

Poultry Feed Sources, Socioeconomic Factors and Constraints Facing Commercial Poultry Farmers in Makurdi Local Government Area of Benue State

¹Ochalibe, A. I., ²Atteh, P. A. and ³Teran, A. D.

¹Department of Agricultural Economics, Joseph Sarwan Tarka University, Makurdi, Benue State, Nigeria

Email: alexander.ochalibe@uam.edu.ng; alexee2007@yahoo.com

ABSTRACT

This study assessed poultry feed sources, socioeconomic factors and constraints facing poultry farmers in Benue State, Nigeria utilizing primary data and analysed using descriptive statistics. Majority (85.56%) of the farmers were male with mean household sizes, age and mean annual income of five (5), 48yrs and N410,077=00 respectively. Among those that had formal education, primary 39% and secondary 31% had greater percentage. Larger (40%) percentage of the respondents engaged in farming as their primary occupation, while the second largest population (32%) of the respondents took civil service occupation as an alternative means of income. Most (78.89%) poultry farmers obtained their poultry feeds from feed mill companies, wholesalers (27.78%), self-millers (60.00%), directly from farmers (64.44%) and open market (60.00%). The study concluded that poultry farmers often acquired their poultry feeds from multiple sources. The major constraints faced were associated with feed mill companies unwholesome practices. These include; feeds bought from millers were often lesser than acclaimed quantity and quality, feeds were not always in right proportion in terms of guarantee analysis, feeds were most times contaminated with impurities, high cost of feeds and diseases outbreak. It was recommended that individuals and corporate entrepreneurs should be encouraged to establish feed mills in the state in order to make this all important poultry input safe, available and affordable.

Keywords: poultry feeds, sources, constraints and socioeconomic factors

INTRODUCTION

In our world today, especially in Nigeria, there is a growing importance on the need to increase the food supply for every household. The poultry industry is one remarkable industry that is rapidly expanding over the years and has been recognized to be among the most commercialized subsectors of the Nigeria agricultural system (Adene and Oguntade, 2016). The poultry industry is gaining wide acceptability and interest as many have come to see the benefits it provides both in terms of feeding humans and contributing to economic development of nations. The domestication of poultry took place years ago when chickens and other birds were reared in the traditional way with less emphasis on poultry pens and other equipment. This may have originated from the people involved in hatching and rearing of young birds from eggs collected from the wild, but later on, they were permanently kept in form of captives. With the growing involvement in these practices, a lot of people began to show interest in not only keeping these wild birds but also in using them either for food or source of income. This practice gave foundation to the current practice of poultry farming in the world (Ajieh, 2016).

Many of the cereal grains used as animal feed are also used for human consumption or the development of industrial products. The maize or wheat as energy source are cleaned and then either dry or wet milled. Dry milling removes the outer fibrous coating of the grain and is used in the production of flour. Wet milling is used in the production of sugar, starch, syrup and/or oil. Many of the by-products of both dry and wet milling are suitable for inclusion in poultry feeds (Mengesha, 2012). There are two basic types of fish meal. The first type is derived from fish, such as salmon and tuna, caught specifically for human consumption. The second type is derived from fish, such as herring, menhaden, and pollack, caught specifically for the production of fish meal. In the United States the fish most often used for fish meal is menhaden (Mbuza *et al.*, 2012). Barley is commonly used in poultry diets in some regions of Canada and Europe. This cereal is grown on areas of both irrigated and dry land in the United States. Barley is considered a medium energy grain. It has a low starch content, a high fiber content, and some anti-nutritional factors (USDA, 2009). Soybean meal is the dominant protein supplement used in poultry diets and is considered the standard to which alternative sources of feed protein sources are compared. Soybean meal has a high protein content, especially compared to other plant protein sources (Ezeh *et al.*, 2006). Corn is the grain most routinely used in commercial poultry diets in the United States because it has a good energy content and is easy to digest. The amino acid profile of the protein in corn complements the amino acid profile of the other ingredients, such as soybean meal, typically used in feed. Alternative grains are typically evaluated in relation to corn (Rao, 2015). Sorghum, also called milo and guinea corn, is a highly drought-resistant crop that is grown in many areas of the world, including the United States. Sorghum is only 3% to 5% lower in feeding value than corn. It is often less expensive than yellow corn. The level of tannins in sorghum limits its use in poultry diets. However, tannin-free varieties are now available, and as a result, sorghum can be substituted for corn in poultry diets with only minor changes in the amounts of other



ingredients (Sanni, 2015). Wheat is often used in poultry diets in western Canada and parts of Europe. The husk of wheat detaches from the grain during threshing (unlike conventional barley and oats where the husk remains attached) reducing its fibre content (Alabi, 2016).

Many authors have identified poultry production constraints to include low capital base, inefficient and ineffective management, poor pricing, poor marketing and diseases (Alabi *et al.*, 2000; Carter, 2005). Adebayo & Adeola (2005) reported that a lot of poultry entrepreneurs have left the business forcefully as a result of challenges like high cost of feeds, veterinary services and drugs as well as poor quality equipment. Also, inadequacy of foreign exchange in Nigeria to pay for imports is also adversely affecting the importation of feeds and drugs for Poultry. All these pose great challenge to the survival and expansion of poultry business in Nigeria towards meeting nutritional requirements of the populace and assisting the government in the implementation of the ban on poultry products importation. Other poultry production challenges like poor record keeping, wrong choice of breed, poor feed supply, inaccurate budgeting and starting too large project were identified by Carter (2005). Roys Farm (2016) reported poultry challenges as inadequacy of productive breeds, poor housing, poor quality feeds and feeding, lack of access to veterinary drugs, poor management/care, poor training, poor record of expenses and income as well as poor transportation of poultry products. Obidike (2011) stated poultry production challenges as poor extension service, poor road network, lack of money to buy information media like newsletter, lack of processing and storage facilities, finance and unfavourable climatic conditions. It is worthy to note that each of these problems falls under biological, institutional, socio-economical or technical category which, according to Sonaiya (2020), contributes to non-sustainable poultry production in Africa.

Further, Aromolaran, Ademiluyi & Itebu (2013) reported poultry problems in Ibadan, Oyo State, Nigeria, from the highest to the minimum, as disease attack, difficulty in credit and loan procurement processes, high cost of drugs and vaccination, output market and price fluctuations, lack of technical-know-how in poultry handling, feed quality availability, high mortality of the birds, unsatisfactory healthy breeds availability, accessibility of feed, high cost of feeds and poor infrastructure like water and electricity supply. Other studies of problems relating to farm operations, particularly poultry farming, include Akinfiresoye & Agbetoye (2013), Alho (2015), Bola-Badmus (2020), Das (2015), Food and Agriculture Organisation (2020b), Meta Economics Consulting Group (2013), Naira Land (2020), Osakwe (2017) and Shiferaw & Muricho (2011).

The mentioned poultry production challenges in Nigeria are comparable with Jamali, Soomro, Halepoto, Hashmi & Shaikh (2011) in Pakistan that reported inadequate modern poultry equipment, lack of adequate poultry rearing knowledge, absence of marketing knowledge, lack of modern communication facilities, inadequate infrastructure and logistic support, lack of financial credit, lack of private investment, absence of government assistance and guidance, problem of getting reasonable price, expensive poultry feed and ingredients. Capital is a major requirement for establishing and growing agricultural enterprises and the sustainable development of the sub-sector. Its inadequacy in some places is one of the institutional and socio-economic causes of non-sustainable poultry production in Africa (Sonaiya, 2020).

Similarly, Anwasia (2015) observed that the major problems confronting smallholder poultry farmers in Nigeria is inadequacy of proper management in terms of feeding, housing, health care and traditional methods used by poultry farmers among other factors are responsible for the low productivity. Other problems include rising cost of the major inputs such as feeds, drugs and equipment which are major setback in the poultry industry. It therefore becomes pertinent to carry out this study to investigate constraints to poultry management practices among smallholder farmers in Benue state, Nigeria.

METHODOLOGY

The study was conducted in Benue State, which is located in the North Central region of Nigeria. It is made up of twenty-three Local Government Areas (LGAs) with Makurdi as the State capital. Benue State has a population of 4,219,244 people (National Population Commission, 2007) and a landmass of about 32,518 km². It lies between longitudes 7°47' and 10° East and latitudes 6°25' and 8° North. Majority of the people in the State are farmers with those in riverine areas involved in artisanal fishing activities. The State is divided into three agro-ecological zones by Benue Agricultural and Rural Development Authority (BNARDA) for administrative and operational purposes. Figure 1 shows the map of Benue State (the study area) and its 23 Local Government Areas.

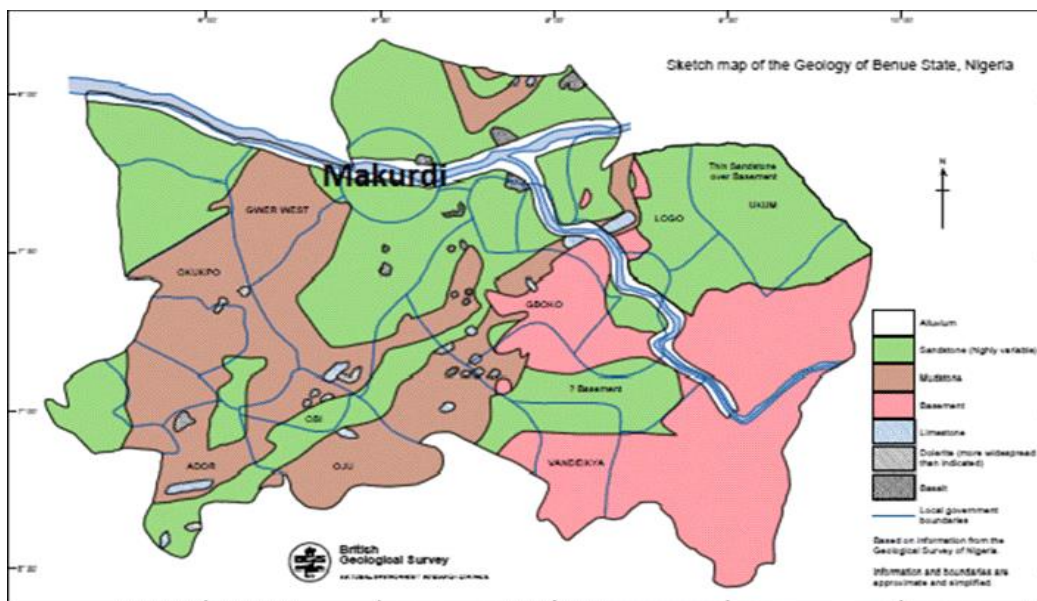


Figure 1: Map of Benue state showing Makurdi Local Government areas
 Source: (Ministry of land and survey, 2017)

Data for the study were collected from primary sources through structured questionnaire administered to commercial poultry farmers. The population of the study was made up of 132 commercial poultry farmers in Makurdi, Benue State (BNARDA, 2018). Commercial poultry farmers were selected from five Council Wards out of the 11 Council Wards in Makurdi L.G.A. and a sample size of 90 commercial poultry farmers. Table 1 shows the population and sample selection of commercial poultry farmers for the study.

Table 1 Sample Selection

Wards	Population
Wadata	23
Northbank I	19
Modern Market	21
Central/south mission	17
Agan	10
	90

Source: (Poultry Farmers' Cooperative, Makurdi)

RESULT AND DISCUSSIONS

Table 2 showed that 2.2% of the respondents were within the age-range of >20-28 years while 11.11% were within the age-range of 29-39 years. Those who were within the age-range of 40-50 years accounted for 48.89%, while those who were within the age-range of 50-69 years accounted for 48.89%. The result indicated that majority (48.89%) of poultry farmers assessed were within the age-range of 40-50 years. These agreed with the findings of Jatto (2012) and Sani *et al.* (2007) who found that high percentages of poultry farmers were in their active ages. The result therefore implied that commercial poultry farmers in the study location were likely to be receptive to improved innovations and practices. This was because people's thought, behaviours and needs were primarily related to their ages (Simsek and Karkacur, 2016). Table 2 also indicated that about 85.56% of the respondents were male while 14.44% were female. This implied that sex distribution of the respondents in the study area skewed towards male respondents. This implied that in the study area, men were into commercial poultry farming in relative to women. The findings of this study are in line with those of Oluakanmi *et al.* (2013) and Tanko *et al.* (2014). 12.22% of the respondents were married, 65.56% were single. 12.22% of the respondents were divorced while 10.00% of the respondents were widows/widower. Since marriage is associated with stability, the respondents were likely to be emotionally unstable. This result is not in line with that of Oluwatayo *et al.* (2008) that married farmers tend to have large family to compliment family labour to enhance production and reduce the cost of hired labour.

The result also indicated that 44.44% of the respondents were farmers, 13.33% were traders, 35.56% of the respondents were civil servants while 6.67% practiced craft. This implied that majority of the dwellers in the study area practiced farming as their major occupation. This finding is in line with that of Evangeline *et al.* (2017) who in her study found out that 61.13% of the respondents were farmers making the major occupation held by the respondents. Table 2 showed that 18.89% of the respondents had a household size of 3-4, while the majority (81.11%) of the respondents had a household size of 4-5. The low mean household size of 1.40 showed that there was low availability of family labour in commercial poultry farming in the study area. The finding of this study is in collaboration with that of Evangeline (2017) who in her study found out that majority of her respondents were within age-range of 1 -5 years. From the results gotten from table 2, it could be seen that 3.3% of the respondents had no formal education, 43.33% had primary education, 32.44% had secondary education and 18.89% had tertiary education. The highest population (43.33%) were respondents that attained primary education while the second largest group of 32.44% represented respondents with secondary education. 6.67% of the respondents had average annual income of 50001-150000 naira while 15.56% had annual income of 510001-2500000 naira and 27.78% had an annual income of 250001-350000 naira. 11.11% had an annual income of 3500001-450000 naira and 38.89% being the majority had annual income of 4500001-550000 naira. The result further showed that 2.22% of the respondents had spent < 5 years in poultry farm business, while 61.11% of the respondents had 6-16 years of experience, 35.56% had up to 17-27 years of experience, while 1.11% of the respondents had >38 years of experience. According to Tanko *et al.* (2014), farmers with more years of experience in an enterprise would be more likely to be efficient, may possess realistic planning imperatives and may have better knowledge of climatic conditions and marketing situations. This result support that of Olasunkanmi *et al.* (2013), who found that poultry farmers in Peri-urban Lagos Nigeria had poultry farming experience spanning between 1 – 15 years. The type of birds raised by poultry farmers. 34.44% (majority) of poultry farmers raised broilers, the second majority (20.00%) were those that raised layers. 18.89% of the respondent were into turkey farming. The fourth largest group of the respondents happened to be those who were into raising of day old chicks for sale. 4.44%, 2.22%, 1.11% and 1.11% were poultry farmers who raised geese, quails, noiler and guinea fowl respectively. This result implied that commercial poultry farmers in the study area were into raising of broilers in relative to other birds.

Table 2: Socioeconomic Characteristics of the Respondent

Variables	Frequencies	Percentage (%)	Mean (\bar{X})
Age			
>21	2	2.22	48.4
29-39	10	11.11	
40-50	44	48.89	
51-60	34	37.78	
Sex			
Male	77	85.56	
Female	13	14.44	
Marital status			
Married	11	12.22	
Single	59	65.56	
Divorced	11	12.22	
Widow/widower	9	10.00	
Occupation			
Farming	40	44.44	
Trading	12	13.33	
Civil servant	32	35.56	
Craftman	6	6.67	
Household size			
3-4	17	18.89	5
4-5	73	81.11	
Level of education			
No formal education	3	3.3	2.69
Primary education	39	43.33	
Secondary education	31	32.44	
Tertiary education	17	18.89	
Annual income (₦)			
50001-150000	6	6.67	410777.8

510001-250000	14	15.56	
250001-350000	25	27.78	
3500001-450000	10	11.11	
4500001-550000	35	38.89	
Years of experience			
<5	2	2.22	4.77
6-16	55	61.11	
17-27	32	35.56	
>38	1	1.11	
Types of bird raised			
Broilers	31	34.44	
Layers	18	20.00	
Day old chicks	16	17.78	
Noiler	1	1.11	
Quail	2	2.22	
Geese	4	4.44	
Turkey	17	18.89	
Guinea fowl	1	1.11	

Source; Field survey, 2021.

Sources of Poultry feed

Table 3 examined the sources of poultry feed in the study area. Result from Table 3 showed that 94.44% of the respondents agreed that they sourced their poultry feed from extension agents, 64.44% agreed that they obtained their feeds directly from farmers. 60% of the respondents agreed that they sourced their poultry feeds from their self- milling while 52.22% agreed that their poultry feeds were obtained from open market. 78.89% of the respondents said that they purchased their poultry feeds directly from the poultry feed mill companies 18.89% accepted that they obtained their poultry feeds from marketers of poultry feed while 27.78 said that they obtain their poultry feeds from wholesalers. 78.89% accepted that their poultry feeds were obtained from their storage while 72.22% said that they got their poultry feeds from friends and family. The findings of this study shows that majority (94.44%) of the respondent acquired their poultry feeds from extension agents. This was followed by the second largest group of respondents (78.89) which agreed that they obtained their poultry feeds directly from feed mill industries and from their personal storage. The finding of this study is in line with that of Eniola (2016) who had similar result from her findings.

Table 3: Sources of feed for poultry

S/N	Sources	Yes	(%)	No	(%)
1	Extension agent	5	(5.56)	95	(94.44)
2	Direct from farmers	58	(64.44)	32	(35.56)
3	Self milling	54	(60.00)	36	(40.00)
4	Open markets	47	(52.22)	43	(47.78)
5	Direct from industry	71	(78.89)	19	(21.11)
6	Marketers	17	(18.89)	73	(81.11)
7	Wholesalers	25	(27.78)	65	(72.22)
8	Storage	71	(78.89)	19	(21.11)
9	Friends and family	65	(72.22)	25	(27.78)

Source; Field survey, 2021.

Constraints Facing Farmers in Commercial Feed Mill Industries

Table 4 examined the constraints facing farmers in commercial feed mill companies in Makurdi L.G.A. of Benue State. Result from Table 4 showed that the respondents agreed to all the items listed as challenges farmers faced in commercial feed mill industries with mean value ranging from 3.03 to 3.46. The result showed that the respondents agreed that feeds bought from feed millers were often less than the acclaimed quantity ($\bar{X} = 3.14$). The respondents also agreed that seasonal instability in agricultural crops do affect ingredients, this was accepted at a mean value of 3.35. Farmers experienced that feeds meant for one animal were often mistaken for another. The respondents accepted that often times, contaminated feeds had a resulting effect on the health of their birds. It was also agreed by the respondents that small scale farmers were not usually attended to on time whenever they went to feed mill companies to acquire feeds. The respondents also agreed that feeds obtained from feed mill companies were not always in the right proportion. It was also believed by the respondents that acquiring feed from feed mill companies was time consuming. The respondents agreed that they always faced

problems associated with power shortage/poor energy supply of light and that led to feed scarcity. Respondents agreed that instability in Government policies affected the availability of certain crops. Respondents agreed that Seasonal instability in agricultural crops affected the feed ingredients they obtained from feed mill companies. Respondents agreed that seasonal instability in agricultural crops did affect ingredients they obtained from poultry feed mill companies. The result also showed that inadequate finance and diseases outbreak were the major constraints farmers faced in commercial poultry farming. The finding of this study agreed with that of Evangeline (2018) who investigated constraints to poultry management practices among smallholder farmers in Benue state, Nigeria, and found out similar challenges/constraints farmers faced in commercial feed mill companies. The findings of this study is also consistent with that of Eniola (2016) who found out similar constraints facing farmers in commercial feed mill companies.

Table 6: Constraints Facing Farmers in Commercial Poultry Enterprises

S/N	Constraints	SA	A	D	SD	Mean	Remark
1	Feeds bought from feed millers are often less than acclaimed quality or quantity	63	1	3	23	3.14	Agreed
2	Seasonal instability in agricultural crops do affect ingredients	52	23	10	6	3.35	Agreed
3	Feeds meant for one animal can be mistaken for another	56	-	16	18	3.03	Agreed
4	Contaminated feeds can lead to Health hazard	50	23	3	14	3.19	Agreed
5	Small scale farmers are not usually attended to on time	49	11	24	6	3.12	Agreed
6	The feeds are not always in the right proportion	56	10	15	9	3.24	Agreed
7	It is time consuming	58	-	22	10	3.16	Agreed
8	Power shortage/poor energy supply of light can lead to feed scarcity	57	4	27	2	3.46	Agreed
9	Instability in Government policies do affect availability of certain crops	53	13	8	16	3.12	Agreed
10	Seasonal instability in agricultural crops do affect ingredients	58	1	18	13	3.14	Agreed
11	Inadequate finance	64	4	18	4	3.77	Agreed
12	Adverse weather	65	10	8	7	3.45	Agreed
13	Inadequate feed formulation	61	6	19	4	3.37	Agreed
14	Poor quality chick	62	5	21	2	3.39	Agreed
15	High input cost	57	11	19	3	3.34	Agreed
16	Inadequate extension services	50	22	15	3	3.31	Agreed
17	Inadequate market for products	58	17	14	1	3.45	Agreed
18	Inadequate storage	59	8	14	9	3.29	Agreed
19	Disease outbreak	57	16	10	7	3.35	Agreed

Source; Field survey, 2021.

CONCLUSION

The result of the analysis revealed that the mean age of commercial poultry farmers in the study area was 48 years. Majority (85.56%) of commercial poultry farmers in the study area were male. Mean household size of commercial poultry farmers was 1.4 and their mean annual income was ₦41, 007. The study showed that poultry farmers in the study area had a mean of 5years of experience. Majority (59%) of the respondents were single and not all commercial poultry farmers in the study area had formal education. Among those that had formal education, those that acquired primary education had a greater percentage of 43.33%. Larger proportion of the respondents engaged in farming as their primary occupation, while the second largest population of the respondents took civil service occupation as an alternative means of income. Farmers source their poultry feed from their self milling while a greater portion obtained their poultry feeds from open market. Other sources from



which poultry farmers acquired their poultry feed from include; feed mill companies, wholesalers. warehouses and from friends and family. The study concluded that poultry farmers often acquired their poultry feeds from multiple sources. The major constraints faced were associated with feed mill companies unwholesome practices. These include; feeds bought from millers were often lesser than acclaimed quantity not quality?, feeds were not always in right proportion, feeds were most times contaminated, high cost of feeds and diseases outbreak. Based on the findings of the study, the following recommendations were made: Agencies of who? should be established to seasonally checkmate operational standards in feed mill companies so as to curb unwholesome practices existing there. Efforts are needed in promoting poultry production through adequate provision of veterinary services for parasites and diseases control to enhance productivity. This study and related ones have identified feeds as the major cost component of livestock production, hence, individuals and corporate entrepreneurs are encouraged to establish feed mills in the state in order to make this all important input available and affordable.

REFERENCES

- Adebayo, C. O., Oseghale, A. I. and Adewumi, A. A. (2015). Profitability and Technical Efficiency Among Broiler Farmers in Kwara State, Nigeria. *Nigerian Journal of Agriculture, Food and Environment*. 11(2), 92-96.
- Adebayo, O. O., Adeola R. G. (2005). Socioeconomic Factors Affecting Poultry Farmers in Ejigbo Local Government Area of Ogun State. *Journal of Human Ecology*. 18(1), 39-41.
- Adedeji, O. S., Amao, S. R., Alabi, T. J. and Opebiyi, O. B. (2014). Assessment of poultry production system in Ilesha West Local Government Area of Osun State, Nigeria. *Scholars Journal of Agriculture and Veterinary Services*. 1(1):20-27.
- Adene, D. F. and Oguntadee, A. E. (2006). The structure and importance of the commercial and village based poultry industries in Nigeria. FAO consultancy <http://www.fao.org/docs/eims/upload/214281/poultrysectorngaen.Pdf>
- Adepoju, A. A. (2008). Technical Efficiency of Egg Production in Ogun State, *International Journal of Agricultural Economics and Rural Development*. (1): 7-14.
- Aduku (1992). *Practical Livestock Feed Production in the Tropics*. S. Asekome and Company Publishers P.O.BOX 15 Samaru, Zaria. P. I.
- Agabin, M. and Daly, J. (1996). An alternative approach to Rural Financial Intermediation. The Philippine experience. *Occasional Paper, Chemonics International*, Washington, D. C.
- Agyemang, I. (2013). Poultry Industry in the Wa Municipality of the Upper West Region of Ghana: Prospects and Challenges. *Academic Journals* 6(1): 6-15.
- Akanni, K. A. (2007). Effects of Microfinance on small scale poultry business in Southwestern Nigeria. *Emitate. Journal of Food and Agriculture*. 2007. 19(2): 38-47.
- Akhter, S. and Rashid, H. M. A. (2008). Comparative Efficiency Analysis of Broiler Farming under Aftab Bahumukhi Farm Limited Supervision and farmers' own Management. *Bangladesh Journal of Livestock Research*. 7(1&2): 50-54.
- Anang, B. T. Yeboah, C. and Agbolosu A. A. (2013). Profitability of Broiler and Layer Production in the Brong Ahafo Region of Ghana. *ARPJ Journal of Agricultural and Biological Sciences*. 8(5): 423-430.
- Aromolaran, A. K., Ademiluyi, I. O. and Itebu, O. J.(2013). Challenges of Small Poultry Farms in Layers Production in Ibadan, Oyo State, Nigeria. *Global Journal of Science Frontier Research Agriculture and Veterinary Sciences*. 1(2).
- Arzeno, A. (2004). Record keeping in farm management. College of Agricultural and Biological Sciences, South Dakota State University, Brookings. Retrieved from <http://pubstorage.sdstate.edu/AgBioPublications/articles/ExEx5054.pdf>



- Ashagidigbe, W. M., Sulaiman, S. A. and Adesiyan, A. (2011). Technical and Allocative Efficiency of Poultry Egg Producers in Nigeria. *Agricultural Journal*. 6(4): 124-130.
- Balamurugan, V. and Manoharan, M. (2014). Cost and Benefits of Investment in Integrated Broiler Farming – A Case Study. *International Journal of Current Research and Academic Review*. 2(4): 114-123.
- Bamiro, O. M., Shittu, A. M. and Kola-Olutokun, A. S. (2001). Private feed production as cost reduction strategy: Effects on profitability of poultry business in Ogun State, Nigeria. *The Ogun Journal of Agricultural Sciences*. 1(1): 37-51.
- Bello, B. (2008). Feed Closes: Way out. Presented at the World Poultry Science Association. Nigeria Branch Seminar, Lagos. March 14-16.
- Bethel, E. (2008). The demand for credit and its impact on the productivity of poultry enterprise in Cross River State, Nigeria. Munich, GRIN Publishing GmbH, <http://www.grin.com/en/e-Book/1993-96>.
- Bukunmi, F. R. and Yusuf, H. A. (2015). Analysis of Socio-Economic Factors Influencing Poultry Egg Production among Poultry farmers in Ondo State, Nigeria. *British Journal of Applied Science and Technology*. 10(3): 1-7.
- Carew, S. N., Oluremi, O. I. A. and Wambutda (2005). The Quality of Commercial Poultry Feed in Nigeria – A Case Study of Feeds in Makurdi, Benue State. *Nigerian Veterinary Journal*, 26(1): 47-50.
- Chia, V. D. and Ugwuishiwa, B. O. (2014). The Trends and Tides of Poultry Farm Building in Makurdi, Benue State, Nigeria. *American Journal of Engineering Research (AJER)*. 03(11): pp. 118-124.
- Daar Communication Plc. What is Now: Plateau Poultry Farmers to Access CBN#120bn loan. Retrieved 20/04/2016 from <http://www.daargroup.com/daargroup/latest-news/vanguardngr-poultry-farmers-access-cbn-n220bn-loan>.
- Dagne, A. (2015). Challenges and Prospects of Poultry Industry. The Case Study of Bahir Dar Town. Master of Art. (M. A.). Thesis, Bahir Dar University. 74pp.
- Ediobu, N. S., Onubuogu, G. C. and Okoli, V. B. N. (2014). Determinant of income from Poultry Egg Production in Imo State, Nigeria. An Econometric Model Approach. *Global Advanced Research Journal of Agricultural Science*. 3(7): 186ⁿ-199.
- Effiong E. O. (2005). Efficiency in Selected Livestock Enterprises in Akwa-Ibom State, Nigeria. Unpublished PhD. Dissertation submitted to the Department of Agricultural Economics, Michael Okpara University of Agriculture, Umudike, Nigeria.
- Ekunwe, P. A., O. O. Soniregun and J. O. Oyedeji, (2006). Economics of Small Scale Deep Litter System of Egg Production in Oredo L. G. A. of Edo State, Nigeria. *Int. J. Poult. Sci.*, 2:81-83.
- Emaikwu, K. K., Chikwendu, D. O. and Sani, A. S. (2011). Determinants of Fluck Size in Broiler Production in Kaduna State, Nigeria. *Journal of Agricultural Extension and Rural Development*. A vol. 3(11).pp. 202-211.
- Emokaro, C. O. and Emokpae, O. P. (2014). Technical Efficiency and Production Elasticity of Broiler Production in Edo State, Nigeria. Publication of School of Agricultural Technology, The Federal University of Technology Akure, Nigeria. *Applied Tropical Agriculture*. Volume 19, No. 1.
- Erevbetine, D. (2009): Revolutionizing the Feed Industry for Increased Poultry Production. University of Agriculture, Abeokuta, Nigeria. UNNAB Inaugural Lecture Series. No, 26.