

THE EFFECT OF LAND CONFLICT ON RICE PRODUCTION IN AGATU LOCAL GOVERNMENT AREA OF BENUE STATE, NIGERIA

Abah, D., Ochoche, O. C. and Stephen, J.I.

Department of Agricultural Economics

Federal University of Agriculture, Makurdi, P.M.B 2373, Makurdi, Nigeria

Corresponding Author: s' Email: dangod23@yahoo.com, Tel:08038823544

ABSTRACT

The study examined the effect of land conflict on rice production in Agatu Local Government Area of Benue State, Nigeria. A total of 100 rice farmers were selected using multi-stage sampling technique. Descriptive statistics, gross margin and multiple regression analysis were used in the study. The analysis of socio-economic characteristic of rice farmers revealed that majority of the respondents were males (81%) with a mean age of 48 years. About 84% of the respondents had formal education which implies that majority are literate. The results also showed that respondents had a mean family size of about 11 persons. The regression analysis result indicates that the coefficient of multiple determinations R^2 value is 0.776 indicating that about 77.6% of the variation in rice output is explain by the related variables. The F value of 21.053 is significant at 1%. The result further showed that the coefficient of age and farm size were positive and significant while the coefficient of herbicide cost, farm size were negative and significant. The result also revealed that the respondents earn a mean gross margin of about ₦ 751,770 per annum, which indicates that the rice farmers were making profit, while the minimum gross margin value of ₦ -301,000 is negative which implies that some of the respondents were operating at loss due to the protracted conflict experienced in the study area. Conclusively, the study revealed that land conflict factors had affected rice production in the study area negatively and that the major cause of the land conflict in the study area is invasion of farm lands by cattle. The study therefore recommended the perennial issues of land conflict need to be addressed and a lasting solution proffered to ensure sustainability in rice production and in the long run food insecurity.

Keywords: Land, Conflict, Rice, Production, Gross margin, Regression

INTRODUCTION

Rice (*Oryza sativa*) is a staple food in many countries of Africa and other parts of the world. According to Rice Trade (2011), rice is the second largest produced cereal in the World; it is a crop that cuts across regional, religious, cultural, national and international boundaries,

apart from wheat. The Nigerian rice sector has a lot of potentials for increased rice productivity as the country is blessed with abundant rice growing environment (Nwaobiala and Adesope, 2013). However, West Africa Rice Development Association (WARDA 2004) noted that rice policy in Nigeria is characterized by inconsistency, shifting between open and protectionist trade policy and such changes hinder the ability of stakeholders to develop long term strategies for the growth of the sector.

Land is probably the most important resource needed by Man for his day-to-day existence. All human livelihoods and activities are directly or indirectly dependent on land at varying thresholds. But land connotes different meanings to the various user groups. For instance, builders, manufacturers, fishermen, miners, hunters and farmers have different specifications in their requirement for land for their production/services. Out of all user groups, agricultural production perhaps exhibits the highest form of sophistication in its use of land. Not only must agricultural land be capable of supplying crop-specific nutrients and water; soil temperature, structure, texture and pH levels are inevitable requisites in the choice of land for agricultural production activities. Yet, land is a limited, somewhat scarce, resource with both artificial and natural access and usage barriers (Rashid, 2012). Competition over scarce resources, particularly land and water, often causes or exacerbates communal conflict (Homer-Dixon, 2009), which has the capacity to hamper rice production.

In Nigeria today, we are witnessing several conflicts. Most of these conflicts have their roots either remotely or directly in the type of land policy in use. For example, the crises in Taraba, Benue and Nasarawa States, Osun State (Modakeke/Ife), Anambra State (Umuleri-Aguleri), Delta State (Ijaw/Itsekir) among others can be linked to the land acquisition (Alimba, 2014). In all these crises, it is the common man that is the hardest hit. This kind of situation has serious security implication for the country in terms of rice production sufficiency. The most prominent of these conflicts arising out of resource utilization and management has been pastoralists farmer conflicts, Farmer-farmer conflict, farmer conservationist conflict, pastoralists' conservationists' conflicts and pastoralists-fishermen conflicts have been recorded as well (Adisa *et al.*, 2010). The resultant increase in competition for arable land has often times led to serious manifestation of hostilities and social friction among the two user-groups in many parts of Nigeria. Conflicts have not only heightened the level of insecurity, but have also demonstrated high potential to exacerbate the food crisis in Nigeria and other affected countries due to loss of farmers' lives. Land conflicts cause serious dislocations; suspend or destroy income opportunities; damage the environment, and frequently result in the loss of lives and properties (Alawode 2013; Blench 2010; Audu, 2013).

Food insecurity and armed conflicts are two major problems that have aroused the attention of international institutions, political analysts, and governments in developing

countries (Pierre and Fred, 2006). Nigeria as an agrarian nation has recently had her own share of internal conflict, which has negatively affected rice production especially in the North. The concomitant effect of communal conflict has been the distortion of the development prospect of the country. That is, both human and material resources have been adversely affected to the extent that it resulted in systemic deficiencies in Nigeria (Eme *et al.* 2014). In the Northern part of the country, communal conflict is a recurring disaster. It has been consuming human beings and properties like a tsunami disaster. In this democratic period, the middle belt region of the country exhibited a high incidence of communal conflicts than any other region in the country. For instance, in States such as Plateau, Benue, Nassarawa, Bauchi, Adamawa, Kaduna, Taraba amongst others, communal conflict has rendered these places highly unstable for effective social engagements. The properties destroyed, those killed and humanitarian problems induced had affected the socio-economic and political activities of these states, and generally the country (Alimba, 2014). Benue for instance has suffered protracted conflict and 21 out of the 23 Local Government Area had experienced severe communal conflict in recent times (Vanguard Newspaper, 2017).

Akpokodje *et al.* (2010) stated that rice cultivation is virtually carried out in all the agro-ecological zones of Nigeria. These losses of lives have adversely affected farming activities and other related businesses. This has resulted in a drastic reduction in rice output, a development that has heightened the fear of hunger. A lot of researchers such as Pierre and Fred (2006), Babette (2008), Dimelu *et al.* (2017), had focused on the impact of conflict on agriculture in Nigeria. However, there is perhaps no known study on the effect of land conflict on rice production in Agatu L.G.A of Benue state; Hence the need for this study to fill this research gap. Land conflicts has been a reoccurring decimal in Agatu LGA and has had negative implications on the economic activities in the area (farming inclusive); therefore, this study will provide rigorous empirical evidence on the effect on rice production.

METHODOLOGY

The study was conducted in Agatu Local Government Area of Benue State, Nigeria. The LGA was created in 1991. It is one of the nine LGA in the southern senatorial zones (Zone C) of Benue State, which is mainly occupied by the Agatu people of the State with a population of 895,000 (NPC, 2006) who are mostly farmers. The LGA is located between latitude 7⁰5' and 7⁰ 15' North East of the equator and longitude 9⁰9.6 East of the Greenwich meridian. Agatu Local Government shares boundaries with Apa and Gwer-west LGAs of Benue state as well as with Omala LGA of Kogi State and Keanal LGA of Nasarawa State, with River Benue flowing through the area. The Local Government is noted for fish production as well as crop production like rice, beans, yams, cassava, maize, soybean,

sorghum and millet.

The population of the study comprised of rice farmers in Agatu Local Government Area of Benue State. A multistage sampling technique was used for the study. The sampling frames was developed for each village using a proportional allocation of 10% across board as shown in Table 1. Primary data was used for this study. The data for the study were collected with the aid of structured questionnaire administered to the selected households. The data for the study were analyzed using descriptive and inferential statistics such as frequency, percentage, table, mean, gross margin and multiple regression.

The study specified a multiple regression model implicitly expressed as;

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} + b_{11}X_{11} + b_{12}X_{12} + b_{13}X_{13} + b_{14}X_{14} + u_i$$

Where,

Y = Rice output (Kilograms)

a = Constant

b = Regression coefficient

X₁ = Age (years)

X₂ = Sex (male or female)

X₃ = Marital status (single, married, divorce)

X₄ = Education (years)

X₅ = Farming experience (years)

X₆ = Household size (number of persons per household)

X₇ = Occupation (farmer, civil servant business)

X₈ = Farm size (hectares)

X₉ = Land tenure (communal, family, personal or rental)

X₁₀ = Seed cost (Naira)

X₁₁ = Herbicide cost (Naira)

X₁₂ = Fertilizer cost (Naira)

X₁₃ = Labour cost (Naira)

X₁₄ = Transportation cost (Naira)

U_i = Error term

Table 1: Sample size selection plan

S/No.	Wards	Districts	Selected Respondents
1.	Egbo	Aila	10
		Abugbe	10
2.	Okokolo	Adagbo	10
		Akwu	10
3.	Ogbaulu	Ikpele	10
		Igbinyi	10
4.	Oshigbudu	Olegeje	10
		Ologba	10
5.	Ogule-Ogbaulu	Odeje	10
		Okpanchenyi	10
Total			100

Source: Author's computation

RESULTS AND DISCUSSION

Socio – economic Characteristics of Respondents

The result of the socio- economic characteristics of respondents are presented in table 2. The age distribution of the respondents reveals that 11% of the respondents were between the ages of 20-30 years, 19% of the respondents are within 31 – 40 years old, while 32% of the respondents are between the ages of 41-50 with the mean age of 47.7. This implies that most of the respondents were in their youthful age, active and productive and as such can handle the tedious work in rice production. This finding agrees with Dimelu *et al.* (2017) who found that majority of rural farmers were below the age of 51 years and consequently may respond violently to conflict or oppression from herdsmen due to youthful exuberance.

The result on table 2 showed that 81.0% of the respondents were males and 19.0% were females. This reveals that large proportion of rice farmers in the study area were males. Since rice farming is tedious and involves a lot of energy, men are believed to be more energetic and hard working to meet the necessary labour demand for such farming activities than their female counterpart. This finding is consistent with the findings of Nhojo (2011) who reported that majority of households in villages were male headed household. This means that majority of the men are involved in land conflict issues compared to women. The result also revealed that 85% of the respondents were married and are people with high responsibility who needed income sources to meet up with their financial obligations and as such will do anything to ensure the protection of their farm lands as it is the major or only source of livelihood.

Results on farm size as shown in table 2 revealed that 47% of respondents have 1-2

hectares while 44% have 2.1- 4 hectares, 7% and 2% possess 4.1-6 and 6.1-8 hectares respectively. This implies that farmers in the study area were small – scale farmers with an average of 1.6 hectares. This small farm size makes mechanization difficult thereby limiting output of rice to subsistence level leaving little for commercial. This is in line with Ibitoye *et al.* (2012) who found that (53.00%) of rice farmers in Ibaji cultivated between 1-3 hectares.

The results further revealed that 16% had no formal education, while 84% of the respondent had formal education. This agrees with Dimelu *et al.* (2017) who reported that about 70% of crop farmers had formal education. The inference from this is that, educational attainment is expected to affect positively the productivity of rice farmers as educated farmers are more likely to adopt modern agricultural practices. The average years for farming experience is 25 years. This implies that rice farming has been a long-time practice in the study area and as such farmers have good knowledge about their farm boundaries and land demarcation this can lead to reduction in inter-ethnic land conflict.

The results on household size in Table 2 showed that 8% had household size of 1- 4 members, 27% had 5- 8 members, 31% had 9-12 members, 18% had 13 – 18 members 12% had 19-30, 3% had 31-34 and 1% above 35, with mean household size of 11.3. This implies that the household size is large and needful in terms of labour supply. This is in line with Demilu *et al.* (2017) who posited that farmers have relatively large household size which may have resulted from the need for family labour with the consequence of more dependent family members. This is due to the fact that rice production is labour intensive and labour represents major production costs (Kadiri, 2014). Table 2 shows that majority (84%) of the farmers in the study area use family land for farming. Family land is passed from parents to children over time as inheritance, hence become fragmented over time. The result also reveals that all respondent (100%) have land for agricultural activities. Although it may be in limited amount but it does imply that availability of land is not a constraint to rice production in the study area.

Results in table 2 further revealed that majority of respondent (97%) had no extension contact and 3% of the respondents have extension contact once a year. This implies that majority of the farmers do not have the needed information to boost production. Access to extension services is known to influence adoption of modern farm technologies (Bose *et al.*, 2012). As knowledge of better farming practices increases through the role played by extension agents, it will eventually contribute to increased rice production. Conflict is definitely having its toll on agricultural extension service delivery in Nigeria as most agricultural extension workers deliberately avoid conflicts regions for fear of being killed. The results also showed that 77% of the respondents are farmers and 16% engage in businesses while 7% are civil servant. This implies that majority of the respondents are farmers, and thus depend on a fixed factor of production (land) for survival and as such will

do anything to hold unto and protect it. This is in line with Attah (2012) who opined that farming is the major occupation type practiced in rural areas.

Table 2: Socio-Economic Characteristics of Respondents

Variable	Frequency	Percentage (%)	Mean
<u>Age</u>			
20-30	11	11	
31-40	19	19	
41-50	32	32	47.73
51-60	19	19	
61-80	19	19	
Total	100	100	
<u>Gender</u>			
Male	19	19	
Female	81	81	
Total	100	100	
<u>Marital status</u>			
Single	4	4	
Married	85	85	
Widowed	8	8	
Divorced	3	3	
Total	100	100	
<u>Household size</u>			
1-5	12	12	
11-15	27	27	8.66
16-20	31	31	
21-25	18	18	
26-30	12	12	
Total	100	100	
<u>Education</u>			
No Education	16	16	
Primary	28	28	
Secondary	43	43	8.66
Tertiary	13	13	
Total	100	100	
<u>Farming Experience</u>			
1-10	20	20	
11-20	24	24	
21-30	23	23	25.7
31-40	18	18	
41-50	11	11	
51-60	2	2	
>61	2	2	
Total	100	100	

Occupation		
Farmer	77	77
Civil servant	7	7
Artisan	16	16
Total	100	100
Extension Visit		
No Extension Visit	97	97
Extension Visit	3	3
Total	100	100
Land Tenure System		
Communal	16	16
Family	84	84
Total	100	100

Source: Field survey, 2019

Cost and Return to Rice Production

The result of the cost and returns of rice production in the study is presented in Table 3. The result shows the mean of the total cost of transportation is ? 252,250.00. This implies that a greater percentage of the total variable cost is accounted to transportation. This is due to the fact that rural roads are bad and the roads linking to farms are not motor-able, hence the use of bikes (Okada) as the major means of transportation which is relatively more expensive. This is in line with Eliapenda *et al.* (2015) who stated that improved roads infrastructure reduces transaction costs for both agricultural inputs and outputs. This is followed by the cost of labour which has a mean of ? 109,160.00. Labour is one of the most vital components of rice production. Most rice farmers use hired labour to complement family labour which is most times inadequate. Extra labour is usually needed for activities as such weeding, harvesting and threshing. Table 3 also showed that the cost of herbicides has the mean value of ? 21,798.0 while fertilizer has the least variable cost with the mean of ? 16,750.00. This is because most the respondents do not use or stop using fertilizer, attributed it to the unavailability and high cost of the commodity.

Total variable cost has the mean value of ? 200, 230.00 while the mean value of total revenue is ? 275,410.00. This implies that the total return in rice production is higher than the total cost incurred hence rice production in the study area is profitable. The gross margin has a mean value of ? 751,770.00 with a minimum of ? -301,000.00 and maximum of ? 710,000.00. The negative gross margin implies that some farmers produce at loss, this is as a result of the protracted conflict experienced in the study area; while the positive gross margin implies that profit was made by some farmers in the study area who may not have been affected by the conflicts.

Table 3. Cost and Return to Rice Production

Variables	Minimum	Maximum	Mean	Standard deviation
Seed cost	16000.00	72000.00	27300.00	11432.28
Herbicides cost	4500.00	72000.00	21798.00	12105.70
Fertilizer cost	0.00	80000.00	16750.00	15350.04
Labour cost	39000.00	234000.00	109160.00	45811.15
Transport cost	5000.00	283000.00	252250.00	29067.96
Total variable cost	75800.00	541000.00	200230.00	83089.37
Total sale	60000.00	1020000.00	275410.00	165355.00
Gross margin (GM)	-301000.00	710000.00	751770.00	126222.00

Source: Field survey, 2019.

Constraints to Rice Production

Result on Table 4 shows the constraint to rice production in the study area. The result revealed that 95% of the respondents indicated that availability of land is a very serious problem as it is the major conflict factor between farmers and herders in the community. This implies that land is not readily available to farmers for rice production and the reoccurrence of conflict in the study area has greatly increased the problem as most arable lands are no longer accessible. This is in line with Babette (2008) who stated that farmers had fled most farming communities for fear of being killed or mutilated. About 82% indicated that the high cost of land is a serious constraint to rice production. This is because land is limited and the means of acquiring land is majorly by inheritance. Sales of land is not a common practice in the study area as inherited lands must be pass to offspring, although rare cases of exception do occur, this make the few land available for sale expensive.

Table 4 further revealed that inadequate fund is a very serious problem (82%). This implies that farmers are constrained by inadequate fund for rice production and as such need financial assistance to boost production. Also, majority of the respondents (92%) indicated that they have no access to credit. This implies that the major source of fund is personal savings. This finding corresponds to the report of IFAD (International Fund for Agricultural Development) (2007) *that majority of rural farmers are poor and lack access to credit.*

Table 4 also revealed that 52% of respondents indicated unavailability of improved seed problem as a major challenge faced by rice farmers in the study area. The result further revealed that high cost of fertilizer is a serious problem as 90% of respondent indicated so. This implies that fertilizers are not readily available or too expensive for farmers to afford and as such is a serious challenge to rice production in the study area. High cost of inputs adversely affects profitability of rice and vice versa.

Considering the cost of labour, table 4 revealed that 86% of respondent indicated that

labour is a serious problem to rice production in the study area. Although majority of the respondents uses family labour which is most times not sufficient and often compliment it with hired labour which is quite expensive in the study area. This implies that the higher the cost of labour needed for farm production activities, the lower the profits derived from sales of farm produce and vice versa. Labour cost is high when it is not readily available. Most of the respondents (72%) as indicated that inadequate availability of labour is a very serious problem. This implies that inadequate availability of labour is the main cause of high labour cost in the study area.

Table 4 further reveals that high cost of transportation is a serious problem (91%). This is as a result of bad road network in the study area which makes farmers use bikes popularly called Okada, which greatly inflated the cost of transportation. This finding is in line with Temu *et al.* (2002) who stated that transportation of agricultural produce is higher in rural areas due to the depletive nature of rural roads, which are most times not motor-able. About 61% of respondents according to result presented in Table 4 considered weed control to be a serious problem which implies that weed control is a serious problem militating against rice production in the study area. This is in line with Selbut (2003) which state that weed is the major problem faced by Benue farmers especially 'witch' weed (*beam*), which resembles rice except for the hairy ligule at its base. 91% of respondents indicated that the high cost of agro chemicals is a serious problem which that implies agro-chemicals are expensive in the study area and as such constitute a challenge to rice production as most farmers cannot afford them.

Table 4. Constraints to Rice Production

Variables	Very serious	Serious	Moderately Serious	Not serious	Total
Limited land availability	3	95	1	1	100
High cost of land	12	82	3	3	100
Land tenure system	1	5	5	83	100
Non access to credit facilities	92	8	0	0	100
Unavailability of improve seed	52	46	2	0	100
High cost of fertilizer	10	90	0	0	100
High cost of labour	10	86	3	1	100
Inadequate fund	82	15	3	0	100
High cost of seeds	1	68	28	1	100
Inadequate labour supply	1	72	26	1	100
Weed control problem	4	61	33	2	100
Inadequate extension service	76	19	5	0	100
High cost of agro chemicals	8	91	1	0	100
High cost of transportation	8	91	1	0	100

Source: Field survey, 2019.

Conflict Factors Affecting Rice Production

The result of factors affecting rice production is presented in Table 5. The result revealed that age, farm experience, herbicide cost and farm size are the factors affecting rice production in the study area. Farm size is positively significant (8.816) at 1%. This implies that an increase in the size of land cultivated will inherently lead to an increase in rice production. This conforms to the findings of Obasi *et al.* (2012) and Ayoola *et al.* (2011) who separately observed that farm production increases with the increase of farm size. Farm experience is negatively significant (-2.305) at 1%. This implies that an increase in the years of farming experience will lead to reduction in the rice production. This is as a result of the protracted conflict experienced in the study area. Farmers become discouraged to invest more in their farms and farm lands in conflict regions are left uncultivated this will lead to a reduction in the total output.

The estimated R^2 has the value 0.776 this implies that 77.6% of the variation in the dependent variable is due to changes in the independent variables. This means that a high degree of relationship exists between the dependent variable and the independent variables. The result of also showed that the F-statistics (21.053) is positively significant at 1%, it indicates the overall fitness and significance of the regression model used.

Table 5: Conflict Factors Affecting Rice Production

Variable	Coefficient	T statistics	Significance
Constant		-1.851	0.068
Age	0.167	1.576***	0.119
Gender	0.81	1.123	0.265
Marital status	0.73	1.205	0.232
Education	-0.011	-0.137	0.891
Farm experience	-0.294	-2.305**	0.024
Household size	0.001	0.015	0.988
Occupation	0.052	0.903	0.369
Farm size	0.839	8.816***	0.000
Land tenure	-0.045	-0.712	0.479
Seed cost	0.039	0.473	0.637
Herbicide cost	-0.146	-1.935**	0.056
Fertilizer cost	0.049	0.846	0.400
Labour cost	0.111	1.203	0.232
Transport cost	0.089	1.428	0.157
R- Square	0.776		
Adjusted R- square	0.739		
F-statistic	21.053		

* and *** Significant at 1% and 10% respectively

Source: Field survey, 2019.

Factors Responsible for Land Conflict

The result of the factors responsible for land conflict is presented in Table 6. The result shows that 93% of the respondents have been involved or encountered land conflicts. 79% of the conflict encountered were against pastoralist, 10% against farmers while 11% against other communities. This shows that the major conflict type, experienced in the study area was pastoralist-farmers conflict. This implies that farmers suffer land insecurity, and as such cannot invest more in their land. This may lead to reduction in agricultural production and in the long run food insecurity. This is in line with Nhojo (2011) who observed that crops destruction by cattle is a major reason for under-utilization of land. Farmers are scared to cultivate their whole land size because of crop destruction done by herds. Thus, when land rights are insecure, investment, productivity, and yields fall. Invasion of farmland by cattle was seen to be the major cause of conflict with 83% of the respondents attesting. Attacks on the farms could attract serious dispute with opponents, being the major means of livelihood to farmers.

Land tenure system as revealed in table 6 indicated that 3% of the respondents consider it a conflict factor. This implies that land tenure system is rarely a cause of conflict, this is because most of the lands used for agricultural purposes are mostly family land and dispute arising from such are tackled at family level. 11% of respondents considered growth of agro-pastoralism to be one of the causes of conflict. Most of the respondents said the intrusion of cattle into farm lands is a deliberate act carried out by herders and crop destruction is intentional. This result aligns with the findings of **Alawode** (2013) who reported that conflict arises between pastoralist and farmers as a result of southward movement of herders in sedentary zones before harvest is complete.

Table 6. Factors Responsible for Land Conflict

Variables	Frequency	Percentage (%)
Previous land conflict experience	91	9
Against whom		
Pastoralist	79	79
Farmers	10	10
Other community	11	11
Total	100	100
Invasion on farm lands by cattle	83	83
Land boundaries	3	3
Communal boundaries	35	35
Land laws	27	27
Land tenure system	3	3
Poor land distribution	1	1
Growth of agro-pastoralism	11	11

Source: Field survey, 2019

CONCLUSION AND RECOMMENDATIONS

This study analyzed the effect of land conflict on rice production in Agatu Local Government Area of Benue State. Agricultural land use conflict has persisted a long time and is increasingly becoming a threat to lives and agricultural production. Conclusively, the study revealed that land conflict factors had affected rice production in the study area negatively and that the major cause of the land conflict in the study area is invasion of farm lands by cattle. Since farmers in the study area use family land acquired mainly through inheritance to cultivate their crops, any invasion of such lands will result to conflict.

Based on the findings of the study, the study therefore recommends that:

- The perennial issues of land conflict need to be addressed and a lasting solution proffered to ensure sustainability in rice production and in the long run food insecurity.
- There is need for the intervention of NGO's and other relevant agencies in managing conflict, particularly as regards awareness and designing of preventive measures.
- More attention, through policy designs and agricultural programmes, should be given to the protection of crop farms against undue invasion.

REFERENCES

- Adisa, R. S. and Adekunle, O. A. (2010). Farmer-Herdsman Conflicts: A Factor Analysis of Socio-economic Conflict Variables among Arable Crop Farmers in North Central Nigeria. *Journal of human ecology* 30 (1): 7-9.
- Akpokodje, G., Lanco, F., and Erentein, O. (2010). The Nigerian Rice Economy in a Competitive World: Constraints, Opportunities and Strategic choices. Nigeria's

- Rice Economy: State of the Art. WARDA, Bouake, Cote d'Ivoires. November, 2001, PP7 -38.
- Alawode, O.O. (2013). Determinants of land use conflicts among farmers in south-western Nigeria. *Journal Research in Peace, Gender and Development (JRPGD)*. 3(4) pp. 58-67
- Alimba, N. C. (2014). Probing the Dynamic of Communal Conflict in Northern Nigeria. *An International Multidisciplinary Journal, Ethiopia*; 8(1)177-204.
- Attah A.W. (2012). Food Security in Nigeria: The Role of Peasant Farmers in Nigeria. *African Research Review*. 6(4):173-190
- Audu, S. (2013). Conflicts among Farmers and Pastoralists in Northern Nigeria Induced by Freshwater Scarcity. *Development Country Studies*.3(12):25-32.
- Ayoola, J.B., Dangbegnon, C., Daudu, C.K., Mando, A., Kudi, T.M., Amapu, I.Y., Adeosun, J.O. and Ezui, K.S. (2011). Socio-economic factors influencing rice production among male and female farmers in Northern Guinea Savanna Nigeria: Lessons for promoting gender equity in action research. *Agriculture and Biology Journal of North America*. (6):1010-1014
- Babette Wehrmann (2008). Land Conflict: A Practical Guide to Dealing with Land Dispute. Eschborn. Deutsche Gesellschaft fur Technische Zusammenarbeit (GTZ) Publishers, 122pp.
- Blench, R. M. (2010). Conflicts between Pastoralist and Cultivators in Nigeria. Review Paper prepared for DFID Nigeria. [Http://www.Rogerblench.info](http://www.Rogerblench.info). RBOP.tmm
- Bose, A. A., Abdu, Z., S. and Adlu, F. (2012). An assessment of agricultural technology packages adoption among farmers in Hawal L.G.A. Borno State, Nigeria. *Savannah Journal of Agriculture*, 7(1), 93-102.
- Dimelu, M.U., Salifu, E.D., Chah, J.M., Enwelu, I.A., and Igbokwe, E.M. (2017). Livelihood issues in herdsman-farmers conflict among farming communities in Kogistate, Nigeria. *African Journal of Agricultural Research*. 12(24):2105-2115.
- Eliapenda, Y. (2015). Large Scale Land Acquisition Implications on Smallholder Rice Production: The Case of Kilombero District, Tanzania. M.A dissertation. Rural Development of Sokoine University of Agriculture. Morogoro, Tanzania.
- Eme, O.I., Oyishe, A.O., Oche, O.A., Uche, I.B. (2014). Food Insecurity in Nigeria: A Thematic Exposition. *Arabian Journal of Business and Management Review (OMAN Chapter)*: 4(1); 1-14.
- Homer-Dixon, T. (2009). *Environment, Scarcity, and Violence*. Princeton, Princeton University Press, 132 PP. <http://nnlm.gov/pnr/eval/rogers.html>
- Ibitoye, S. J., Orebiyi, J. S., & Shaibu, U. M. (2012). Economic effect of inorganic pesticide use on Fadama II Rice Farming in Ibaji LGA., Kogi State, Nigeria. *International Journal of Agric. and Rural Development*, 15(2), 1063 – 1070.

- International Fund for Agricultural Development (IFAD) (2007). *Household food security and the role of women enfilades i.e. experience in Guatemala*. <http://www.ifad.org>. Web viewed 29th January, 2018.
- Kadiri, F. A., Eze, C. C., Orebiyi, J. S. and Henri-Ukoha A. (2014). Economic Analysis of Paddy Rice Production in Niger Delta Region of Nigeria *Asian Journal of Agriculture and Rural Development*, 4(12): 541-550
- Nhojo, A.K (2011), Land Use Plan and Farmers Pastoralist Conflict in Mvomero District. Its implication on household food production. M.A. dissertation. Rural Development, Sokoine University of Agriculture, Morogoro, Tanzania. 66pp
- Nwaobiala, C. U. & Adesope, O. M. (2013). Economic analysis of small holder rice production systems in Ebonyi State South East, Nigeria. *Russian Journal of Agricultural and Socio-Economic Sciences*, 11(23), 1-8.
- Obasi, P.C., Henri-Ukoha A., Ukewuihe, I.S. and Chidiebere-Mark, N.M. (2013). Factors Affecting Agricultural Productivity among Arable Crop Farmers in Imo State Nigeria. *American Journal of Experimental Agriculture*. 3(2): 443-454.
- Omotor, D.G. and Inoni, E. (2009). Effects of Road Infrastructure on Agricultural Output and Income of Rural Household in Delta State Nigeria. *Review article*. 42 (2): 38 pp.
- Pierre, W. J. and Fred, H. (2006). Analyzing the Effects of Conflicts on Food Security in Developing Countries: An Instrumental Variable Panel Data Approach. elected Paper prepared for presentation at the American Agricultural Economics Association Annual Meeting, Long Beach, California, July 23-26, 2006.
- Rashid, S. A. (2012). Land Use Conflict between Farmers and Herdsmen-Implications for Agricultural and Rural Development in Nigeria, *Rural Development - Contemporary Issues and Practices*.
- Rice Trade (2011). Rice production (03-11, 11.00am).
- Selbut, R. L. (2003). Multi-agency Partnerships for Technical Change in West African Agriculture: Nigeria Case Study Report on Rice Production Prepared by Eco-Systems Development Organization (edo), Jos, Nigeria for Overseas Development Institute (Odi) pp72.
- Temu, A.E., Nyange, D., Mattee, A.Z. and Kashasha, L.K. (2002). Assessing Rural Services, Infrastructure and Their Impact on Agricultural Production, Market Access, and Food Security in Tanzania. Final Donor Report; Kampala, Uganda, *IFPRI Eastern African 2020 Vision Network*. 74pp.
- United State Agency for International Development (USAID) (2010), Land Tenure and Food Security. www.land.links.org/issue/food-security.
- Vanguard Newspaper: <http://www.vanguard.com/2017/02/bloody-farmers-fulani-herdsmen-clashes-in-benue-40-killed-scoreinjured-2000-displaced>.
- WARDA (2007). "The African Rice Initiative (ARI): NERICA Consortium for Food

Security in Sub-Sahara African”, *Africa Research Bulletin: Economic, Financial and Technical Series* 44(9):17567A–17567B.

Yebo, J. I. (2006). An overview of the Tiv-Jukun crisis. In Gyuse T.T. & Ajene, O.(eds.) *Conflicts in the Benue Valley*. Makurdi: Benue State University Press. 8 (1) January, 2014 Pp. 177-204.