



Perception of Poultry Farmers' on Effectiveness of Poultry Extension Service Delivery in Calabar Municipal Area of Cross River State, Nigeria

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ABSTRACT: The objective of this paper was to analyze poultry farmer's perception on the effectiveness of poultry extension service delivery in Calabar Municipal Area of Cross River State, Nigeria using appropriate standard methods by selecting 120 registered poultry farmers to obtain Primary data by questionnaire. Result from the study shows that poultry farmers had a mean age of 43 years. Majority (66%) of the farmers were men and about 86% of them were married. The farmers had a mean household size of 5 persons with majority (68%) of them having tertiary education. On average, the farmers had nine years of farming experience and a mean stock size of 1,175 birds. The result revealed 43% of the farmers had contact with extension agents once in the last one year. Farmers' perception of the delivery of extension and advisory services revealed that the farmers' perception was favourable and they expressed satisfaction with the delivery of four out of the nine poultry extension services available to them. They include; training on routine operations (4.0), advice on improved breeds of poultry (3.6), training on biosecurity measures (3.5) and training on diseases prevention and cure (3.3). The most important constraints as perceived by the respondents to limit effective extension services delivery among the poultry farmers includes; lack of funding of extension service (81%), inadequate number of extension agents (68%). The study recommends that the government should immediately boost its financing of the ADPs and recruit more extension agents to achieve effective coverage of more farmers.

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Poultry farming in Nigeria is now one among the most significant aspects of farming as it plays a crucial role in the development of Nigeria's economy by creating business opportunity for entrepreneurs and provides employment (Owolade *et al.*, 2016). It entails raising domesticated birds for their meat, eggs, and other byproducts, such as turkeys, ducks, geese, and guinea pigs (Umunna *et al.*, 2012). Its role in rural livelihoods and food security is enormous (Adeyonu *et al.*, 2016). The industry provides employment opportunity for the populace, thereby serving as a source of income to the

people. The development of the poultry industry in Nigeria has been described as the fastest means of bridging the protein deficiency gap prevailing in the country as it provides a good source of animal protein in meat and eggs which have a high nutritional value (Vihhi *et al.*, 2021). In Nigeria, poultry meat (chicken) and eggs are delectable and widely accepted, with little or no cultural or religious restrictions. Eggs and chicken are part of a nutrient-dense, well-balanced diet, which is crucial for kids, expectant and nursing moms, and sick individuals. The raising of chickens

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and eggs is a key factor in increasing the amount of animal protein consumed by households in both urban and rural areas. The poultry section of livestock subsector is important and rapidly growing as one of the most commercialized agricultural industry in Nigeria due to its ability to retain its value chain and high investment returns (Abubakar and Ibrahim, 2019). The enormous potential of poultry production to bring about rapid economic growth earned it a pivotal position among all livestock-based vocations (Olagunju 2010). In spite of the fact that many people are increasingly venturing into poultry production, the industry has continued to fall short of its aim of self-sufficiency in animal protein consumption in the country. Research has demonstrated that low productivity and inefficient use of resources are the main problems with Nigerian poultry industry. (Matanmi *et al.*, 2012). Emaikwu *et al.* (2011) reported that poultry production in Nigeria is constrained by seasonal and irregular demand, high feeds cost, inadequate capital and poor extension services. In Nigeria, efforts have been made to match the supply of poultry production particularly meat and egg with protein requirement of Nigerians, but a lot still needs to be done to close the existing gap (Umunna *et al.*, 2012). This situation can be improved upon through access and use of extension services rendered to poultry farmers. Extension and advisory services holds wonderful prospect in this regard. Worldwide, agricultural extension and advisory services (AEAS) are useful in promoting agricultural innovations and development through skills dissemination and problem solving for improved livelihoods (Sebuliba-Mutumba *et al.*, 2017). For most farmers, especially those who cannot afford private extension services, access to governmental extension and consulting services is essential due to the significant role and advantages of agricultural extension. Therefore, in the majority of developing nations, the government serves as the primary supplier of extension services. (Berhane *et al.*, 2018). An effective extension service delivery is therefore an essential factor for the accelerated development of agriculture in developing countries (Ashley-Dejo, 2012). Without taking into account the effectiveness of extension service delivery, people frequently determine whether an extension delivery is successful or unsuccessful based on the degree of adoption. Changes in farmers' agricultural output are contingent upon the relationship that exists between extension agents and farmers, as well as the degree to which farmers view extension agents as beneficial. The process by which an individual or a group of people interprets information or stimuli from their surroundings into psychological awareness is known as perception. (Forbang *et al.*, 2019). Perception is

also seen as awareness, comprehension or an understanding of something. For example, the way farmers perceive effectiveness of extension delivery mechanism or, how effective extension personnel are in the accomplishment of extension activities (Nji, 2008). Perception in this study refers to farmers' opinions about the extension training programme, the distribution channels, the kind of technology, and the field visits that farmers receive. Positive perception will promote the adoption of technology while negative perception will hinder the adoption of modern technologies. This is a helpful aspect to comprehend farmer traits and explore strategies for helping farmers adopt new technologies. Benjamin (2013) defined effectiveness as a tool that is used to determine the level of awareness of extension services created among the farmers, number of visits paid by the village extension worker, percentage of scheduled meetings held between farmers and extension workers, number of field meetings held, regularity of meetings held by village extension worker, number of field days organized by village extension worker, monthly or quarterly and number of demonstrations organized by the village extension worker within specified time frame (monthly, quarterly, annually). Therefore, changing agricultural output depends on how farmers and extension agents interact, as well as how much farmers think extension agents are helpful to them. It can also help to explain the dynamics involved in the recommendations that farmers in a particular area take. The amount or type of useful information disseminated to farmers could be used to determine the effectiveness of extension agents in transferring knowledge needed by the farmers to improve production (Ashraf *et al.*, 2018). In Cross River State, agricultural extension is administered by the Cross River Agricultural Development Programme (CRADP) under the supervision of the State Ministry of Agriculture. The CRADP maintains extension unit that provides advisory services to livestock farmers in the State. The poultry subsector's rapid expansion and development depends on having access to information and technologies through extension services to deal with new issues such seasonal and inadequate feed shortages, low breed quality, poor management, and poor health. (Ayanda, 2013). However, public extension systems in the poultry sector are inadequate as the coverage of farm families is still very limited (Adeyonu *et al.*, 2016; Ayanda, 2013). The majority of developing nations face a number of challenges that hinder extension services, including inadequate and unstable funding, inadequate field staff logistics support, a weak connection between agricultural research and extension, and an excessive number of extension agents relative to farm families. These problems by implication also affect the extension

services to the poultry sub-sector. Nevertheless, prospects for sustainable poultry production in Nigeria are high if relevant information is properly disseminated and utilized. The intensification of poultry production requires the effective delivery of new innovations and technologies to poultry farmers. Farmers' belief about these innovations in terms of their delivery systems, benefits, and constraints on poultry production are yet to be investigated. From the forgoing, this study was conducted to examine perception of poultry farmers' on the effectiveness of poultry extension service delivery in Calabar Municipal Area of Cross River State, Nigeria. Hence, the objective of this paper was to analyze poultry farmer's perception on the effectiveness of poultry extension service delivery in Calabar Municipal Area of Cross River State, Nigeria

MATERIALS AND METHODS

Study Area: The study was conducted in Calabar Municipal Government Area which lies between latitude 04° 15' and 5° N and longitude 8° 25' E. in the North. The Municipality is bounded by Odukpani Local Government Area in the North-East by the great Kwa River. Its Southern shores are bounded by the Calabar River and Calabar South Local Government Area. It has an area of 331.551 square kilometers. The Municipal Government Area of Calabar serves two purposes. In addition to serving as the capital of Cross River State, it serves as the seat of the Southern Senatorial District. There are ten wards in the local government, viz:- Ward 1, Ward 2, Ward 3, Ward 4, Ward 5, Ward 6, Ward 7, Ward 8, Ward 9, Ward 10. The indigenous population is divided into two ethnic groupings. The Quas and the Efiks are these people. Nonetheless, the city is home to a diverse population from throughout the state and Nigeria due to its cosmopolitan position. The Efiks adopted Western culture because of their seaside location. They carried on successful trade with early Europeans. Another occupation that is associated with them is fishing. In contrast, the Quas make up the majority of Calabar's hinterland, which is home to blacksmiths, farmers, hunters, and traders. It was the capital of the southern protectorate of Nigeria and lost that position to Lagos in 1904. According to the Local Government Ordinance of 1950, Calabar was one of the first locations for Local Government administration in the then-Eastern Region after the regions were established, and this continued until 1952.

Sampling Procedure and sample size: The population for this study consists of the registered commercial poultry farmers in all the ten wards of the Calabar Municipal Government Area. A list of all the registered commercial poultry farmers was obtained

from Poultry Association of Nigeria. From each of the ten wards, 12 registered poultry farmers were randomly selected thereby giving a total of 120 poultry farmers for the study. Data were collected through the administration of questionnaires and oral interview. The questionnaire was designed in line with the objectives of the study.

Methods of Data Analysis: Descriptive statistics such as frequencies, percentages and mean were used to analyze the socio-economic characteristics of the respondents, identify the extension and advisory services rendered to poultry farmers in the study area and to identify the constraints to extension and advisory service delivery among poultry farmers in the study area while five Point Likert scale was used to examine the perception of poultry farmers on extension and advisory services delivery in the study area.

Likert scale: The poultry farmers' perception of extension and advisory service delivery in the study area was analyzed using the mean obtained from 5-point likert scale i.e. very satisfied, satisfied, neutral, dissatisfied and very dissatisfied. Very satisfied and satisfied were treated as positive perception towards the delivery of extension and advisory services. Very dissatisfied or dissatisfied were treated as negative perception towards the delivery of extension and advisory services while neutral items showed that farmers knew nothing. A mean of 3.0 was used as cut-off point to determine satisfaction or dissatisfaction of the farmers with respect to each of the satisfaction indicators. Thus, a 5-point graphic rating scale of 1, 2, 3, 4 and 5 add up to 15, which gives 3 as mean, when divided by 5 was used i.e. $5+4+3+2+1=15/5=3.0$. Based on the mid score decision rule, any mean score equal or greater than 3.0 is graded as satisfied. Any mean score less than 3.0 is graded as dissatisfied.

RESULTS AND DISCUSSION

Socio-economic characteristics of the sampled poultry farmers: The results of socio-economic characteristics of the respondents are presented in Table 1. The age distribution of the respondents shows that 50% of the farmers were between the ages of 41 and 50 years. About 27% were within 31-40 years, 17% were above 50 while 6.0% were within 21-30 years. The mean age of poultry farmers in the study area is 44 years. This portrays that most of the poultry farmers are in their active and productive age when they can put in their best for optimum productivity. They are also likely to be positively inclined to knowledge

acquisition. This result is supported by Owoade and Akinwale (2019) who also reported in their study on poultry farmers' perceptions of extension service delivery through input providers in Ogbomoso Zone of Oyo State, Nigeria that commercial poultry farmers were young and in their active ages. Result in Table 1 further shows that majority (66%) of the poultry farmers in the study area were males while 34% were females. The predominance of male farmers could be attributed to the fact that poultry enterprise is a highly risky venture, labour intensive and characterized by uncertainties which in most cases can only be handled by men. The finding is consistent with that of Babalola (2014), who reported that the majority of Nigerian poultry farmers are male. The marital status shows that 86% of the respondents were married while 14 % were single. This simply implies that most of these farmers were responsible and had a family to maintain. The result also shows that the mean household size of respondents in the study area was 5 persons. This study is in consonant with Otunaiya *et al.* (2015) who revealed that the average family size of poultry farmers in Ibadan, Oyo state was five persons. The result also revealed that 68% of the poultry farmers had tertiary education, 22% had secondary education while 5% had primary education and the remaining 6% had no formal education. This implies that there is high literacy level among poultry farmers in the study area. This is expected to have positive influence on their decision to adopt innovations from extension agents. The findings concurred with that of Babalola (2014) who reported a high literacy level among poultry farmers in Nigeria.

The mean years of farming experience among the poultry farmers was 9 years. The result indicate that the farmers had reasonable years of experience in poultry farming and must have gained practical experience about some of the risks and uncertainties associated with poultry production. The result further showed a mean stock size of 1,175 birds. This implies that most commercial poultry farmers are small scale operators.

This finding is supported by Maikasuwa *et al.* (2014). They reported that small scale commercial poultry farmers dominated the Nigerian landscape in a study conducted on economics of small-scale layer production in three selected local government areas of Sokoto State, Nigeria. The result from Table 1 also indicate that all (100%) of the respondents were members of Poultry Association of Nigeria and other cooperative societies. Membership of farmers' association may have a positive effect on farmers

because these associations serve as veritable platforms and useful channels of informing and educating their members about government policies and improved farming techniques.

Table 1: Distribution of Respondents Based on their Socio-economic Characteristics (n=120)

Variable	Frequency	Percentage	Mean
Age (years)			
21- 30	7	6.0	
31- 40	33	27.0	
41 – 50	60	50.0	
50 above	20	17.0	43.0
Sex			
Male	79	66.0	
Female	41	34.0	
Marital status			
Single	17	14.0	
Married	103	86.0	
Educational level			
Primary	6	5.0	
Secondary	26	22.0	
Tertiary	81	68.0	
Non formal education	7.0	6.0	
Household size (number)			
1-3	23	19.0	
4-5	86	72.0	
>7	11	9.0	5
Years of farming			
< 5	18	15.0	
6-10	64	53.0	
11-15	30	25.0	
>15	8	7.0	9
Stock size			
< 500	6	5.0	
501-1000	42	35.0	
1001-1,500	47	39.0	
1,501-2000	14	12.0	
>2000	11	9.0	1175
Member of farm association			
Yes	120	100.0	
No	-	-	

Source: Field survey, 2024

Contacts with Extension Agents: Result in Table 2 reveals that 43% of the farmers had contact with extension agents one time, 28% of the farmers had contact with extension agent two times, 15% of the farmers had contact with extension agent three times, 3% of the farmers had contact with extension agent more than three times while 11% had no contact with extension agents. This result indicates that majority of the farmers had contact with extension agents at different frequencies in the last one year.

This may be due to the fact that the study area is part of the city center where the state ADP is located. The proximity of the study area to Plateau Agricultural Development Programme (PADP) which is an extension organization vested with the mandate of training and educating farmers on agriculture and agricultural related activities is an advantage to the poultry farmers. With the high level of risk associated

with poultry business, many farmers tend to seek for extension support. The major pre-occupation of the extension worker is the education of farmers on improved farming techniques, innovations in farming as well as government policies and their effects on their farming business. This finding contradicts Muhammad *et al.* (2014) who opined that access to extension services by farmers in Nigeria is poor in a study they conducted on effectiveness comparison between the farmers field school and the Training and Visit approaches of agricultural extension in two districts of Pakistan.

Table 2: Distribution of Respondents Based on Contact with Extension Agents (n=120)

Extension contact	Frequency	Percentage
One time	52	43.0
Two times	33	28.0
Three times	18	15.0
More than three times	4	3.0
No contact	13	11.0

Source: Field survey, 2024

Extension Services Available to Poultry Farmers: Result in Table 3 shows the distribution of respondents according to the types of poultry extension and advisory services available to them. The result shows that all (100%) of respondents received training on

daily routine operations, advise on improved breeds of poultry, training on poultry diseases prevention and cure as well as training on biosecurity measures. These are the basic and most important services every poultry farmer must acquire to succeed in the business. However services like advice on insurance policy (44%), training on proper record keeping (38%), advice on sources of credit (30%), linking farmers with markets (11%) training on feed formulation (9%) were not available to all farmers.

This is because some of these services were mostly rendered during seminars and meetings due to inadequacy of extension personnel in the study area. Only farmers who attend these seminars have access to these services. An almost similar result was obtained by Onoh *et al.* (2015) in a study on farmers' perception and utilization of poultry extension services in Owerri Agricultural Zone of Imo State, Nigeria. The study found that the major extension and advisory services available to the poultry farmers were; linkage to sources of poultry drugs and to sources of funds, training to handle poultry diseases and pests, linkage to sources of markets for their produce and preparation of farmers to face future challenges that came their way.

Table 3: Distribution of Respondents Based Poultry extension Services received (n=120)

Extension services	*Frequency	Percentage
Training on daily routine operations	120	100.0
Advise on improved breeds of poultry	120	100.0
Training on poultry diseases, prevention & cure	120	100.0
Training on biosecurity measures	120	100.0
Advising farmers on insurance policy	53	44.0
Training on how to keep proper records	45	38.0
Advising farmers on sources of credit	36	30.0
Linking farmers with markets	13	11.0
Teaching skills in feed formulation	11	9.0

Source: Field survey, 2024

Poultry Farmers Perception of Extension Services Delivery: Result in Table 4 indicates that farmers had positive perception and satisfaction with the delivery of four out of the nine poultry extension services in their ranking order namely; training on daily routine operations (4.0), advise on improved breeds of poultry (3.6), training on biosecurity measures (3.5), training on diseases, prevention and cure (3.3).

These were the poultry extension services that were adjudged as satisfactory by the respondent with all of them having a mean rating above 3.0. Although extension performance in the study area was not bad, there is need for improvement. Farmers however did not receive satisfaction in the delivery of services like teaching skills in feed formulation (1.8), training on proper records keeping (1.9), advising farmers on sources of credit (1.9), linking farmers with markets

(2.2), and advising farmers on insurance policy (2.1). This could be attributed to poor funding ADPs as a result of withdrawal of World Bank funding as well as inadequate research personnel. Subjective evidence from most of the respondents shows that extension officers visit farms less frequently than they should. As a standard practice, an extension officer should visit farmers at least once every week. These results contradicts that of Oghenero *et al.* (2021) who in a study on impacts of extension training programmes on poultry farmers in Nigeria reported that respondents were greatly satisfied with the training in brooding, feed formulation and housing.

Perceived Constraints to Effective Extension Services Delivery: Based on result in Table 5, the most important constraints as perceived by the respondents that limit effective extension and advisory services

service delivery among the poultry farmers includes; lack of funding of extension services (81%), inadequate number of extension agents (68%), lack of transport facilities (47%) and lack of in-service training of personnel (53%). Inadequate funding ranked first as a perceived constraint to extension service delivery by the respondents in the study area. Finding a consistent source of finance is currently the most complex and challenging policy problem facing the Agricultural Extension Service. (Hamisu *et al.*, 2017). The findings agrees with that of Agbamu (2005) who noted that the Nigerian extension service faces a number of challenges, such as inadequate and unstable funding as well as inadequate field staff logistical support. Inadequate number of extension agents ranked second among the perceived constraints to extension service delivery.

This implies that the respondents were not satisfied with the number of extension agents in the area. Due to their direct interaction with farmers using any given

technology, extension agents are essential to the success of any extension organization. A maximum of one thousand (1000) farm families in developing nations should be served by one extension agent due to their significance as powerful agents in changing agriculture. (World Bank, 2006). Inadequacy of extension personnel is a serious issue that inhibits effective dissemination of new and useful information of agricultural technologies. Lack of in-service training of personnel rank 3rd and 53% of the respondents perceived this to be problem. According to Ovwigho and Ifie (2009), an essential component of the entire agricultural production process is the training of agricultural extension workers. Agricultural extension agents have a responsibility to provide farmers around the nation with pertinent and actionable information to boost agricultural output. As a result, focus should be given to agricultural extension staff training.

Table 4: Distribution of Respondents Based on Perception of extension Services received (n=120)

Extension services	VS	S	U	VD	D	Sum	Mean
Training on daily routine operations	220	224	18	8	10	480	4.0*
Advise on improved breeds of poultry	115	224	54	42	2	437	3.6*
Training on diseases, prevention & cure	55	256	27	46	13	397	3.3*
Training on biosecurity measures	115	184	57	44	20	420	3.5*
Training on how to keep proper records	30	44	12	92	53	231	1.9
Advising farmers on sources of credit	20	32	36	90	51	229	1.9
Linking farmers with markets	50	52	18	110	36	266	2.2
Advising farmers on insurance policy	45	60	9	102	42	258	2.1
Teaching skills in feed formulation	15	20	1	142	40	218	1.8

VS= Very satisfied, S= Satisfied, U=Undecided, VD= Very Dissatisfied and D= Dissatisfied; Note: (*= Satisfied)

Table 5: Distribution of Respondents Based on Perceived Constraint to Effective Extension and Advisory Services Delivery (n=120)

Perceived problem	*Frequency	Percentage	Rank
Inadequate number of extension agents	81	68.0	2 nd
Lack of in-service training of personnel	63	53.0	3 rd
Lack of funding of extension activities	97	81.0	1 st
Inadequate supervision of field agents	54	45.0	5 th
Lack of transport facilities	56	47.0	4 th
Lack of incentives/motivation	49	41.0	6 th

Source: Field survey, 2024; *Multiple responses exist

Conclusion: Based on empirical evidence of the study, the following conclusions were drawn: Farmers had positive perception and satisfaction with the delivery of four out of the nine extension services available to them namely; training on daily routine operations, advice on improved breeds of poultry, training on biosecurity measures, training on diseases, prevention and cure. The industry is saddled with many problems such as inadequate number of extension agents. Therefore, much need to be done to achieve the market demand of poultry in the area. The study suggested that the onus of guaranteeing farmers' ongoing satisfaction with services received should fall on extension service providers. To effectively cover more

farmers, the government urgently needs to hire more extension agents and raise its financing for the ADPs.

REFERENCES

Abubakar, IF; Ibrahim, UB (2019). A macroeconomic analysis of agricultural sector in Nigeria. *Adv. J. Soc. Sc.* 5(1), 18-25.

Adeyonu, AG; Oyawoye, EO; Otunaiya, AO; Akinlade, RJ (2016). Determinants of poultry farmers' willingness to participate in national agricultural insurance scheme in Oyo State, Nigeria. *Appl. Trop. Agric.* 31(3):55-62.

Agbamu JU (2005). Problems and Prospects of Agricultural Extension Service in Developing

- Countries: in S.F. Adedoyin (Eds). *Agricultural Extension in Nigeria*. ARMTI, Ilorin. AESON;159-169.
- Ayanda, IF (2013). Capability of poultry association of Nigeria for extension services delivery to poultry farmers in Kwara State, Nigeria. *J. Agric. Ext.*, 17(2):7-15.
- Babalola, DA (2014). Risk preferences and coping strategies among poultry farmers in Abeokuta Metropolis, Nigeria. *Global Journal of Science Frontier Research: D Agriculture and Veterinary* Volume 14(5). 22-29
- Berhane, G; Ragasa, C; Abate, GT; Assefa, TW (2018). The state of agricultural extension services in Ethiopia and their contribution to agricultural productivity. Washington DC: International Food Policy Research Institute; 2018
- Davis, K; Franzel, S; Spielman, DJ (2016). *Extension Options for Better Livelihoods and Poverty Reduction: A Selected Review 2012–2015*. MSU International Development Working Paper 143 June 2016. East Lansing, MI: Michigan State University.
- Emaikwu, KK; Chikwendu, DO; Sani, AS (2011). Determinants of flock size in broiler production in Kaduna State of Nigeria. *J. Agric. Ext. Rural. Dev.* 3(11): 202-211.
- Eze, SO; Adeyemi, HRY (2012). Work Skill Improvement Needs in Women Farming in Bitter leaf Production from Sustainable income in Abakaliki, Nigeria. *Int. J. Sci. Nat.* 3(4): 810-814.
- GFRAS. (2011). *Rural Advisory Services Worldwide: A Synthesis of Actors and Issues*. GFRAS synthesis report. Lindau, Switzerland: Global Forum for Rural Advisory Services. 1-80.
- Hamisu, S; Ardo, AM; Makinta, MM; Garb L; Musa, G (2017). A review on current status of Agricultural Extension Service in Nigeria. *Asian J. Adv. Agric. Res.* 1(3):1-8.
- Maikasuwa, MA; Tanko, L; Nabil, I (2014). Economics of small-scale layer production in three selected local government areas (LGAs) of Sokoto State, Nigeria. *Int. J. Agric. Innov. Res.* 3(1): 229-234.
- Matanmi, BM; Omotesho, KF; Obaniyi, KS; Adisa, RS; Ogunsola, JD (2012). Assessment of Veterinary Extension Services Rendered to Poultry Farmers by the Agricultural Development Project, Kwara State, Nigeria”, *Asian J. Agric. Rural Dev.* 2(3):473-479.
- Michael, AA (2012). Effect of Mining on farming in Jos south Local Government area of Plateau State. Federal College of Land Resources Technology, Kuru, Plateau State, Nigeria. *J. Soil Sci. Environ. Manage.* 3(4):77-83
- Miyata, S; Minot, N; Hu, D (2009). Impact of contract farming on income: Linking small farmers, packers and supermarkets in China. *World Develop.* 37(11): 1781- 1790.
- Muhammad, A; Cui, X; Jia, Li; Ghazanfar, Y; Mehmood, M; Nadeem, I; Shah S (2014). Effectiveness Comparison between the Farmers Field School and the Training and Visit Approaches of Agricultural Extension in two Districts of Pakistan. *American-Eurasian J. Agric. Environ. Sci.* 14: 33-39
- Nnadi, FN; Umunakwe, PC; Nnadi, CD; Chikaire, J; Okafor, OE (2012). Cooperative Evaluation of the Effectiveness of Public Extension, Private Extension Services in Alhaji Egbema Local Government area of Imo State, Nigeria. *J. Agric. Res.* 1(9): 358 – 367.
- NPC (2006). National Population Commission, Federal Office of Statistics. Census 2006.
- Oghenero, O; Peter, E; Samson, A; Folorunsho, A (2021). Impacts of Extension Training Programmes on Poultry Farmers in Nigeria: Private Farm Experience. *Int. J. Agric. Ext.* 09 (02). 171-181.
- Olagunju, FI (2010). Impact of Credit on Poultry Productivity in South-western Nigeria, World Rural Observations. 2(4): 29-37
- Otunaiya, AO; Adeyonu, AG; Bamiro, OM (2015). Technical Efficiency of Poultry Egg Production in Ibadan Metropolis, Oyo State, Nigeria. *Economics*, 4: 50-56.
- Ovwigbo, BO; Ifie, PA (2009). *Principles of Youth Development in Africa*. Benin-City: Ethiope Publishing Corporation. 14 – 19.
- Owolade, EO; Adebisi, GL; Alonge, GO (2016). Capability of Poultry Farmers Association for

- Extension Services Delivery in Oyo State, *Nig. J. Agric. Exten.* 20 (2) 95-106
- Owolade, EO; Akinwale, JA (2019). Poultry Farmers' Perceptions of Extension Service Delivery through Input Providers in Ogbomoso Zone of Oyo State, Nigeria. *S. Afr. J. Agric. Ext.* 47(1):36-44
- RIM (1992). Nigerian Livestock Resources: Four Volume Report to the Federal Government of Nigeria by Resource Inventory Management Limited Urban Reports and Commercially Managed Livestock Report.
- Sebuliba-Mutumba, R; Kibwika, P; Kyazze, F (2017). Poultry farmer perceptions of agricultural advisory services involving value addition and marketing in Wakiso district Uganda. *Afr. J. Rural. Dev.* 2 (4) :497-509
- Umunna, MO; Adeeko, A; Onifade, OT; Adigun, OS; Apapa, AN (2012). Poultry Farmers' Access to Extension Services in Atisbo Local Government Area of Oyo State, Nigeria. *Afr. J. Basic. Appl. Sci.* 4 (6): 221-225 DOI: 10.5829/idosi.ajbas.2012.4.6.1117
- Vihi, SK; Tor, LG; Jesse, B; Dalla, AA; Owa, GT; Shekarau, T; Sadiku, Y (2021). Analysis of Poultry Farmers' Participation in Nigerian Agricultural Insurance Scheme in Jos South Local Government Area of Plateau State, Nigeria. *J. Agric. Econ. Ext. Sci.* 7(3):223–239
- World Bank (2006). Investments in Agricultural Extension and Information Services, Module 3 in the Ag Investment Sourcebook, World Bank, Washington, DC.