

LIVESTOCK FARMERS' PERCEPTION TOWARDS THE UTILIZATION OF VETERINARY SERVICES IN KWARA STATE, NIGERIA

¹Bello, O. G.; ²Kayode, A.O.; ¹Orifah, M. O.; ²Agbana, O.; ³Onasanya, G. O. & ⁴Ajayi, G.T.

¹Department of Agricultural Economics and Extension, Federal University Dutse, Jigawa State, Nigeria.

²Departments of Agricultural Extension and Rural Development, University of Ilorin, Nigeria

³Departments of Animal Science, Federal University Dutse, P.M.B 7156, Dutse, Jigawa State, Nigeria

⁴Department of Agricultural Economics and Extension, Ekiti State University, Ado-Ekiti, Ekiti State, Nigeria

E-mail: bellogafaro@gmail.com **Phone :** +2348039662556.

Abstract

The study assesses the perception of livestock farmers towards utilization of veterinary services in Kwara State, Nigeria. A well-structured questionnaire was used to elicit information from about 120 respondents selected across the 16 local government areas using a simple random sampling procedure. Majority of the respondents were Muslims (79.0%), males (90.0%), married (87.0%) with modal age range of 31-60 years (69.3%, $\bar{x}=47$ years). Majority (90.0%) had one form of formal education or the other with at least primary education. The modal years of farming experience range from 5 to 14 years (60.0%, $\bar{x}=12.6$ years). The mean (\bar{x}) Livestock population was 105 and the major source of capital was personal savings (66.7%). Average monthly income was N21, 000-40,000 (80.0%, $\bar{x}=26,416.67k$). On perception towards the utilization of veterinary services, respondents disagreed that livestock associated with veterinary services are prone to infections ($\bar{x}=1.48$), livestock that have had veterinary services are believed to cause harm to consumer ($\bar{x}=1.49$), veterinary services do not increase their productivity ($\bar{x}=1.56$) and veterinary services has not changed my livelihood at all ($\bar{x}=1.57$) among others. On the overall, respondents had positive perception towards the utilization of veterinary services. The perceived benefits of veterinary services are; it increase productivity ($\bar{x}=4.65$), reduced mortality rate ($\bar{x}=4.59$), reduces losses and wastage of carcass ($\bar{x}=4.44$), reduces cost of self medication ($\bar{x}=4.43$), reduces risk level on farm ($\bar{x}=4.41$) and enhances better quality of product ($\bar{x}=4.40$). Major constraints to utilization of veterinary services are poor awareness of the availability of veterinary service providers ($\bar{x}=4.16$), high cost of veterinary service ($\bar{x}=4.14$), Government policies ($\bar{x}=3.98$) and inadequate technical skills to solve farmers' problems ($\bar{x}=3.92$). The Pearson Product Moment Correlation (PPMC) showed significant negative association between the perceived benefits of veterinary services ($r=-0.588$ and $p=0.000$) and the constraints to utilization of veterinary services. It was recommended that efforts to create awareness campaign on the existence of veterinary services should be instituted Policies that will strengthen the institutionalization and performance of veterinary services should be considered so as to invigorate farmers' confidence on service providers

Key terms: Veterinary Services, Utilization, Perception, Livestock Farmers.

Introduction

Livestock sector plays an important role in the Nigerian economy for which over 80% of the populations living in the rural areas are directly or indirectly dependent on agriculture (NBS, 2005). The livestock sub-sector is one sector where the poor contribute to the growth directly instead of getting benefit from growth generated elsewhere. The sector serves as an important livelihood activity for most of the farmers, contributes to the health and nutrition

of the household, supplements incomes, offers employment opportunities, and serves as a store of wealth in times of need. Livestock plays a vital role in the overall economic development of the farm household and nation as a whole as it is important as a source of agricultural diversification and income enhancement (Muhammed-Lawal, 2017). Poor livestock health remains one of the main constraints to sustainable livestock development in many developing countries like Nigeria. Veterinary medicine's primary roots are in agriculture, public health and comparative biology. It is aimed at raising livestock productivity to enhance food security, improve human health by preventing zoonotic diseases, improving human well-being and welfare (Adepegba, Apantaku and Oluwalana, 2006; Ogbor, 2015). Livestock are domesticated animals raised in an agricultural setting to produce commodities such as food, fiber, labor and pleasure. The demand for information on livestock production is growing, both in the sense of demand expressed by the producers themselves, and in the more general sense of a growing potential for increasing production through the delivery of information (Matanmi, Adesiji and Adegoke, 2008).

Veterinary medicine is the branch of medicine that deals with prevention, diagnosis and treatment of disease, disorder and injury in animals, covering animal species, both domestic and wild, with a range of conditions which can affect different species. It is widely practiced, both with and without professional supervision. Professional care is most often led by a veterinary physician (also known as a vet, veterinary surgeon or veterinarian), but also by para-veterinary workers such as veterinary nurses or technicians (Ogbor, 2015). Veterinary science helps human health through the monitoring and control of zoonotic diseases (infectious diseases transmitted from animals to humans i.e. zoonosis), food safety, and indirectly through human applications from basic medical research. They help to maintain food supply through livestock health monitoring and treatment, and mental health by keeping pets healthy (Godfrey, 2011; Adamu, 2001; Ogbor, 2015). Veterinary services can be classified into four categories (a) Curative Services, particularly the diagnosis and treatment to treat diseased animals; (b) Preventive Services to help the emergence and spreading of diseases through vaccination, vector control and control measures, such as quarantine and forced slaughter of affected animals; (c) Production of veterinary Pharmaceuticals; and (d) Human health protection, such as sanitary inspection of animal products (Ogbor, 2015; Godfrey, 2011).

Veterinary services are animal health services provided by professionals aimed at providing livestock farmers with the following; Animal health and disease control, product and market development and animal production and preservation. The availability and quality of veterinary services can play a key role in increasing the productivity of the livestock (Umali, Narrod & Delininger, 1994). However, many have argued that the prevalence of easily controlled diseases and the consequent poor performance of the livestock sector is indicative of a weak veterinary service system that has failed to provide the necessary advice and drugs to livestock producers. In Nigeria, the state has typically assumed almost a sole responsibility for delivery of veterinary services (Achoja, Ike & Akporhuarch, 2010). Thus, suggesting that government withdrawal from the provision of such services will create both health and economic consequences.

The issue of privatization of extension delivery is not entirely a new phenomenon in Nigeria, (Dimelu & Madukwe, 2001). However, in recent past, most veterinary services have undergone substantial restructuring, with the role of the public sector being sharply reduced due to the budgetary constraints faced by many countries and the increasing pressure from International donors, this has prompted private sector delivery of veterinary services – an initiative that is supported by government to reduce the financial burden on her, improve

the efficiency of the services delivery and to deliver sustainable animal health services (Chilonder & Van, 2001). Developing agriculture wholesomely requires an extension system that is pluralistic in nature, that one that contributes both from the public and private sectors. However, Matanmi, *et.al.*, (2008), arguments for the involvement the private sector in the provision of extension services on animal health is centered on the drastic cut in its development budgets and the inability of the government to bring meaningful extension services to intended users.

Ogbor (2015) asserted that, extension programs across the globe are being challenged to consider their impact, relevance and effectiveness in a rapidly changing society. Despite the growing importance of extension services as a tool for sustainable livestock production for improving farmers' household welfare and livestock production, extension is still a field neglected both by policy-makers and by researchers. Morton & Matthewman (1996), thus suggesting a dearth in delivery of veterinary extension services. It is in the light of this, and the weak private involvement in extension service delivery coupled with the non-effectiveness of the public sector delivering veterinary services that this study assessed the Perception of Livestock Farmers towards Utilization of Veterinary Services in Kwara State, Nigeria.

Objectives of the Study

The general objective of the study is to assess the perception of livestock farmers towards utilization of veterinary services in Kwara State, Nigeria. The specific objectives are;

1. Describe the socioeconomic characteristics of the livestock farmers in the study area.
2. Determine the respondents' perception towards the utilization of veterinary services in the study area.
3. Assess livestock farmers' perception of the benefits of veterinary services.
4. Identify the constraints to accessing the veterinary services among the livestock farmers in the study area.

Hypothesis

H₀₁: There is no significant relationship between the respondents' perceived benefits and constraints to veterinary services.

Methodology

Study Area

The study was conducted in Kwara State, Nigeria being one of the 36 states that constituted the federal republic of Nigeria. The state is located within the North. Latitude $11^{\circ} 2^1$ and $11^{\circ} 45^1$. It is sandwiched between longitudes $2^{\circ} 45^1$ and $6^{\circ} 40^1$ East of Greenwich Meridian. The state has a land area of 32,500 square kilometers (3,250,000 hectares) with a temperature range of between 30°C and 35°C . It is situated 306km inland from the coast city of Lagos and 500km from the Federal Capital Abuja. Major town includes; Patigi, Erin-ile, Iloffa, Adeleke, Igbawere, Ejidongari, Ilota, Iponrin and Igbaja. Agriculture is the mainstay of the economy and the principal cash crop are; Cotton, Cocoa, Coffee, Kolanut, Tobacco, Beniseed and Palm produce while livestock includes Goats, Sheep, Cattle, Chicken etc. There are 16 local government areas in the state.

There are two categories of veterinary service delivery in the state; the public veterinary clinic and the private veterinary clinic. The public veterinary delivery system is managed by the government while the private veterinary delivery system is controlled by individuals. Veterinary outreach clinics of the state Ministry of Agriculture and Rural Development are located in the ADP Zones of the state. According to Muhammed-Lawal, *et al.*, (2017), the state has sixteen local government areas (LGAs) and covers an area of 74,256sq km. In the state, there are 247,975 farm families with 254, 1242 hectare of cropped area. The annual

rainfall pattern across the state extends between the month of April and October with minimum (1000-1,500mm) with peak rains in May to June and September to October. Agriculture is the main stay of the state's economy with over 80 per cent of the population living in rural areas (National Bureau of Statistics-NBS, 2005). The main crops grown are: sweet potato, cassava, yam, cowpea, groundnut, maize, sorghum, soya beans, melon, okra, melon, pepper, some leafy vegetables and livestock reared include poultry, goats, sheep and cattle. Kwara State population is heterogeneous, attracting different ethnic groups including the Yoruba, Nupe, Baruba, Fulani and Hausa.

Population of the Study

The study comprises of all the registered livestock farmers in the study area as sample frame. The list of 119 registered livestock farmers available at the State Agricultural Development Program-ADP/Ministry of Agriculture was obtained and used for the study. From the list of the registered livestock farmers obtained from the Ministry 50% (about ½) were selected to obtain 60 respondents through a simple random selection procedure and an equivalent number of non-registered livestock farmers (i.e. 60) were also generated through snowball sampling technique to given a total of 120 livestock farmers for the study. This simple random selection cut across the 16 local government areas of the state.

Results and Discussion

Socioeconomic Characteristics of the Respondents

Table 1, shows the result of the socioeconomic of the respondents. Majority of the respondents (79.0%) were Muslims, males (90.0%), married (87.0%) with a modal age category is 31-60 years (69.3%, \bar{x} =47years). The mean age of 47 years implies that most of the livestock farmers were within the active and productive age range. This is in line with the work of Obisesan, *et.al*, (2013), who pointed out that the active age is regarded as agile with more energy to dissipate and concentrate on productive efforts. Larger proportion (90.0%) of the respondents had one form of formal education or the other (primary, secondary or tertiary education). This implies that majority of the respondents were literate and stand a chance of understanding the accruing benefits of patronizing veterinary service and assisting their information seeking habits as asserted by Ogunlade, *et.al.*, (2010).

The modal years of farming experience category ranges between 5-14 years (60.0%, \bar{x} =12.6 years). The mean years of farming experience of 13 years implies that majority of the respondents have the adequate experience in livestock farming which will help them in taking a better decision about their livestock farming activities. This corroborates the assertion of Nwanu (2004), that the higher the farming experience the more the farmers would have gained more knowledge and technological ideas on how to tackle farm production problems and the higher would be his output and income. The results further revealed that majority were males (90%), it implies that men were more involved in livestock farming than women. This is in line with Odewale (1995) who opined that only about a quarter of the farmers sampled in a study were female, the findings is in consonant with the work of Ayoade, *et.al.*, (2009) who reported that women in the study area rarely participated in livestock production. The major livestock kept were sheep and goats (60.8%), followed by chickens (25.9%). Livestock population is 51-150 (72.5%, \bar{x} =105) with 2/3 getting capital from personal savings (66.7%), followed by cooperative movement (19.2%). Average monthly income is N21, 000-40,000 (80.0%, \bar{x} =N26, 416.67k).

Table 1: Distribution of the Respondents according to their Socioeconomic Characteristics

Variables	Frequency	Percentage	Mean
Age (Years)			
21-30	2	1.7	47
31-40	29	24.0	
41-50	51	43.3	
51-60	32	26.0	
≥ 61	6	5.0	
Religion			
Christianity	25	20.8	
Islam	95	79.2	
Farming Experience (Years)			
1-4	12	10.0	12.6
5-9	37	31.0	
10-14	35	29.0	
15-19	12	10.0	
≥ 20	24	20.0	
Gender			
Male	107	90.0	
Female	13	10.0	
Marital Status			
Single	10	8.0	
Married	104	87.0	
Divorced	6	5.0	
Educational Qualification			
No Formal Education	12	10.0	
Primary Education	38	32.5	
Secondary Education	37	30.8	
Tertiary Education	32	26.7	
Capital for the Business			
Microfinance	3	2.5	
Personal Savings	80	66.7	
Cooperative	23	19.1	
Family and Friends	8	6.7	
Government Credit Scheme	6	15.0	
Type of Livestock			
Sheep and Goat	73	60.8	
Cattle	10	8.3	
Pig	6	5.0	
Poultry	31	25.9	
No of Animal Kept			
1-50	15	12.5	105
51-100	40	33.3	
101-150	47	39.2	
151-200	16	13.3	
≥ 201	2	1.7	
Average Monthly Income (N)			
5,000-10,000	5	4.2	26,416.67k
11,000-20,000	18	15.0	
21,000-30,000	60	50.0	
31,000-40,000	36	30.0	
≥ 41,000	1	0.8	

Source: Field Survey, 2019.

Perception of the respondents towards utilization of veterinary services

The respondents' perception towards utilization of veterinary services was measured using a five point likert type scale of Strongly Agreed (SA=5), Agreed (A=4), Undecided (U=3), Disagreed (D=2) and Strongly Disagreed (SD=1) respectively. A mean value (\bar{x}) of 3 and above implied "agreed" while mean scores below 3 implied disagree. From this scale it can be seen that, majority of the respondents disagreed that livestock associated with veterinary services are less prone to infections ($\bar{x}=1.48$), this was followed by livestock that have had veterinary services are believed to cause harm to consumer ($\bar{x}=1.49$), it does increase their productivity ($\bar{x}=1.56$) and veterinary services has not changed my livelihood at all ($\bar{x}=1.57$).

They also disagreed that veterinary services is for specific livestock type ($\bar{x}=1.58$), and for educated livestock farmers only ($\bar{x}=1.59$) other statement items to which respondents disagree include; it is meant for some specific livestock farmers alone ($\bar{x}=1.68$), veterinary services providers extort money from farmers ($\bar{x}=1.86$), veterinary service providers were only in urban areas ($\bar{x}=1.88$), veterinary services has no effect on their profit level ($\bar{x}=1.92$), veterinary services were not needed since there is availability of local medicine ($\bar{x}=1.98$) and veterinary services are too expensive to come by ($\bar{x}=2.28$).

A grand mean (\bar{x}) of 1.74 indicates that respondents have favourable (positive) perceptions towards the utilization of veterinary services in the study area. Thus suggesting that veterinary services are perceived as integral to livestock production, this assertion is in line with the position of Godfrey (2011) who opined that, prior to the perception of veterinary as added expenditure in the livestock industry; it has been observed that veterinary services are the driving force to increase livestock productivity. There have been reported evidential benefits from effective management practices. Kinfe, *et.al.*, (2018) posited that livestock farmers engaged in multiple risk management practices in order to reduce losses from cattle morbidity and mortality in Northern Ethiopia in which strategies to correct this has to involve specific farm and farmers' characteristics. However, the results contradicted the position of Christine *et.al.*, (2018) who opined that, livestock farmers and veterinarians' perspectives on the natural living construct of animal welfare are not well understood, only cooperation can improve animal welfare by identifying shared concerns about health issues of animals, improving communication about economic priorities and farm goal in British Columbia.

Table 2: Perception of the respondents towards utilization of veterinary services in the study area

Variables	SA	A	U	D	SD	M	R
Veterinary Services are too expensive	3	17	0	90	10	2.28	1 st
It has no effect on my income/ profit level	-	3	8	85	24	1.92	3 rd
No need for vet. serv. since there is access to traditional drugs	-	7	6	85	22	1.98	2 nd
Veterinary Service providers extort money from farmers	-	3	6	82	29	1.85	5 th
Veterinary services does not increase yield/productivity	-	-	-	67	53	1.56	10 th
It has not changed my livelihood status at all	-	-	3	62	53	1.57	9 th
Veterinary services is for commercial farmers alone	-	-	3	64	53	1.58	7 th
Livestock that have had Vet. serv. are believed to cause harmto consumer	-	-	-	59	61	1.49	11 th
Livestock associated with vet. serv. are prone to infection	-	-	-	58	62	1.48	12 th

Veterinary services are meant for some specific livestock	-	3	-	73	44	1.68	6 th
Veterinary service providers are only found in the urban	-	6	3	81	30	1.88	4 th
Veterinary services is only for educated livestock farmers	-	-	3	65	52	1.59	8 th

Source: Field Survey, 2019. Mean =3.0 and above imply agree. Grand mean =1.74

Perception of the Benefits of Veterinary Services to the Respondents

Table 4 shows the perceived benefits of veterinary services to the respondents in the study area. This was evaluated using a five point likert type scale of Strongly Agreed (SA=5), Agreed (Agreed=4), Undecided (U=3), Disagreed (D=2) and Strongly Disagreed (SD=1) respectively. A mean value (\bar{x}) of 3 was obtained ($5+4+3+2+1/5$). From the result in the Table, respondents Perception of the benefits of veterinary services was positively highest for livestock increases productivity ($\bar{x}=4.65$), this was followed by veterinary services reduces mortality level/rate ($\bar{x}=4.59$), reduces losses and wastage ($\bar{x}=4.44$), reduces cost of self medication/try and error ($\bar{x}=4.43$), reduces risk level on farm ($\bar{x}=4.41$), and enhances better quality of products ($\bar{x}=4.40$).

Furthermore, veterinary services enhances access to innovations ($\bar{x}=4.30$) and higher income/profits ($\bar{x}=4.29$) with access to better sources of livestock/feed/drug ($\bar{x}=4.27$) and finally access to market information ($\bar{x}=4.10$). The implication of this is that on the overall, the veterinary services are perceived to be beneficial to livestock farmers in the study area. Thus suggesting that if farmers imbibe the culture of utilizing veterinary services, they stand greater chances of reaping wholesomely its benefits. This assertion is justified by the position of Kinfu, *et.al.*, (2018) who posited that livestock farmers engaged in multiple risk management practices in order to reduce losses from cattle morbidity and mortality in Northern Ethiopia in which strategies to correct this has to involve specific farm and farmers' characteristics

Table 4: Distribution of the respondents according to the perception of the benefits of veterinary services on livestock

Variables	SA	A	U	D	SD	M	R
Reduction in mortality rate	75	43	-	2	-	4.59	2 nd
Reduction in the cost of self medication	60	53	5	2	-	4.43	4 th
Increase in productivity	78	42	-	-	-	4.65	1 st
Easy access to market information	24	86	8	2	-	4.10	10 th
Access to better source of livestock	39	76	3	2	-	4.27	9 th
Reduction in the risk level on the farm	52	65	3	-	-	4.41	5 th
Enhances higher income and profits	35	85	-	-	-	4.29	8 th
Reduction of losses and wastages	56	61	3	-	-	4.44	3 rd
Enhances better quality of products	51	66	3	-	-	4.40	6 th
Access to innovation in world livestock keeping	40	76	4	-	-	4.30	7 th

Source: Field Survey, 2019. Mean Value (\bar{x})=3.0

Respondents Constraints to the Utilization of Veterinary Services

As shown in Table 5, on the respondents constraints to the utilization of veterinary services in the study area, the major constraint to utilization of veterinary services was poor awareness of the availability of veterinary service providers ($\bar{x}=4.16$). This means that there is no enough publicity on the presence of veterinary services in the study area. This was followed by high cost of veterinary service ($\bar{x}=4.14$), Government policies ($\bar{x}=3.98$) and inadequate technical skills to solve farmers' problems ($\bar{x}=3.92$). However, the least constraints were High access to traditional medication methods by farmers ($\bar{x}=3.87$) and

Inadequate knowledge of the effectiveness of veterinary services among livestock farmers ($\bar{x}=2.55$). This is in support of the findings of Mutibvu, *et.al*, (2012) who found that, challenges faced by livestock farmers were disease problems, feed and water shortages, high cost of veterinary services and inadequate extension service.

Table 5: Respondents constraints to the utilization of veterinary services

Variables	SA	A	U	D	SD	M	R
Inadequate technical know-how to solve farmers' problems	15	84	17	-	-	3.92	4 th
Inadequate knowledge of the effectiveness of vet. services among livestock farmers	3	28	3	84	2	2.55	6 th
High access to traditional medication methods by farmers	19	75	17	9	-	3.87	5 th
Government policies	24	80	6	10	-	3.98	3 rd
High cost of veterinary service	-	-	6	89	25	4.14	2 nd
Lack of awareness of the veterinary service providers	27	86	6	1	-	4.16	1 st

Source: Field Survey, 2019.

Pearson Product Moment Correlation (PPMC) Analysis between the Perceived Benefits of Veterinary Services and the Constraints to Utilization of Veterinary Services

Table 6, shows the result of the Pearson Product Moment Correlation (PPMC) analysis, it shows that there is negatively significant association between the respondents' perception of the benefits of veterinary services ($r=-0.588$ and $p=0.000$) and their constraints to utilizing veterinary services in the study area. This implies that the more respondents are constrained to utilization of veterinary services the less favorable their perception of veterinary services will be.

Table 6: Pearson Product Moment Correlation (PPMC) Analysis between the Perceived Benefits of Veterinary Services and the Constraints to Veterinary Services Utilization

Variables	r-value	p-value	Decision
Perception of livestock farmers	-0.588**	0.000	Significant

Source: Field Survey, 2019. **significant level $p \leq 0.01$.

Conclusion and recommendations

The study concludes that livestock farmers in the study area have positive perception towards the utilization of veterinary services and its attendant benefits to them. The major constraints limiting the utilization of veterinary services were poor awareness of the availability of veterinary services, high cost of veterinary services, Government policies and inadequate technical skills to solve farmers' problems. There was a negatively significant association between the respondents' perception of the benefits of veterinary services. It was therefore recommended that Awareness campaign on the existence of veterinary services should be instituted in the state to make the respondents to be abreast of where they can access veterinary services. Policies that will strengthen the institutionalization and performance of veterinary services should be considered so as to invigorate farmers' confidence on service providers. Furthermore, policies that will support farmers' access to credit facilities at low interest rate should be supported to boost the enterprise.

References:

- Achioja, F.O., Ike, P.C & Akporhuarcho, P.O, (2010). Economics of Veterinary Services Delivery in the Market driven economy: Evidence from Delta State, Nigeria. *International Journal of Poultry Science* 9(12): 140-145.
- Adamu, H.R. (2001). *Veterinary Pharmacology and Therapeutics*, Wiley-Blackwell, ISBN: 978-0-8138-1743-9. Pp 213-220. Retrieved 21, November 2001.
- Apantaku, S.O, Adepegba, O.A & Oluwalana, O.A, (2006). Poultry Farmers Preference and use of Commercial and Self-Compounded Feeds in Oyo Area of Oyo State, Nigeria. *Agriculture and Human Values* 23(2): pp 245-252.
- Ayoade J A, Ibrahim H I & Ibrahim H Y (2009). Analysis of women involvement in livestock production in Lafia area of Nasarawa State, Nigeria.
- Chiloda, P. & Van, G., (2001). A conceptual framework for the economic analysis of factors influencing decision making of small-scale farmers in Animal Health Management: *Rev.Sci.Tech. Off. Int. Epiz.*, 20(3), 687-700.
- Christine, L, Marina, A.Gvk & Daniel, M. N (2018). Perspectives of farmers and veterinarians concerning dairy cattle welfare. *Journal of Animal Science*, Vol 8, Issue 1, April 11, 2018, Pg 8-13. <http://doi.org/10.1093/af/ufx006>. *Livestock Research for Rural Development*. Volume 21. Retrieved August 11, 2018, from <http://www.lrrd.org/lrrd21/12/ayoa21220.htm>
- Dimelu, M.U., & Madukwe, M.C., (2001). Extension workers' perception of privatization and commercialization of extension services in Enugu State, Nigeria. In: Olowu T.A (eds) *proceedings of the 7th annual national conference of Agricultural Extension Society of Nigeria (AESON) Ilorin*. Pg 34-41.
- Godfrey, A.S. (2011). The importance of veterinary medicine to livestock health. *Journal of Agricultural Extension* Vol. 21 (2) June, 2011. ISSN(e): 24086851; ISSN(Print); 1119944X. <https://dx.doi.org/10.4314/jae.v21i2.4>.
- Kinfe, G.B, Seamus, O.R, Edward, L & Bodo, S (2018). Cattle farmers' perspectives of risk and risk management strategies: evidence from Northern Ethiopia. *Journal of Risk Research* Vol.21, 2018, Issue 5. doi.org/10.1080/13669877.2018.1233163. *Livestock Research for Rural Development*. Volume 22. Retrieved July 20, 2018, from <http://www.lrrd.org/lrrd21/10/fusa11113.htm>
- Matanmi, B.M, Adesiji, G.B, & Adegoke, M.A, (2008). An analysis of activities of Bee Hunters and Bee-keepers in Oyo State, Nigeria. *African Journal of Livestock Extension*. 6: 7-11. Published by Department of Agricultural Extension and Rural Development, University of Ibadan, Nigeria
- Morton J & Matthewman R (1996) *Improving Livestock Production Through Extension: Information Needs, Institutions and Opportunities*. Natural Resource Perspectives Volume 12 pp 116-119.
- Muhammad-Lawal, Abdulazeez, Amolegbe, Khadijat Busola & Abdulsalam, Oladimeji Abdulrasheed (2017). Economics of Quail Production in Ilorin, Kwara State, Nigeria. *Journal of Agricultural Extension* Vol. 21 (2) June, 2017. ISSN(e): 24086851; ISSN(Print); 1119944X.
- Mutibvu, T, Maburutse, B.E, Mbiriri, D.T & Kashangura, M.T (2012). Constraints and opportunities for increased livestock production in communal areas: A case study of Simbe, Zimbabwe. *Livestock Research for Rural Development* 24(9). 2012 lrrd.org/lrrd24/9/muti24165.htm
- National Bureau of Statistics-NBS (2005): *Poverty Profile for Nigeria*. Federal Republic of Nigeria.
- Nwanu, J.C, (2004). *Rural Credit Market & Arable Crop Production in Imo State of Nigeria*. Unpublished Ph.D Dissertation, Michael Opara University, Umudike, Nigeria pp: 80-92.
- Obisesan, A.A., Omonona, B.T., Yusuf, S.A & Oni, O.A., (2013). Adoption of RTEP Production Technology among Cassava based Farming Household in Southwest Nigeria. *New York Science Journal* 2013; 6(2) pg 62-65. www.science pub.net/New York.
- Odewale, O.A., (2005). Effect of Special Programme for Food Security (SPFS) on farmers' production in Akufo farm settlement of Oyo State. An unpublished HND project work of Federal College of Forestry, Ibadan. pp. 33-34.
- Ogbor, Henry Umuas, (2015). Analysis of the Effectiveness of Veterinary Services among Livestock Farmers in Kwara State, Nigeria. An Unpublished Dissertation submitted to the Department of Agricultural Extension and Rural Development, University of Ilorin, Kwara State, Nigeria, in partial fulfillment of the award of MSc, September, 2015.

- Ogunlade, M. O., Agbeniyi, S. O. & Oluyole, K. A. (2010), An Assessment of the Perception of farmers on cocoa Pod Husk Fertilizer in Cross River State, Nigeria. Vol. 5, No.4. AsianResearch Publishing Network (ARPN) Journal of Agricultural and Biological Science. Retrieved from http://www.arpnjournals.com/jabs/research_papers/rp_2010/jabs_0710_196.pdf. Republic of Nigeria.
- Richens, I.F., Hobson-West, P., Brennan, M.L., Lowton, R., Kaler, J & Wapenaar, W (2015). Farmers' perception of the role veterinary surgeons in vaccination strategies on British Dairy Farm. *Vet.Rec.* 2015 November 7, 177(18): doi:10.1136/vr.103415.
- Umali-Deininger, D. Narrod, C & Deininger, K, (1994). Private Sector Development in Agriculture; Constraints, Opportunities and new approaches, private sector development, World Bank, Washington D.C World Bank, 1994.