



**ASSESSING THE EFFECTIVENESS OF AGRICULTURAL INNOVATION
INTERVENTION IN BENUE STATE, NIGERIA: EVIDENCE FROM E-WALLET
SCHEME**

G.D. Tiri, L.K. Adebayo, E.A. Ojoko and R.N. Tumar

Department of Agricultural Economics and Extension, Federal University,
Dutsin-Ma, Katsina State, Nigeria

ABSTRACT

This study is aimed at assessing the effectiveness of the performance E-Wallet powered growth enhancement support scheme on crop farmer's beneficiaries in Katsina –Ala local government of Benue State. A total of 89 crop farmers E-Wallet beneficiaries across the study area were sampled through a simple random method. Data was collected through structured interview scheduled and analysed using descriptive statistics and chi-square analysis. Farmers mean age was 35years, majority (81%) were married, and most (88.9%) perceived the delivery of farm input has been untimely. There was no supply of fertilizer in the redemption centers at the on-set of the farming season and 56.8% of the farmers perceived that accessing farm input through the E-Wallet platform was favourable. A chi-square analysis was conducted to evaluate the relationship between farmer's personal characteristics and their perception of E-wallet platform, the results showed that Farming experience and level of education is significantly related to the farmer's perception of the effectiveness of the E-Wallet platform. However, 66.9% of the respondents indicated non-commitment of ADP staff as a major constraint, distance to redemption centres, less quantity of agro-inputs allocation and interference of operation by influential politicians may hamper the scheme if urgent actions are not taken. It was therefore recommended that increase government expenditure to the agricultural sectors so that government can procure sufficient farm inputs, timely delivery of inputs and establishment of more redemption centres within short distance from the farmers as this will certainly make the scheme to impact more on the beneficiaries.

Keywords: Agricultural innovation; E-wallet scheme; productivity

INTRODUCTION

The severity of rural livelihood and poverty in developing countries like Nigeria has necessarily informed a drift in her agricultural systems from the strengthening of national research systems towards systems that enable innovations from individuals and communities, proper transfer of knowledge, utilization of knowledge and overall transformation (Oguniyi and Kehinde, 2015). This shift towards an innovation systems

orientation was precipitated by the realization that despite stronger national research systems, agricultural productivity remained low as a result not only of the lack of appropriate technologies and the lack of access to those technologies, inputs, credit and access to markets and rural infrastructure, but also because of gaps in information and skills that prevented rural producers from effectively utilizing and adopting these technologies. The new prevailing agricultural research paradigm entails that agricultural research innovation system approaches feature in national strategies for countries working towards promoting long term agricultural development (Sanginga *et al.*, 2009). Therefore, the role of agricultural innovation in poverty reduction, improving livelihood and enhancing productivity outcomes cannot be over emphasized. Agricultural innovation can have both direct and indirect effects on livelihood and productivity improvement of the beneficiaries. This will be determined largely by the relative speed with which a household adopts new technologies or participate in developmental intervention programmes such as Growth Enhancement Support Scheme in Nigeria.

There is considerable evidence that smallholder farmers' access to markets is constrained by asymmetric information which causes moral hazard raises transaction costs, impedes output performance, squeezes income and exacerbates poverty. The scheme guarantees registered farmers e-Wallet vouchers with which they can redeem fertilisers, seeds and other agricultural inputs from agro-dealers at half the cost, the other half being borne by the federal government and state government in equal proportions. An e wallet is defined as an efficient and transparent electronic device system that makes use of vouchers for the purchase and distribution of agricultural inputs (Adesina, 2013). Over 1.2 million farmers successfully redeemed their seeds and fertilizers using the electronic wallet system within 120 days of launch of the Scheme. Farmers received 50% subsidy for fertilizers and 100% subsidy for improved seeds (FEPSAN, 2012). The priority commodities under this Scheme are rice, cassava, sorghum, cocoa cotton, maize, dairy, beef, leather, poultry, oil palm, fisheries as well as agricultural extension

Several attempts have been made over the years to boost farmers' productivity. Among these efforts are the suppliers of farm inputs such as improved seeds, agrochemicals and fertilizers at subsidized prices to the farmers (Osinowo, 2012). However, a large proportion of these inputs could not be reached to farmers, as a result of the high level of corruption, insincerity and political interruption in the distribution channels. Adesina (2013) pointed out that the old system used in supplying inputs to the farmers was weak, poor extension service services, lack of market information on prices on prices, limited (IFPRI, 2010) access to credit facilities, inadequate supply were stated among the constraints to effective fertilizer distribution in Nigeria inefficient and fraudulent, hence a large proportion of the farmers could not benefit from it. This study aimed at assessing the perception of farmers on the effectiveness of e-wallet platform and to examine the challenges militating against the e- wallet scheme in the study area.

MATERIALS AND METHODS

Study Area

Katsina Ala Local Government Area of Benue State shares boundaries with Logo and Ukum Local Government Areas in the North. In the North East are Takum and Ussa Local Government Areas in Taraba State, Kwande and Ushongo Local Government Areas to the South and Buruku Local Government Area. The Local Government Area lies in the

guinea savannah vegetation while the eastern portion consists of undulating hills with shrubs. Annual rainfall ranges between 158 – 180 mm (Fanen and Olalekan, 2014). The prominent geographical features in the area are River Katsina-Ala, the Harga Hills of igneous Rock, River Yooyo, Loko and Lake Akata. The people of Katsina – Ala Local Government Area of Benue State are mainly farmers. Over 75% of the population engages in agriculture.

Sampling Technique

A purposive sampling technique was used to select 89 beneficiaries of the E-wallet scheme from 10 farming communities across the study area where the E-wallet scheme operated. The use of primary data has been employed to ensure first-hand information. The secondary data comprises of information from journals and textbooks. The choice of Katsina Ala local government area; as the population from which samples are drawn is informed by the desire to point a broader picture of the impact of ATA as a government innovative policy on the people at the grass root level.

RESULTS AND DISCUSSION

Socio-economic Characteristics

Table 1 presents results on the socio-economic characteristics of the respondents. On the household population, 30.3% of the respondents have 5-9 household members, while 23.5% have a household population of about 10-15 people in the house, 31.4% have a family size that is above 15 people, the other 14.6% of respondents are small families of about 1-4 members. This indicates that most of the farmers that benefitted from the scheme have available labor for agricultural activities. The scheme has attracted more labor for farm-level activities. About 45% of the respondents are within the age range of 30-39 years. This indicate that most of the farmers that benefitted from the e-wallet scheme are still young and are expected to be active in participation in e-wallet initiative and thus make effective utilization of the scheme to enhance their productivity. Large proportions (81%) of the respondents were married (2.2%). Only a few (17%) were single. The high proportion of married people among the respondents is an indication of their responsibility and commitment in working to enhance their productivity that will help them to take care of their family basic needs. The result on educational level indicates that 31.4% are Secondary School certificate holders while 56.1% have A level certificate. Although most of the farmers received one form of education or the other Since the information seeking ability and the amount of information received by an individual is usually a function of his/her educational status, It could be said that most of the respondents have access to information that could enhance their productivity. These have a positive impact on their ability to actively participate in the E-wallet approach scheme. The Table also revealed that farming is the primary occupation of most of the respondents (78.6%). this imply that food production by this farmers contribute to what have made the state the food basket of the nation today.

Table 1: Socio-economic Characteristics of the respondents

Variables	Frequency	Percentage
Household size		
1-4	13	14.6%
5-9	27	30.3%
10-14	21	23.5%
15>	28	31.4%
Age in years		
20-29	23	25.8%
30-39	40	45%
40>	26	29.2%
Marital status		
Single	15	17.%
Married	72	81.%
Divorce	2	2.2%
Academic qualification		
No qualification	1	0.1%
Primary school leaving certificate	10	11.2%
Secondary School certificate	28	31.4%
A level	50	56.1%
Primary occupation		
Business	4	4.4%
famer	70	78.6%
teacher	14	16%
student	1	1.1%

Perception of the respondents on the timeliness of inputs received

Table 2 revealed that the fertilizers received during the 2013 and 2014 under the e-wallet scheme were supplied late due to the fact that the scheme was launched after the planting season, hence the farmers did not receive inputs on time for use. This is in line with the findings of Nagy and Edun (2012), who asserted that the traditional system of government procurement and distribution of subsidized fertilizer in Nigeria has been fraught with persistent problems of late delivery and diversion of fertilizer from the intended beneficiaries.

Table 2: Perception of respondents on the timeliness of fertilizer received

Variables	Frequency	Percentage
Timely	10	11.23
Untimely	79	88.77
Total	89	100.00

Reasons for non-redemption of fertilizer

Table 3 present results on non-redemption of fertilizers and it shows that inadequate supply of fertilizer at the redemption centres as the major reason for non-redemption with

39.32%. According to Ibrahim *et al.* (2014) the mismatch between the redemption codes sent to the beneficiaries and that obtainable at the redemption centre led to non-redemption in the first two years of the scheme. This could be attributed to error encountered during the registration of farmers, poor telecommunications network or the fact that most of the farmers did not know how to activate the activation code sent to their phones. Other reasons advanced for non-redemption includes; inconsistency in the redemption date stipulated by the redemption timetable and inability of some farmers to visit redeemed centres as at when due. The implication is that constraints faced by respondents play a significant role in influencing of farmers towards adopting agricultural innovations. This agrees with Nweke (2002) and Tekleworld (2006) that there are constraints to the adoption of agricultural innovations in rural communities; in some instances farmers reject some of the development programmes due to cultural background and inhibitions due to past bureaucracy faced and elite captures of previous schemes .This was due to inadequate knowledge on when the redemption period commenced and ignorance about the procedures for redemption. In spite of their non-redemption however, 37.50% of respondents indicated their willingness and readiness to register for the next cycle of the scheme. This was agreed with Fadairo *et al.* (2015) who reported that 56.5% of respondents showed favourable attitude toward E-wallet platform and indicated their willingness to register for the next cycle. They also observed that long distance covered from home to redemption centres was the most constraining factor militating against the E-wallet platform in Oke-Ogun in Oyo state.

Table 3: Reasons for non-redemption of Fertilizers

Reasons	Frequency	Percentage	Ranking
No supply at the redemption center	35	39.32	1 st
No time to go to redemption center	19	21.34	3 rd
Information obtained didn't match with record	28	31.46	2 nd
Inconsistency in redemption date	7	7.8	4 th
Total	89	100	

Source: field survey 2015

The overall perception of the farmers was represented in two categories of favorable and unfavorable (Table 5). This was determined as the mean attitude scores and was computed and used as the benchmark, such that respondents whose scores are below the mean attitude scores were categorized into 'unfavorable', while those whose scores are equal or greater than the mean were categorized into favourable . Table 4 indicates that 56.8% of the respondents showed favorable perception towards E-wallet platform, while only 43.2% had unfavorable perception. This shows that majority of the respondent have favorable perception towards the E-wallet platform of the GESS scheme. Favorable perception of farmers towards GESS allows them have access to improved agricultural input as offered by the scheme. This is expected to bring immediate benefits to farmers in terms of improved productivity and food security, while it also helps improve agriculture, food security situation and national economy.

Table 4: Distribution of respondents based on their perception of the e-wallet platform

	SA	A	U	D	SD
Telephone (Mobile phone) is suitable to access inputs for farmers.	58.5	10.5	17.0	7.5	7.0
E-wallet will fail like other past Agricultural schemes	51.0	42.3	1.4	2.3	3.0
GESS has reduced Corruption in input delivery.	39.0	45.0	10.9	2.1	3.0
Agricultural development will succeed in Nigeria if e-Wallet is sustained.	61.7	38.0	1.3	0.0	0.0
The Operation of the e-Wallet Scheme is appropriate for rural farmers	33.0	24.1	10.3	23.6	10.0
E-wallet addresses farmers input needs without stress.	50.0	25.1	7.2	2.7	15.0
E-Wallet has achieved Small against government expectations.					
The Scheme is only beneficial to selected groups of influential farmers.	20.0	15.0	24.2	32.8	3.0
The success rate of e-Wallet is mere propaganda.	20.0	11.5	10.6	47.9	10.0
E-wallet has not eliminated the supply of Agro-inputs by different leaders.	16.3	9.2	20.4	10.1	44.0
All services provided by e-wallet platform are beneficial to all individual Farmers.	61.0	1.5	10.0	21.0	7.5
General neglect of farmers perception is a major impediment for a successful e-wallet scheme.	30	38.0	10	7.5	12.5
More Farmers will emerge if e-Wallet implementation is extended.	68	22	3.5	2.5	4.0
E-wallet has created Farmers interest in further Agricultural programmers.	56	21	11.7	11.0	0.3
Poor feedback opportunities makes the scheme tasking and uninteresting.	42	18	9.0	28	12
GESS could have been better if Farmers were consulted.	42	30	6.3	11.7	0.00
Agro-input distribution timing is in appropriate with e-wallet scheme.	63	17	5.0	10	5
E-wallet has removed bureaucratic bottle-necks in Agricultural input delivery in Nigeria.	43	28	10.5	12.5	6.0
GESS is though beneficial but then wasted a lot of resources that outweighs the gains	30	25.5	20.0	17.0	7.5

SA=Strongly agree, A=Agree, U=Undecided, SD=Strongly disagree, D=disagree

Source: Field survey, 2015.

Table 5: Respondents overall perception toward the E-wallet platform for accessing inputs

Attitude	Score	frequency	%
Favourable	64-74	67	56.8
Unfavourable	51-63	51	43.2

Table 6 shows that there is significant relationship between the years of farming of the sampled respondents and their perception towards the e-wallet platform of the GESS at 1%. Likewise there is a significant relationship between respondents' education and their

perception towards the GESS. However, there is no significant relationship between respondents' age, size of farm land and their perception towards GESS. This is contrary to the findings of Ogunsumi (2011) whereas age and farm size showed significant relationship with farmers' adoption behaviour towards improved agricultural practices. It however agrees with the findings of Igodan *et al.*, (1997) and Angba (2000), which revealed that increasing farm size does not necessarily result in positive adoption behaviour.

Table 6: Chi-square analysis of farmers' personal characteristics and their perception of e-wallet platform

Variables	df	-value	p- value	Decision
Age	4	1.544	0.819	Not significant
Years of farming	4	*11.278	0.024	Significant
Size of farmland	3	1.945	0.584	Not significant
Marital status	3	5.987	0.112	Not significant
Religion	2	1.602	0.449	Not significant
Education	3	*10.876	0.012	Significant

Table 7: Severity of constraints to use of the e-wallet-powered GESS

Statements	Not a constraint	Mild constraint	Severe Constraint
Stress farmers go through in order to get inputs	22.9	54.2	22.0
Long queues at the redemption centers	19.5	63.6	16.9
High transaction cost incurred by farmers	37.3	58.3	4.2
Sharp practice by input distributors/dealers	36.4	48.3	15.3
Late supply of inputs	15.3	56.8	28.0
Long distance covered from home to redemption	19.5	42.4	38.1
Interference in operation by gov`t agent/officials	31.4	37.3	31.4
Mobile alert message come late	34.7	50.0	15.3
Non commitment of ADP staff of GESS	12.7	20.3	66.9
Less quantity of agro-inputs allocation	16.9	50.0	33.1
Inputs supplied are not suitable for production	56.8	28.8	14.4
Interference in the operation by influential people	16.1	55.1	28.8

GESS, through the E-wallet platform is not without associated challenges. The study (Table 7) identified the various constraints to the E-wallet powered GESS in the study area. Findings reveal that majority (66.9%) of the respondents indicated non commitment of the ADP as a major constraint of the scheme, while 38.1% believed that, the distance covered from their home to the redemption office was too long. Also, the findings reveal that some (28.8%) of the respondents claimed that the interference in the operation by influential

people is a hindrance to the success of the scheme. From the table, it can be inferred, that all other constraints facing the scheme which included long queues at the redemption centres, coming late of mobile alert, sharp practices and long distances covered from home to redemption stations are traceable to either non-commitment of the ADP or low extension agents-farmer ratio, or both. These findings partly agree with Adebo (2014), who identified similar constraints to the implementation of GESS. Osinowo (2012) also identified institutional, political, managerial, economic and social issues as the serious challenges and constraints facing the sustainability of the Agricultural Transformation Agenda and the GESS of the Federal Republic of Nigeria

CONCLUSION

It is very clear from the data available that under this agricultural innovation system approach, input delivery was untimely; some redemption centers had no supply. The perception of the beneficiaries on the effectiveness of E-wallet platform was generally adjudged to be favorable. Non commitment of ADP staff to GESS, insufficient input allocation and interference in operation by influential people constitute the most severe challenges that affects the operation of E-Wallet platform in the study area. However, this policy approach was able to deliver to the farmers in the area of studies in terms of increase in cultivated land area and productivity outcomes.

There should be provision of more funds in the agricultural sector, for more input to be distributed to the farmers in the country in other to revive the sector. There is the need for the establishment of more redemption centres to stop the rigor of long queues and reduce long distance covered before assessing the centres. Government should support in promoting GESS by recruiting more ADP workers and reinforcing the existing ones so as to ensure adequate contact with the farmers, as this will facilitate prompt redemption of agricultural inputs. The agencies involved in the GESS should ensure that only good quality fertilizer and other agricultural inputs are made available to the farmers, as this will not only help win the trust of the farmers on government programmes, but will also help guarantee optimal agricultural productivity. Agricultural innovation system concepts should be mainstreamed in all public agricultural extension programmes to ensure sustained rural innovation and robust livelihood and improved productivity.

REFERENCES

- Abubakar, B.Y. (2010). The role of research and development in attainment of food security in Nigeria. A paper presented at the 2010 National Agricultural Show, held at National Agricultural Foundation of Nigeria conference hall, Nasarawa State on 13th-14th October.
- Adebo, G.M. (2014). Effectiveness of e-Wallet Practise in Grassroots Agricultural Services Delivery in Nigeria.A case of Kwara Growth Enhancement Support Scheme. *Journal of Experimental Biology and Agricultural Sciences*, 2(4):
- Adesina, A. (2012). *Investing in Nigeria's agricultural value chains*. A Paper presented to the Bank of Industry Nigerian Investment Forum, London. July 30 Agenda (ATA). Paper presented at the NAAE Conference held at Obafemi Awolowo university, Ile-Ife.

- Adesina, A. (2013). Honorable Minister of Agriculture and Rural Development, Federal Republic of Nigeria, Governor from Nigeria, at the 36th Session of the IFAD Governing Council
- Agber, T., Iortima, P. and Imbur, E. (2013). Lessons from implementation of Nigerians Past National Agricultural Programmes.
- Akinwumi, A. (2012). Investing in Nigeria`s Agricultural Value Chains. A paper presented to the Bank of Industry Nigerian Investment Forum, London, and July 30.
- Alexander Coker A. (2014). Determinants of Agro-input Redemption under the Growth Enhancement support Initiative-Emerging issues for the on-going Agricultural Transformation Agenda in Nigeria.Proceedings of 48th Annual Conference of the Agricultural society of Nigeria, Abuja 2014,p289-292.
- Awotide B., A. Diagne and B.T. Omonona (2012). Impact of Access to Subsidized Certified Improved Rice Seed on income: Evidence from rice farming households in Nigeria transformation agenda. *American Journal of Research Communication*, 11 (10): 23-30.
- Ayinde, O. E., Adewunmi, M. O. and Omotosho, F. J. (2009). Effect of Fertilizer Policy on Crop Production in Nigeria. *The Social Sciences*, 4(1): 53-58.
- Ayoola, G.B., V. Chude, and A. Abdulsalaam (2002). toward a fertilizer regulatory policy for Nigeria: An inventorization of the fertilizer sector. A study commissioned by the federal fertilizer department (FFD), Federal ministry of agriculture and Rural Development, Abuja. May, 2002
- Banful, A. B., Nkonya, E and V. Oboh. (2010). Constraints to Fertilizer Use in Nigeria: Insights from Agricultural Extension Service. *IFPRI Discussion Paper 01010 July 2010. Washington, DC*: International Food Policy Research Institute.
- Chude, V. (2006). Fertilizer Situation in Nigeria. In: B. Sule, Director Fertilizer Department, paper submitted to the Program Advisory Committee on Agriculture and Food Security, Abuja, Nigeria.
- Coker, A. A. and Adebayo, C. O. (2013). A Review of the Existing Agricultural Policy and Changes Needed to Enhance Effective Implementation of the Agricultural Transformation Agenda (ATA). Paper presented at the NAAE Conference held at Obafemi Awolowo University, Ile-Ife.
- Danning, G., Kabambe, P., Sanchez, P., Malik, A., Flor, R., Harawa, R., Nkhoma, P., Zamba, C., Banda, C., Magombo, C., Kaeating, M., Wangila, J. and Sachs, J. (2009). Input subsidies to improve smallholder maize productivity in Malawi: Toward an African Green Revolution *PLoS Biol*, 7
- Dontsop-Nguezet, P. M, Diagne A, V. O. Okoruwa and V.E.T. Ojehomon (2011). Impact of Improved Rice Technology Adoption (NERICA varieties) on Income and Poverty among Rice Farming Households in Nigeria: A Local Average Treatment Effect (LATE) Approach. *Quarterly Journal of International Agriculture*, 50(3):267-291.
- Ekundayo, A. (2015). An appraisal of electronic wallet Communication in Growth Enhancement Support Scheme of Agricultural Transformation Agenda in NAERLS. Being an M.A Thesis submitted to the School of Postgraduate students, Ahmadu Bello University, Zaria.
- Ezeh, A.N. (2013) Access and application of information and communication technology (ICT) among farming households of South East Nigeria. *Agriculture and Biology Journal of North America*. doi:10.5251/abjna.2013.4.6.605.616

- Fadairo, A.S., Nathaniel .S.O. and Adewale, M.T. (2015). Attitude of crop farmers toward e-Wallet Platform of the growth enhancement support Scheme for input delivery in Oke-Ogun area of Oyo State. *Journal of Agricultural Informatics*, 6(2): 62-67.
- FEPSAN (Fertilizers Suppliers Association of Nigeria) (2012). The Growth Enhancement Support Scheme: Monitoring Report. A report submitted to the Federal Minister of Agriculture and Rural Development, pp8-12.
- FMARD (2011). Federal Ministry of Agriculture and Rural Development. Presidential brief on Agricultural Transformation Agenda, Abuja, Nigeria.
- FMARD (2014). Federal Ministry of Agriculture and Rural Development. Nigeria's Agriculture Transformation Agenda (ATA) Turning Nigeria into a Global Powerhouse in Agriculture.
- Gildemacher, P., Maina, P., Nyongosa, M., Kinyae, P., Woldegiorgis, G., Lema, Y., Damene, B., Tafesse, S., Kakuhenzire, R., Kashaja, I., Musoke, C., Mudiope, J., Kahiu, I. and Oriz, O. (2009). Participatory analysis of the potato knowledge and information system in Ethiopia, Kenya and Uganda. In: Sanginga, P.C., Waters-Bayers, A., Kaaria, S., Njuki, J., and Wettasinha, C. (eds.) *Innovation Africa: Enriching Farmers' Livelihoods*. Earthscan: London, pp. 153-165.
- Ibrahim H.I., A.U. Angara, G.E. Onuk and L.K. Olatinwo (2014). Is the E-Wallet scheme working? Evidence from a rural area of Northern Nigeria. Proceedings of the 48th conference of the Agricultural Society of Nigeria, Abuja 2014 Pp292-295.
- Julio, A. Berdegué and Germán Escobar (2012). Rural Diversity, Agricultural Innovation Policies and Poverty Reduction. Agricultural Research and Extension Network, *Network Paper No.122* July 2002.
- Liverpool-Tasie, L. S. O., A. B. Banful and B. Olaniyan. (2010). An Assessment of the 2009 Fertilizer Voucher Program in Kano and Taraba, Nigeria. International Food Policy Research Institute (IFPRI) *Nigeria Strategy Support Program Policy Note No. 30*.
- Mariam, A. M., Johann, F. K and Ferdinand, H.M. (2011). Agricultural rural innovation and improved livelihood outcomes in Africa. *Quarterly Journal of International Agriculture*, 50(3): 267-291
- Morris, M.L., Kelly, V. Kopicki, R.J. and Byerlee, D. (2007). *Fertilizer use in African agriculture: Lessons learned and good practice guidelines*. World Bank: Washington D.C
- Nagy, J. G. and O. Edun. (2002). Assessment of Nigerian government fertilizer policy and suggested alternative market friendly policies, paper submitted to IFDC.
- National Bureau of Statistics (2007). The Nigerian Statistical Fact Sheets on Economic and Social Development, National Bureau of Statistics, 121pp.
- Nwaobiala, C.N. and Ubor, U.V. (2015). Effect of growth enhancement support scheme of agricultural transformation agenda on arable crop farmers production in Imo State, Nigeria. *Nigerian Journal of Agriculture, Food and Environment*, 11(4):130-135.
- Ogunniyi, A. and Kehinde, O. (2015). Impact of Agricultural Innovation on improved livelihood and Productivity outcomes among smallholder farmers in Rural Nigeria .Being a Paper Presented at the 5th MSM Annual Research Conference Managing African Agriculture: Markets Linkage and Rural Economic development, 4th September,2015,MSM Maastricht,Netherlands
- Oluwatoyin, B.C. and Bosede, S.F. (2014). Impact of ICT-based initiative (mobile phone) on market access by women in Nigeria. *World Rural Observations*, 6(3):125-132

- Osinowo, O. A. (2012). Agricultural Transportation in a Deregulated Economy: The role of Livestock Subsector. Proceedings of the 46th Annual Conference of Agricultural Society of Nigeria, Held at Bayero University Kano. P4.
- Oyediran, W.N., Dick, T.T. and Owolade, E.O. (2015). Contributions of growth enhancement support scheme programme on food security alleviation of agricultural cooperatives in Ogun Nigeria. *Journal of Agricultural policy and Entrepreneurial Research*, 2(6):13-22.
- Suleiman, U., Philip, O., Hajara, S. and Patience Kalat (2015). Factors Influencing level of Satisfaction with Growth Enhancement Support Scheme Among Farm Families in Kaduna State, Nigeria. *Journal of Agricultural Extension*, 19(1) :57-65.
- Tiri, G. D., Ojoko, E. A, and Aruwayo, A., (2014). Growth Enhancement Support Scheme (GESS) and Challenges of Food Security in Nigeria: A Review. *APRN Journal of Agricultural and Biological Science*, 9(7): 226-232.