frequency	Percentage (%)
Yes	72	90.0
No	8	10.0
Total	80	100.0

Source: Field Survey, 2014.

Test of Hypothesis

This hypothesis was tested for in this study

Null Hypothesis (Ho): There is no significant relationship between some selected socio-economic characteristics of the poultry farmers and their awareness level on quail production.

According to table 5, Pearson correlation analysis revealed that educational level ($r = 0.872$, $p = 0.001$) was significant and positively related to the awareness/knowledge level of the poultry farmers on quail production while age ($r = -0.521$,

p = 0.003) even though significant was negatively related to awareness/knowledge level on quail production. Thus the null hypothesis was therefore rejected. This implies that the more the level of education acquired by the poultry farmers the more they are likely to be aware/knowledgeable on quail birds and its products. Also, the younger the poultry farmers, the more they are likely to be more aware/knowledgeable about quail birds and its products. This might be because the younger generation are more innovative, information seeking and are not afraid to diversify and try new things.

Table 5: Relationship between selected socio-economic characteristics of the Poultry farmers and their awareness/knowledge level on quail production

Variables	Coefficient (r)	P-values
Age	- 0.521*	0.003
Gender	0.070	0.255
Marital Status	-0.185	0.402
Educational Level	0.872*	0.001
Years of Experience	0.165	0.322
Other occupation	-0.022	0.289
Number of birds kept	-0.040	0.678

*Correlation significant at 0.01 level (2-tailed)

Source: Analysis of Field Survey

CONCLUSION AND RECOMMENDATIONS

The study examined the awareness of poultry farmers on quail production in Kwara State, Nigeria. It is based on the need to meet and sustain the availability of animal protein nutritional source to the teeming population in Nigeria which is a major developing country in Africa. Inferences from the study revealed that the poultry farmers were mostly male, married and in their economic active years. Poultry farmers association and extension agencies were prominent preferred sources of information among the farmers. The awareness/knowledge level of the poultry farmers on quail birds and its products is still very low and this account for the underutilization and diversification of the poultry farmers into quail farming. The study further showed however, that majority of the poultry farmers indicated interest to start-up quail farming. Educational level and age were significant characteristics related to the awareness of the poultry farmers on quail production.

Based on the findings of this study, therefore, it is recommended that efforts should be made by extension agencies and other stakeholders on the enlightenment and awareness of poultry farmers on quail birds and products through the preferred sources of information indicated in order to boost the knowledge about quail production which will help open their horizon for diversification to this relatively underutilized poultry species thus tapping into the sustainable potential that quail farming offers in terms of food and nutritional security for the populace and improved income and livelihood for the farmers.

REFERENCES

- Achoja, F. O., Ike, P. C., and Akporhuarcho, P. O. (2010). Economics of Veterinary Services delivery among Commercial Poultry Farmers in a Market-Driven Economy: Evidence from Delta State, Nigeria. *An International Journal of Poultry Science*, 9(12): 1140 – 1145.
- Adebayo, O. O. and Adeola, R. G. (2005). Socio-economic Factors Affecting Poultry Farmers in Ejigbo Local Government Area of Osun State. *Journal of Human Ecology*, 18(1): 39 – 41.
- Bakoji, I, Aliyu, M. K., Haruna, U., Jibril, S. A., Sani, R. M., and Danwanka, H. (2013). Economic Analysis of Quail Birds (*Coturnix coturnix*) Production in Bauchi Local Government Area, Bauchi State, Nigeria. *Research Journal of Agriculture and Environmental Management*, 2(2): 420 – 425.
- Egbeyale, L.T., Fatoki, H. O., and Adeyemi, O. A. (2013). Effect of Egg Weight and Oviposition Time on Hatchability and Post Hatch Performance of Japanese Quail (*Coturnix coturnix japonica*). *Nigerian Journal of Animal Production*, 40: 102-110.
- Hemid, A. F. A., Abd El-Gawad, A. H., El-Wardany, I., El-Daly, E. F., and Abd El-Azeem, N. A. (2010). Alleviating Effects of some Environmental stress Factors on productive performance in Japanese quail laying performance. *World Journal of Agricultural Sciences*, 6 (5): 517-524.
- Igado, O. O., and Aina, O. O. (2010). Some Aspects of the Neurometrics and Oculometrics of the Japanese Quail (*Coturnix coturnix japonica*) in Nigeria. *Journal of Morphological Science*, 27(3-4): 133-135.
- Ijaiya, A. T., Aremu, A., Egena, S. S. A., Jiya, E. Z., Akinwale, M. O., Malik, A. A., and Mamman, H. (2013). Growth Response and Egg Production of Japanese Quails (*Coturnix coturnix japonica*) Fed Diets Containing Varying Levels of Fermented Cassava (*Manihot esculenta*) Peel Meal. 19th European Symposium on Poultry Nutrition held between 26th – 29th August, 2013 at Potsdam, Germany.
- Matanmi, B. M. Omotesho, K. F., Obaniyi, K. S., Adisa, R. S. and Ogunsola, J. D. (2012). Assessment of Veterinary Extension Services Rendered to Poultry Farmers by Agricultural Development Project, Kwara State, Nigeria. *Asian Journal of Agriculture and Rural Development*, 2(3): 473 – 479.
- NPC (2006). 2006 Population and Housing Census of the Federal Republic of Nigeria. Priority Table (Volume 1). National Population Commission, Abuja, Nigeria.
- Ogunlade, I, Oladele, O. I. and Babatunde, A. O. (2009). Farmers' Attitude to Beneficiary Funding of Extension Services in Kwara State, Nigeria. *Journal of Human Ecology* 26 (3): 215 – 220.
- Ojo, V., Ayorinde, K. L., Fatoki, H. O. (2011). Relationship between Body Weight and some Egg Production Traits in the Japanese quail. *Nigerian Institute of Social and Economic Research*, 11(1).
- Oladeji, J. O. (2011). Sources and Utilization of Poultry Production Information among Poultry Farmers in Oyo State. *International Journal of Livestock Production*, 2(2): 11 – 16.
- Onyewuchi, U. U., Offor, I. R. and Okoli, C. F. (2013). Profitability of Quail Bird and Egg Production in Imo State, Nigeria. *Jornal of Agriculture, Food and Environment*, 9(1): 40 – 44.
- Sahin, N., Akdemir, F., Orhan, C., Kucuk, O., Hayirli, A. and Sahin, K. 2008. Lycopene-enriched Quail egg as functional food for humans. *Food Research International* 41: 295-300.
- Tuleun, C. D., Adenkola, A. Y. and Afele, T. (2011). Effect of dietary Ascorbic Acid Supplementation on the Performance of Japanese (*Coturnix coturnix japonica*) Quails in a Tropical Environment. *Journal of Animal and Plant Sciences*, 10(2): 1268 – 1275.
- Tunsaringkarn, T., Tungjaroenchai, W. and Siriwong, W. 2013. Nutrient benefits of Quail (*Coturnix coturnix japonica*) eggs. *International Journal of Scientific and Research publications*.3(5).

Wikipedia, (2014). Map of Nigeria indicating Kwara State. Available online: www.wikipedia.org Accessed on 18th January, 2014.

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