EFFECTIVENESS OF EXTENSION COMMUNICATION METHODS IN DISSIMINATING POULTRY PRODUCTION TECHNOLOGIES TO RURAL FARMERS IN IMO STATE NIGERIA.

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ABSTRACT
The study examined effectiveness of extension communication methods in disseminating poultry production technologies to rural farmers in Imo State Nigeria. It specifically described the socioeconomic profile of, poultry farmers, examined the farmers sources of information on broilers production technologies, determine the level of adoption of broiler's technologies by farmers and ascertained the effectiveness of communication methods used by agricultural extension disseminating broilers technologies to the farmers. A multi-stage sampling technique was employed in selecting 120 respondents for the study and data were elicited with the help of a structured interview schedule. Descriptive statistics like mean, percentage and standard deviation were adopted for data analysis. The result shows that they are more male respondents than females and the socio economic profile shows that the mean age was (46.0) years, the mean level of education was 8.5years, the mean extension contact was 3.4 visit, and mean farming experience was (11.6) years. The major sources of information on broilers technologies were friends and neighbours (89.8%) extension agent 86.7%, mobile phone calls (73.4%) and fellow farmers, (66.0%). The farmers adoption level of broilers technology was high with standard feeders space (3.78). mostly adopted while proper selection of broilers (x=2.68) chick was the least adopted by the poultry farmers in the study area. Extension communication method in disseminating broilers technology was effective. The major communication method used were; demonstration ($\bar{X}$=3.59), farm visit ($\bar{X}$=3.42), and home visit ($\bar{X}$=3.01). the perceived effect of adoption of broilers technologies on the welfare of the farmers was positive. This study concludes that ADPs communication method was effective although with a few obstacles, therefore the study recommended that farmers should form radio farmer programme, listeners group and arrange to listen to Radio agricultural Programme together in order to avail themselves the opportunity to interact and discuss the content of the broadcast.
Keywords: Effectiveness, Communication, Methods, Adoption, Technologies

INTRODUCTION

Food security exist when the population has access to safe and sufficient food supply so that a normal healthy life can be maintained Yahonna; Ishaq and Mohammed (2021) Normal healthy life cannot be realized unless maintained with a balanced supply of crop and animal protein in human diet. Proteins are the major components of every living cell. Animal protein constitute the essential amino acids and provide the most important protein requirement in human diets compared with plants proteins. Animal protein sources in Nigeria include fish, eggs, milk and meat. The most popular being frozen fish, beef eggs and meat. In south eastern part of Nigeria, the most common meat consumed and produced is the poultry meat otherwise chicken. One of the latest growing segments of the animal industry is that of poultry. The largest producer of poultry in the world are China, and United States. Unlike other meat chicken is generally accepted by most cultures. There is increasing demand for chicken and almost all cultures accept chicken as wholesome meat for human consumption. Nigeria has the highest numbers of poultry farms in Africa and poultry contributes about 25% of the national gross domestic product. Nigeria, produces about 300,000 tons of chicken per annum, and 650,000tonnes of egg (Farma, Fric2013) Poultry Association of Nigeria (PAN) states that Nigeria produces about 1.25 million tonnes of egg per annum. Agricultural institutes have the responsibility mandate on poultry production and technology generation while extension service has the mandate of technology dissemination to the farmers. Despite these efforts, Nigerian domestic demand for poultry product when compared with other countries is still not met, hence poultry demand depends on smuggling of poultry products, despite that poultry products are high on the import prohibition list.

Nigeria agricultural technology transfer policy had emphasized the transfer of the technological information to rural farmers using different agro-technology system. Improvement in poultry production technology could

speed up the rate at which products and processes that have proved successful in developed nations could be adapted and adopted anywhere including Nigeria.

Efficient transfer implementation and adoption of new technologies are paramount to produce a variety of agricultural products in quantities and qualities to satisfy local, regional and international demands in Nigeria (Maduekwe, 2010). Agricultural extension is a driving force responsible for the growth of agricultural productivities by transferring modern scientific-based improved technologies to rural farmers and consequently strengthen the national economy.

Technology transfer takes place through a well organized extension systems in a continuos process of passing useful information to farmers and assisting them to use effectively new technologies for increased production.

Agricultural development programme is the foremost government funded agro-technology transfer outfit but the livestock development component is responsible for the transfer of improved technologies for the transfer of improved technologies for small ruminants and poultry products for Imo State agricultural development programme, 2020). Imo State Agricultural Development Programme uses different methods of communication pattern to disseminate improved technologies to farmers. Small scale poultry farmers are the major producers of poultry meat in many countries. Improving strategies of the small holders poultry farmers require special strategies to move from no-input scavenging poultry keeping to profit cercented egg and meat production. Improving skills of these broilers farmers has great effect on their production efficiency, increased market shares and income (Huque, 2012).

Information in the right time is a missing link in effective transfer of technologies to farmers especially women and effective communication methods to educate poultry farmers on the new technologies to stimulate their production. The poultry industry is the fastest means of livelihood in bridging the protein deficiency gap prevailing in the diet of Nigerians especially Imo state citizens. Although poultry producers in Nigeria is associated with numerous problems ranging from egg production problems, meat production, poor weight, diseases, feed conversion and management problems. To address these problems there is need for effective transfer of production technologies on broiler farmers.

Imo state agricultural development programme has transferred the following improved production technologies to broiler producers, among them were; proper siting of the poultry house, proper ventilation, sourcing of breeds, proper stocking density, adequate brooding, proper handling of birds, proper disease prevention practices, adequate feeding practices and proper and timely vaccination practices, good hygiene practices and seeking veterinary services promptly. Despite the high availability of poultry technologies developed by researchers and transferred by extension service poultry production in Imo state is still far from its maximum potential. They level of broiler production is not yet commensurate with the level of broilers technologies being disseminated. Sustained poultry production cannot be realized without a solid and functional extension network therefore effective communication of research outcomes to broilers farmers and feedback on the farmers farm. The use of effective communication method by extension agents.

To teacher farmers at their door steps will bring the desired changes studies on communication methods by extension agents in adoption in this study area focused on poultry production with little attention on broilers production with little attention on broilers production in Imo state, Nigeria is not yet ascertained. This is on this backdrop the need for the study. The study sought to assess the effect of agricultural development programme on adoption of broiler production technologies in Imo state Nigeria. The specific objective of the study were to describe the selected socio-economic profile of the broiler farmers In Imo state, examine the sources of information on broiler production technologies, determine the level of adoption of broilers production technologies by the farmers, and ascertain the effectiveness of communication methods used by ADP in dissemination of broiler production technologies,

METHODOLOGY

The study was conducted in Imo State, Nigeria. It lies within latitude 4^0 45'N and 7^0 15'N and longitude 6^0 50'E and 7^0 25'E. Imo statehas 27 LGA and Owerri as its capital other major towns are Okigwe, Orlu, Mbaise, Oguta and Mbano, Ideato amongst approximate others. The state occupies a land mass of 5.530km with a population of 4.5 million persons and the population density of 230-1400 persons per square kilometer (Mbah and Njoku, 2021). The main rivers in the state are Imo Rivers, OtamiriandNjaba River. The major lakes are in Oguta and Abadaba Lake in Obowo. (Okezie and Okpokiri, 2021). It is boarded by Abia state on the east, River Niger, and Delta State to the West, Anambra State to the North and Rivers state to the south. The main occupation of the people is predominantly farming. The rainy season begins in April and last until October with annual rainfall ranging from 1500mm to 2200mm, annual temperature above 20^0C creates an annual relative humidity of 75% with humidity reaching 90% in rainy season. The people speaks igbo language and are predominantly Christians.

The population for the study consists of all poultry farmers in Imo state. The sample frame consist of 800 broiler poultry farmers registered with the poultry association of Nigeria, Imo state chapter (PAN, 2021).

Multi-stage and purposive sampling techniques were used to selected extension blocks circles, sub-circlesand broiler farmers. In the first stage, one (1) extension block was purposively selected from each of three agricultural zones in the state based on the high concerntration of broiler poultry farmers in the areas. The extension blocks were EzinihitteMbaise, Orlu and Obowo. This gave a total of three (3) extension blocks. In the second stage two (2) circles were purposively selected based on high concentration proximity and convenient to the researchers. The circles were, chokozones and Obizi in EzinihitteMbaise for Owerri Zone, Alike and Umunogho, in Obowo for Okigwe agricultural zone, Amifeke andOwerriEbiri in Orlu from Orlu agricultural zone.

Thirdly, 20 broiler farmers were randomly selected based on the list of sample frame and registered members of poultry Association. This gave a total of 120 broiler farmers that formed the sample size of the respondents. The instrument used for data collection was the interview schedule. The instrument made use of pilot testing conducted with 12 copies of the interview schedule farmers selected outside but near to the study area. After computing the scores with test-retest method using moment of correction coefficient, a reliability coefficient value of 0.75 was obtained. The findings of this study provided the needed empirical evidence of effect of extension service communication methods on adoption of broiler production technologies in Imo state, Nigeria. This study will help to proffer solution to the perennial problem of malnutrition in order to re-direct broiler producers on the need to adopt broiler production technologies for increased productivity. Data collected were analyzed using descriptive statistics like percentage, frequency counts and means and inferential statistics of multiple regression, were used in actualizing the influence of communication method on adoption of technology.

Objective I which dealt with selected socio-economic profile was analyzed using frequency count, percentage and mean. Objective ii, which was sources of information on broiler production technologies was analyzed using frequency counts and percentages. Objective iii which dealth with broiler farmers level of adoption of broiler technologies was realized using a 4-point Likiert type scale of always adopted (A) = 4, sometimes, adopted (SA) = 3 Rarely adopted (RA) = 2 and never adopted = 1. The mean score was calculated by addthe nominal values of each response category.Thus: 4+3+2+1=10/4=2.5. giving the mean value of 2.5 Any item with 2.5 and above was regarded as being adopted while any mean score less than 2.5 was regarded as not adopted. Objective 4 which ascertained the effectiveness of Agricultural Extensions communication method, disseminating information on broilers production technologies was analyzed using a-4 point Likert type of scale of highly effective (HE)=4; effective (E)=ineffective (IE)= 2 and highly ineffective (HIE)=1

Thus Efn/n = 4+3+2+1 = 10/4 = 2.5

The mean score was 2.5 any response that scored 2.5 and above was regarded as effective. While any score less than 2.5 was regarded as ineffective.

RESULTS AND DISCUSSION

Table 1: Socioeconomic profile of boiler farmers (n=120)

Socioeconomic factor	Frequency	Percentage %	Mean
Gender			
Male	75	62.5	
Female	45	37.5	
Age in years			
<30	15	12.5	
40-49	40	20.8	
50-59	35	33.3	46.o years
60 and above	5	4.2	
Level of education (years spent in school)			
0 (no formal education)	5	4.2	
1-6	25	20.8	
7-12	30	25.0	85 years
13-18	55	45.8	
19 and above	5	4.2	

Poultry farming experience (years)			
1-5	65	54.2	
6-10	30	25.0	
11-15	10	8.8	11.6 years
16-20	12	10.0	
21 and above	3	2.5	
Level of broiler production (in numbers of chicks)			
<100	70	58.3	
100-300	30	23.0	
301-400	10	8.3	
401-500	7	5.8	
501 and above	3	2.5	
Annual income (₦)			
10,000-20,000	15	12.5	
21,000-30,000	28	23.3	
31,000-40,000	32	26.7	160.23
41,000-50,000	13	10.8	
51000-60,000	20	16.7	
61,000 and above	12	10.0	
Membership of social organization			
Cooperative society	55	45.8	
Farmers association	70	58.3	
Thrift association	32	26.7	
Church association	69	57.5	
Household size			
1-4	42	35.0	
5-8	48	40.0	8 persons
9-12	25	20.8	
13 and above	5	4.2	

Source: field survey, 2020

The distribution of the socio-economic profile of broiler farmers is presented in table 1 data in the table show that 62.5% broiler farmers were males while 37.5% of them were females. This findings indicates that males constitutes majority of broiler farmers in the study area. This findings agree with that of AchojaOfaku and Okoh (2017) that males dominated poultry farm enterprise in delta state. This finding disagrees with that of Jane, OdoAsadu and Enwere (2013) that asserted that poultry farmers in Enugu North Area were dominated by females. Results showed that 33.3% belonged to the age bracket of 40-49 years old. As 29.2%, 20.8% belong to the age group of 50-59 years and 31-39 years respectively. The mean age was 46.0 years. This finding implies that broilers farmers were I n active and prime ages. This implies that they are ready and innovative in poultry and ready to adopt modern technologies. This finding was in consonance with that of jane, et al (2013) that stated that poultry farmers in Enugu state, were within the age range of 35-44 years and that of Aphunu and Agwu (2013) who observed that farmers in Delta State fall within 30-40 years. Results indicated that 45.8% of the respondents spent 13-18 years in school as 25.0%, 20.8% spent 7-12 years and 1-6 years in school. This implied that reasonable proportion of broiler farmers in Imo state, had secondary and tertiary education. The implication of this findings is that most of them were literates. This is an advantage to adoption and utilization of broilers poultry technologies as education has shown to be a factor in adoption of high yielding modern farm practice (Njoku, 2016). The mean level of education 8.5 years. The result indicated high

level of education among broiler farmers.Would likely make them more responsive to many agricultural extension programme and policies since education provides individuals with a tool to accept positive changes. This finding agrees with OwodaleOvesolayekimi and popoolo (2013 Chaket al 2013) that observation education as positive correlate of adoption of livestock production technologies among farmers in south-eastern Nigeria. The production level of broiler farmers shows that 58.3% of broilers farmers had less than 100 birds, as 25.0% raised between 100 and 300 birds, this findings indicate that majority of the respondents had small stock size. This affirms the assertion that most of the broiler farmers in the area were small scale farmers. Results showed that 26.7%, 23.3%, 16.7% and 12.5% of broiler farmers had annual income of N31,000-40,000 N21,000-30,000 and N51,000-60,000 respectively. These implies that broilers farmers earned merger income and cannot be able to meet their family needs. The low level of income would be connected to low stock size. Membership of social organization indicate that 45.8%, 58.3%, 57.5% and 26.7% of broiler farmers belonged to cooperative societies, farmers association church association and shift association respectively. The implication of this findings may be attributed by membership of social organization. This is in line with Oyeyinka, Raheem, Ayanda and Abiona(2011) that observed high participation of social organization. This finding disagreed with Adebayo et al(2015), Sylvia (2013). Membership of social organization impeded adoption of improved technologies due to group social influence.

Household size of broiler farmers indicate that 40.0%,35.0% and 20.8% percent of respondents had 5-8 persons, 1-4 persons and 9-12 persons respectively. The mean household size was 8 persons. This implies that more family labour will be available, since relatively large household size is an obvious advantage with respect to farm labour supply. Result shows that 54.2%, 25.0% and 10.0% had 1-5 years, 6-10 years, 16-20 years of experience respectively. The mean broiler production experience of 11.6% years. This is long enough for hastening of most farm operations. This long experience is an advantage for increased agricultural production since it could encourage rapid adoption of improved technologies.

Result also shows that 54.2%, 23.3% and 10.0% of the broiler farmers had 1-2 times, 3-4 times and 5-7 times extension visits respectively. The mean extension contact was 3.4 visits which implied low extension contact. This low extension contact do not ought well for technology adoption and dissemination. This low extension contact appears to mean that extension agents are not discharging their functions as well as promoting poultry farm enterprise in Imo state. This could be due to lack of motivations, mobility problems and poor conditions of extension work.

The source of fund of broiler farmers indicate that 52.5%, 51.7%, 40.0% and 26.7% of broiler farmers sourced their funds through microfinance banks, personal savings, cooperative sources and relatives respectively. This finding implies that broiler farmers sourced their funds through various sources but informal sources were more prominent in the study area.

Table 2; Distribution of respondent by their source of information on broiler production technologies

Sources of information	Frequency	Percentage %	Rank
Extension agents	104	86.7	2nd
Radio programme	64	53.5	6th
Television programme	57y	47.7	7th
News letters print media	35	29.3	10th
Mobile phone	89	73.4	3rd
Internet	31	73.4	3rd
News papers			
Fellows farmers	79	66.0	4th
Friends/ related neighbor	107	89.8	1st
Village meeting	47	39.5	8th
Town cries			
Cooperative societies	43	35.9	9th
Non-government organization	33	37.7	11th
Interpersonal	68	56.6	5th

Source: field survey, 2020

The distribution of broiler farmers by Technologies sources of informationis presentedin Table 2. The data in the table shows that extension agents (86.7%), friends (89.8%), mobile tone (73.0%) radio – programme (53.5%) television programme (47.7%) fellow farmer (66.0%) and village meeting (39.50%). The findings

revealed that broiler farmers in Imo state use more of inter personal information sources. The result show that the order of preference or ranking of the information sources investigated were as follows friends/neighbours (89.8%), extension agents (86.7%) mobile phone calls (73.4%) follows farmers (66.0%), inter-personal (56.6%) radio-programme (53.3%), television programme (47.7%) fellow farmers (66.0%) and village meetings(39.5%). Finding revealed that broiler farmers in Imo state use more of inter-personal information sources. The result show that the order of preference or ranking of the information sources investigated were as follows /neighbors (89.8%), extension agents (86.7%) mobile phone calls (73.4%), fellow farmers (66.0%) inter-personal (56.6%) radio programme (53.5%), television programme (47.7%) village meering (39.5%) and internet (25.6%).

This is in line with that of Aphanu and Aloma (2011) that asserted that mobile phone was commonly used by rural farmers more than other communication sources. The findings agreed with Ekedo (2016) who affirmed that cassava farmers in south east were not aware of internet as waste source of information in farming. The implication of these findings is that these sources of information should be promoted by relevant agricultural development agencies.

Table 3: Distribution of respondents Adoption of broilers production on technologies

Broiler technologies	Mean	Standard deviation
Proper selection of broiler Chicks	2.68	1.08
Proper selction of site	2.79	1.09
Adequate housing	2.89	0.89
Proper ventilation	3.12	1.13
Adequate disinfection	3.50	0.54
Regular letter management	3.65	0.48
Adequate floor space	3.53	0.50
Adequate feeding practice	3.44	0.57
Adequate vaccination schedule	3.07	1.07
Proper brooding practice	8.38	0.83
Sufficient lighting practice	3.42	0.70
Adequate water space	3.62	0.54
Standard feeders space	2.78	0.42
Grand mean	3.30	

Source: field survey 2020

Result in table 3, shows that farmers had high adoption level of broiler production technologies with a grand means of (x=3.30). Thirteen (13) production technologies were investigated. They were standard space (x=3.78), litter management (x=3.65) adequate water space (x=3.62), adequate floor space (x=3.53).

Adequate disinfection (x=3.56), adequate feeding, practice (x=3.44), brooding practice (x=3.38) proper ventilation (x=3.07), proper housing (x=2.89), proper site selection (x=2.68). all the technologies investigated had means score above the (x=2.5) benchmark. This implies that broiler farmers in the area had high adoption level of production technologies available to them. The implication of the findings could be main willingness to adopt improved technologies inorder to expand their farms so that they can make profit hence broiler

production is a lucrative farm entreprises. The result showed that the standard deriations were closely packed and small. The implication of this data had high degree of uniformity and reliability of the results. The finding was in consonancewith that of Onuh and Igwe M. (2019) that explained that the smaller the standard deviation the higher the degree of reliability of the estimates.

Table 4: distribution of respondents by effectiveness of extension communication methods disseminating broilers technologies

Communication method	Mean (x)	Standard
Agricultural radio programme	2.94	0.90
Television programmea	2.78	0.84
Agricultural bulletin	2.12	0.73
Leaflet	2.08	0.71
Home visit	3.01	0.98
Farm visits	3.42	0.85
Mobile phone contact	2.52	0.88
Demonstration	3.59	0.98
Village meeting	2.56	
Grand mean	2.78	

Source: field survey, 2020
Mean >2.5 effective

Result in table four revealed that seven (7) out of the mine communication methods used by Agricultural extension in disseminating broiler production information were effective while two (2) were considered ineffective by the farmers. The finding indicated that some mass media and interpersonal communication methods are better communicated methods that would be effective in promoting adoption of broiler technologies in Imo State.

This finding agreed with that of Nwachukwu (2010) that radio is an effective communication method in adoption of organic farming. This is in line with Asadu *et al; (2010) and*Madukwe, 2010, (2013) that communication methods used by extension agents in disseminating innovation in Imo state, Nigeria were mobile phone calls, farm and home visit. The results showed that the standard deviations were closely packed and small. This finding agreed with Onuh and Igwenma (2019) that affirmed that the smaller the standard deviation, the higher the degree of reliability of the estimates.

The distribution of broiler farmer's effectiveness of Agricultural Extension communication method in dissemination broiler production technologies is presented in table 4. The table shows that atotal of nine (9) communication methods were used by Agricultural extension in disseminating broiler production technologies. They were radio programmes, television programme agricultural bulletin, leaflets, home visit, farm visit, mobile phone contacts, and demonstration and village meanings. The mean score of the communication methods were as follows, demonstration (x=3.59), farmers visit (x=3.42), home visit (x= 3,01), radio programme (x=2.94).

CONCLUSION AND RECOMMENDATION

The study examined the effectiveness of extension communication methods in disseminating poultry production technologies to farmers in Imo State Nigeria. The level of adoption of farmers was strongly linked to their age, household size, annual income, educational level and while communication method used by extension ganets was inflicted socioeconomic factors of the farmers. The study showed that the socio economic and communication related characteristics of the farmers significantly influenced the perceived effectiveness of the communication method used by extension service but still extension agents agent communication method was effective in disseminating broiler technologies to rural farmers. Although perceived effectiveness of the communication method was hindered by insufficient visit of extension agent, language translation of message and poor timing of workers. Therefore it is recommended that extension agents should intensify effort on the communication method that will positively influence poultry production.

REFERENCES

AchoO.and Okon I.(2017) Effectiveness of Radio programme in Technology Transfer *Journal. ofAgricultural Extension 2 (1) 88-98*

Adejijo P Edoka M and Adejoh.S (2013) Information and Communication Technologies and

agricultural extension services delivery in Nigeria , Proceeding of the 18th annual national conference of *AESON 5th-9th may 2013 ISAN 15951421*

Aphanu A, : andAfoma S. (2011) Extent of ICT used by farmers in isokoAgricultural zone of Delta State, Nigeria Journal of AgriculturalExtension 5(1) 22-30

Aphenus A and AgwuA E(2013) Information and needs of farmers in Delta State Nigeria: Implication for transformation Proceeding of 18th annual warfare.

Asadu A Ogwuike W and Enwelu L (2013) Communication Technologies used by extension workers in disseminating agricultural innovations in imo state Nigeria . proceeding of 18th annual conference (AESON)47-54

Asadu O. and Enwerei. (2013) Poultry Farmers .Adoption to Climate change in Enugu North Agricultural zone of Enugu State *Journal of agricultural extension 17 (2) 11-118.*

Chad J OdoE Asadu A and EnweluI (2013) Poultry farmers adoptability to climatic change in Enugu north Agricultural zone of Enugu State *Nigerian journal of agriculture extension 17(1)104-108*

Ekedo O. (2016) Effectiveness of Television programme in Technology dissemination to rural farmers in Lagos State *journal of agric extension 10(2)89-95*

Ekong E E (2010) Rural Sociology. 3rd edition UYO dove publishers

Farmafric M (2013) The Prospect price and peril of poultry in Nigeria Agriculture. www.narialand.com/130866/prospects-price-peril-poultry-industry

Hamidi F (2014) Use of logistics regression *www.researchgate.net/pos(how -is-logistic-regression-used-what-condition-and-types-of-variable-should-be-used*.

HellenL(2014) Efficacy of Interpersonal Communication channels in diffusion and adoption of zero grazing technology *International journal of academic research in business and social science 4(9)352-368*

Ifenkwe G (2014) Adoption of Innovations in Nwachukwu I. (ed)Agricultural Extension and rural Development promoting indigenous knowledge .lamb house publications UmuahiaNigeria

Madukwe M.I (2010)Framework for Technology adoption among farmers in developing countries .Implications for sustainable food security in Nigeria International Journal of Agriculture Extensiom 2(1) 23-30

Njoku J. I. K. and mbah G O (2021) Factors Influencing Domestic Violence and its Mitigation strategy among rural farm household in Imo State *Journal of Agricultural Extension 8(1)100=109*

Nwachukwu I (2014) From drum beat to gigabytes: communicating Agricultural technologies effectively to farmers in Nigeria : Michael Okpara University of Agriculture Umuahia 20th inaugural lecture Abia State Nigeria

Nwachukwu I. and orji O. (2013) Effect of communication methods in disseminating Agricultural Information *Nigerian journal of agriculture 19(2)8-15*

Okezie C R and Okpokiri C I (2021) Determinants of choice of informal banking among Agricbusiness rural households in Ikeduruof Imo State Nigeria. Reading in honourof an erudite professor of Agricultural Economics professor Remy OnyekachiMejehaeds JCOnwumere C Ogbonna and I.O obasi academic and researchers committee MOUAU.

Onuh M and IgwenmaA (2019) Applied Statistical Techniques for business and basic sciences 3rd century skill mark media publisher owerri Nigeria

Oseghale A and Adewume A (2015) poultry production a lucrative entreprise*Journal of Agricultural Extension and Environment 11(2).*

OwodaleM ,Oyesolayekime and popoolaV(2013) broiler Production Profitability and Adoption of Technologies Oyo State Nigeria , *Nigerian journal of agriculture 7(2)99-106* .

OyeyinkaRaheem ,Ayandaand Abiona S, (2011) Profitability and Technical Efficiency among broiler farmers in kwara state Nigerian journal of Agriculture 18 (2) 115-125.

Sonaiya S. (2013) Broilers Production the way out through technology *Journal of Agricultural Extension 19(4)201-205*

Sylvia B N (2013) International workshop on farm Radio broadcasting: Role of rural radio in Agriculture. FAO corporate document reposirory: radio Uganda.

Yohanna J Ishaq D and MuhammedA (2021) Effectiveness of gender participation in agriculture productivity in zuru southern guinea savana of Nigeria *International Journal of Agricultural Extension and Rural Development studies8(1)1-8*