

**EFFECTS OF FARMERS-PASTORALISTS CONFLICTS ON MAIZE PRODUCTION
IN TARABA STATE, NIGERIA**

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ABSTRACT

The study assessed the effects of farmer-pastoralist conflicts on maize production in Taraba State, Nigeria. A multi-stage sampling technique was adopted; primary data were collected from 204 sample-size maize farmers using a structured questionnaire. Data collected were analyzed using both descriptive (percentages, frequency, and mean) and inferential statistics (Student T-test and Factor analysis). Results revealed that the majority (83.8%) of the respondents accepted that pastoralists destroyed their farms, but most (96.6%) did not accept that they caused no troubles, did not consult with maize farmers (96.6%), did not resolve issues amicably with farmers (96.1%), were not peaceloving (90.6%), and had no mutual relationship with farmers (90.2%). Farmers indicated the causes of farmer-pastoralist conflicts as destruction of lives and property (98.5%), destruction of crops (94.1%), and failure of nomads to abide by the rules and regulations of host communities (93.7%). Findings also showed maize production during conflict periods (mean = 400.4 kg/ha) and non-conflict periods (mean = 908.6 kg/ha). The mean difference between the two periods was 508kg/ha. The study revealed that there were three major strategies for mitigating farmer-pastoralist conflicts. These included national security strategies (Factor 1), land use and administration strategies (Factor 2), and land policy implementation strategies (Factor 3). The results of maize production per hectare showed that there was a significant difference in production ($t = 46.482, p < 0.00$). An independent t-test indicated that conflict between farmers and pastoralists has significant effects on maize production. It was recommended that governments facilitate appropriate conflict management strategies to mitigate the effects of conflicts between farmers and pastoralists in order to increase maize production, which could enhance farmers income and improve their standard of living.

Keywords: Taraba State, Conflicts, Crop farmers, Pastoralists, Maize production.

1. INTRODUCTION

Conflict poses major challenges to the economic growth and development of a nation like Nigeria. The link between conflict and agricultural activity is particularly important since agriculture plays a significant role in the growth of national food security (Ganiyu, Akinniran, and Adeyemo, 2013). Agriculture is Africa's growth engine and produces several cereals, including sorghum, millet, wheat, maize, and rice, on a large scale (Harold and Tabo, 2015). Zea mays, (maize or corn) is the most significant cereal crop in sub-Saharan Africa (SSA) and a staple meal for more than 1.2 billion people in the majority of the world's nations. In Nigeria, it is the third most significant cereal crop after sorghum and millet and is produced more frequently

each year than any other grain (Ibrahim, Adebayo, Alegieuno, and Ibrahim, 2011). Most sub-Saharan Africans and most locals, especially in Taraba State, depend extensively on maize as a main food crop (Oruonye, Ahmed, Gambo, and Tukura, 2016). It can be processed into a variety of foods for humans, livestock, and agro-based industries. With 72% carbohydrate, 10% protein, and 4% fat content, maize has a 365 Kcal/100g calorie density. Probably the most crucial resource a maize farmer needs to produce maize is land.

Pastoral farming involves moving livestock in search of fresh grass and water. As a result, pastoralists are people who earn a living by raising livestock and caring for and tending to animals (Dong, 2016). Nigeria's livestock industry is a valuable national resource with a lot of untapped potential. According to recent studies on the development of pastoralists in Nigeria, the main environmental difficulties faced by pastoralists are water scarcity and drought, problems with pests and diseases, a lack of grass, and climate conditions.

At different levels, all human activities and livelihoods are directly or indirectly reliant on land and water (Adisa, 2011). According to Burchi and Demuro (2016), farmers and pastoralists are the main agricultural practitioners who substantially contribute to meeting the nation's nutritional demands and ensuring food security. Crop farmers and pastoralists use land and water at the highest level of complexity among all user groups since they are completely reliant on them for their livelihood. But when population growth rates increase, land becomes more scarce and competitive between the two groups of farmers, leading to frequent disagreements that frequently escalate into violent hostilities and open confrontations (Olobatoke and Amusian, 2017; Adisa, 2011). Gefu and Gills (1990) identified the most common cause of conflict between crop farmers and pastoralists as crop damage caused by the herdsmen's animals. Such conflicts have resulted from farm encroachment on cattle pathways and occasionally water spots.

Conflict usually leads to disunity, violence, disagreement, and bloodshed because the parties involved try to reach their objective (Ibrahim et al., 2013). Ibrahim, Abdurrah, and Umar (2015) noted that in the past, the relationship between farmers and pastoralists in Nigeria was cordial and symbolic. However, in recent times, this somewhat mutual and complementary relationship between the pastoralists and their host communities is shrinking and being replaced by conflicts and open hostilities due to the scarcity of resources such as land and water. The reoccurring conflict between farmers and pastoralists remains one of the major threats to maize production in Nigeria (Umeh and Chukwu, 2016). Fasona and Omojola (2005) pointed out that the farmer-pastoralist conflicts have not only brought about a high level of insecurity but have also demonstrated a high potential for food crises in Nigeria and other countries because of the loss of lives, animals, crops, and other valuable properties.

Agricultural productivity is thought to decline by an average of 12.3% annually during times of conflict, according to Messer, Cohen, and D'Acosta's (1998) study on the subject. Conflicts between farmers and pastoralists are not the only drawbacks that might have an impact on crop yields, especially the production of maize in Nigeria. Environmental deterioration in the form of soil erosion and overgrazing are other contributors (Egbetokun, Omonona, and Ademola, 2014).

Over the years, the government has implemented a number of initiatives at various levels to mitigate these ongoing conflicts. For instance, Nigeria has more than 400 government-designated grazing reserves spread out over the nation, and in the majority of states that are prone to

violence, farmer-herdsmen reconciliatory committees have been established to settle disputes between farmers and pastoralists over resources. Several non-governmental organizations (NGOs) are also addressing this issue, (Blench, 2003).

Although numerous scholars have conducted extensive research on conflicts between crop farmers and pastoralists in Nigeria, little attention has been paid to how these conflicts affect maize output in the study region. In order to evaluate these effects on maize output in Taraba State, Nigeria, this study investigated farmer-pastoralist conflicts. The specific objectives of the study were to: describe the level of acceptability of pastoralists by maize farmers; determine the causes of farmers-pastoralist conflicts; and ascertain the effects of farmers-pastoralist conflicts on maize production during conflict and non-conflict

2. MATERIALS AND METHODS

2.1 The Study Area

The study was carried out in three selected local governments in Taraba State, Nigeria. The State is situated in the north-eastern part of Nigeria, with its headquarters in Jalingo. Taraba State had a population of about 2,274,836 people (National Population Commission (NPC), 2006). The State lies between latitudes 6° 30' and 8° 30' North and longitudes 9° and 12° East, with a land mass of 54,426 km² (Oruonye and Bashir, 2011). Taraba State is bounded in the North by Gombe and Bauchi States, in the East by Adamawa, in the South by the Republic of Cameroon, and in the West by Plateau, Nasarawa, and Benue States (Taraba State Agricultural Development Project (TADP), 2007). The State subsists on agriculture with a wide range of crops, which earned her the nickname "Nature's Gift of the Nation". Cash crops produced in the State include tea, groundnuts, cotton, and coffee. Predominant food crops include rice, millet, maize, yam, cassava, and sorghum, and these are produced in commercial quantities. The State has a tropical climate that is characterized by wet and dry seasons and well-drained alluvial soil that is characterized by both savannah and rainforest vegetation. Its wet season starts in April and ends in October, while the dry season begins in November and terminates in March. Its annual rainfall ranges from 600mm in the northern part to over 200mm in the southern part (TADP, 2007). Taraba State is inhabited by Jukuns, Fulanis, Mumuyes, Jenjos, Mambillas, Wukums, Tiv, Hausa, and Chanmba ethnic groups. It has sixteen (16) Local Government Areas and is divided into three Agricultural zones, namely, the northern, central, and Southern zones. The northern zone comprises Ardokola, Jalingo, Lau, Yororo, Zing, and Karim-Lamido Local Government Areas; the the central zone comprises Gassol, Bali, Gashaka, Sardauna and Kurmi Local Government Areas while the Southern zone is made up of Ibi, Wukari, Donga, Takum and Ussa Local Government Areas. Figure 1 is the map of Taraba State showing the location of the study area

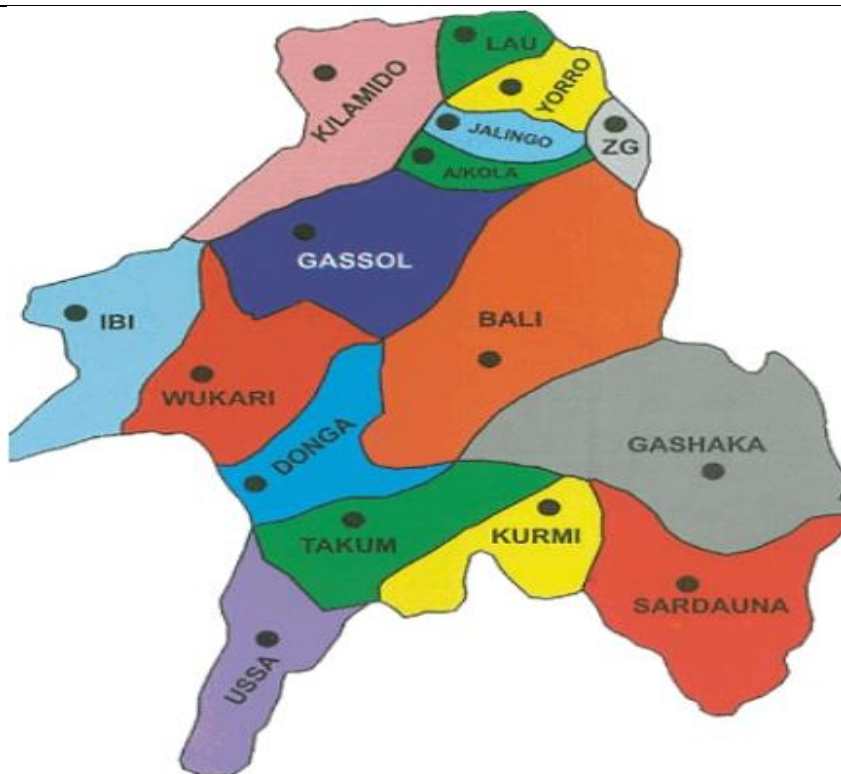





Figure 1: Map of Taraba State showing the location of the study area.

Source: <https://www.google.com.ng/ur>

KEY

	ARDOKOLA
	BALI
	WUKARI

2.2 Population and Sampling Procedure

The population of this study comprised all maize farmers in the three stratified Agricultural Zones of Taraba State, estimated to be 29,000 (TADP). In selecting the sample for the study, a multistage sampling technique was employed. In the first stage, Taraba State had been stratified into three agricultural zones, namely, the northern, central, and southern zones. The second stage involved the purposeful selection of one Local Government Area from each agricultural zone. The Local Government Areas selected were Ardo-kola, Bali, and Wukari from the Northern, Central, and Southern Zones, respectively. These LGAs were those that had experienced farmer-pastoralist conflicts the most in the last few years. The third stage involved the selection of six communities, two from each of the three LGAs, using a simple random sampling technique. In the fourth stage, the data collected from TADP on the population of farm families in the selected

communities was used to develop a sampling frame for each community using a proportional allocation of 0.7% across the board, which was used to select a total sample size of 204 respondents that was used for the study. The sampling plan for the study is shown in Table 1.

Data collection for this study: data were collected from primary sources. Primary data for this study were collected through a well-structured questionnaire and interview techniques. The questionnaire comprised four sections: A, B, C, and D. Section A covered the level of acceptance of pastoralists by crop farmers. Section B dealt with the causes of farmers and pastoralists conflicts. Section C focused on the effects of conflicts between farmers and pastoralists, and Section D centered on strategies for resolving farmer-pastoralist conflicts in the study area.

2.3 Data Analysis Techniques

The data for this study were analyzed using both descriptive and inferential statistics. Descriptive statistics (frequency, percentage, mean, and standard deviation) were used to analyze data on the level of acceptability of pastoralists by crop farmers and the causes of farmer-pastoralist conflicts. Level of acceptability of pastoralists by crop farmers was measured as Acceptable (1), Not acceptable (0) and Causes of farmer-pastoralist conflict were measured as Agree (AG = 2) and Disagree (D = 1). The effects of farmers-pastoralists’ conflicts on maize production during conflict and non-conflict periods were achieved using the T-test; this was measured by asking the farmer to indicate the number of bags of maize harvested in kilograms per hectare and hectares of land used for production during the conflict and non-conflict years. Factor Analysis was used to classify several identified strategies of conflict between farmers and pastoralists in the study area, and they were measured using a 3-point Likert-type scale of Very Effective (3), Effective (2), and Not Effective (1). A T-test was employed to test null the hypothesis that farmer- pastoralists conflict has no significant effect on maize production.

Table 1: Sample Size Selection Plan

Agricultural Zones	LGAs	Communities	Sampling Frame	Sample Size (0.7 %)
Northern Zone (A)	Ardo-Kola	Kona Dutse Sunkani	2,500 10,000	18 70
Central Zone (B)	Bali	Maihula Suntai	2,000 5,500	14 39
Southern Zone (C)	Wukari	Gindin-Doruwa Tsonkundi	8,000 1,000	56 7
Total			29,000	204

Source: Adapted from Taraba State Agricultural Development Project (TADP, 2016)

3. RESULTS AND DISCUSSION

3.1 Level of Acceptability of Pastoralists by Maize Farmers

The results in Table 2 revealed that maize farmers accepted that pastoralists destroyed their farms 83.8 %, but they did not accept that there is mutual relationship between pastoralists and maize farmers 90.2 %, pastoralists and maize farmers did not resolved issues amicably 96.1 %, they did not do business together 83.3 %, pastoralists did not consult with farmers 96.6 %, pastoralist made trouble 96.6%, pastoralists and maize farmers were not peace loving 90.6 %. Level of

acceptability of pastoralists by maize farmers was computed for all the respondents, with the maximum obtainable score of 34, minimum of 7 and the maximum was 14 with mean of 13.93 and standard deviation of 2.97. The standard deviation of 2.97 implies that pastoralists were poorly accepted in their host communities. This implies that most pastoralists in the study area failed to abide by the rules and regulations of the host communities. This result agrees with that of Ofuokuet *al.* (2009) who found that the level of acceptability of pastoralists by some crop farmers was always low. It also agrees with the report of Musa *et al.* (2014) that the level of acceptability of the pastoralists by host communities was low

Table 2: Level of Acceptability of Pastoralists by Maize Farmers (n=204)

Statements	Acceptable		Not Acceptable		Min.	Max	\bar{X}	SD
	F	%	F	%				
There is mutual relationship between pastoralists and maize farmers	20	9.7	184	90.2				
Pastoralists and maize farmers resolve their issues amicably	8	2.0	196	96.1				
Maize farmers and pastoralist do business together	34	16.7	170	83.3	7.00	14.00	13.93	2.97
Pastoralist consult with maize farmers	7	3.4	197	96.6				
Pastoralists in the community destroy maize farms	171	83.8	33	16.1				
Pastoralists do not make trouble	7	3.5	197	96.6				
Farmers-Pastoralists are peace loving	19	9.4	185	90.6				

Causes of Farmers -Pastoralists Conflicts

Results in Table 3 show the various causes of conflicts between pastoralists and farmers in the study area. Most maize farmers agreed that the following were the causes of conflicts between farmers and pastoralists in Taraba State. These included: destruction of lives and properties 98.5%, destruction of crops is 94.1 %, failure to abide by the rules and regulations of host communities by normads 93.7 %, disregard for traditional authority 89.7 %, host communities take laws in their hands when offended 79.0 %, contamination of streams by cattle 75.0 %, greed of some farmers who give community land to pastoralists to graze their animals for a fee 70.6%, sexual harassment 70.1%. This implies that pastoralists do not own land but compete with most farmers on the scarce resource which both groups depend on for their livelihood. The finding of this study agreed with the work of Uhembe (2015) which reported that farmers accused the pastoralists of destruction of their crops and contamination of community water points by cattle. It also corroborates the finding Ofuoku *et al.* (2009) who showed that sexual harassment of females in host communities by pastoralists and destruction of crops and properties caused farmers-pastoralists conflicts. The result of the study further agrees with the report of Tonah

(2006) who averred that destruction of crops was one of the causes of conflicts between farmers and pastoralists.

Table 3: Percentage Distribution of Causes of Farmers-Pastoralists Conflicts in Taraba State

Causes	Agree		Disagree	
	Frequency	Percentage	Frequency	Percentage
Land and water	70	34.3	134	65.7
Destruction of crops	192	94.1	12	5.9
Contamination of streams by cattle	153	75.0	51	25.0
Failure of nomads to abide by the rules and regulations of host communities	191	93.7	21	10.3
Disregard for traditional authority	183	89.7	21	10.3
Indiscriminate bush burning	128	62.7	76	37.3
Stealing and killing of cattle	36	17.7	168	82.3
Host communities take laws in to their hands when offended	161	79.0	43	21.0
Poor understanding of pastoralists by farmers	44	21.6	160	78.4
Greed of some farmers who give community land to pastoralists to graze their animals for a fee	144	70.6	60	29.4
Denying cattle access to grazing areas	38	18.6	166	81.4
Sexual harassment of women by nomads	143	70.1	61	29.9
Indiscriminate cow dung by cattle on roads	60	29.4	144	70.5
Destruction of lives and property	201	98.5	3	1.5

Source: Field Survey 2017

Effects of Farmers-Pastoralists Conflicts on Maize Production

Tables 4 and 5 show the mean production of maize per hectare during conflict and non- conflict periods in the study area. The average production per hectare when there was no conflict stood at 908.59 kg/ha with standard deviation of 194.9. This value is greater than the average production when there was conflict (\bar{X} = 400.4kg/ha) with standard deviation of 152. The difference between the average maize produced per hectare was 508kg. The results indicated that more maize was produced during non- conflict years (\bar{X} =908.59kg/ha) than during conflict years (400.4kg/ha). An independent t-test showed that the difference between the two periods was statistically significant (t=46.482, df=1018/ p=0.00). This indicates a significant difference in the production of maize during conflict years and non-conflict years in Taraba State, hence, the null hypothesis (H_{01}) was rejected and we accept the alternative hypothesis that there is a significant effect of farmers-pastoralists conflicts on maize production in Taraba State. This implies that many farmers did not go to their farms for the fear of being attacked by pastoralists in the bush. This is not far from the report of Sulaiman *et al.*(2010) who observed that reduction in farm production was the most serious effect of conflict which increased poverty within the communities and often

led to low income in the conflict area. This also is in line with the report of Oladele (2011) who found that destruction of crops by cattle brought about several effects on the livelihood which led to low food production at the households and reduction in output and income of the farmers.

Table 4: Average Production of Maize per Hectare between 2011– 2015

Conflict Period	Non Conflict Period
\bar{X} =400.4	\bar{X} = 908.59
S=152	S=194.9
n=629	n=391

Table 5: T- test Showing Difference between Mean Production per Hectare during Conflict and Non-Conflict Period

Production Year	N	Mean \bar{X}	Standard Deviation	Df	T	P value
Conflict	629	400.4	152.00	1018	46.482	0.00
Non-Conflict	391	908.59	194.988			

Strategies for Mitigating Farmers-Pastoralists Conflicts in Taraba State

Table 6 shows that there were three major categories of strategies for mitigating farmers-pastoralists conflicts in Taraba State, namely: National security strategies (factor 1), Land administration strategies (factor 2) and Policy implementation strategies (Factor 3).

The variable which loaded high under national security strategies(factor 1) were prosecution of pastoralists marauders (0.769), security needs (0.691), confined negotiation (0.567), need for symbiotic relationship (0.552),political negotiations (0.517),need for a clear mutual coexistence (0.510), relative diplomacy (0.455), use of force (0.303). In factor 2, strategies that loaded high were compensation needs (0.655), demarcation of livestock routes (0.569), and contracted agreement (0.370).

In factor 3, strategies that loaded high were reconciliation committee (0.732), compensation need (0.655), demarcation of livestock routes (0.569), contracted agreement (0.370). in factor 3, strategies that loaded high reconciliation committee (0.732) ranches establish (0.642), adjudication needs (0.628), use of land arbitrators (0.572), veterinary centre establishments (0.543), construction of permanent settlements for pastoralists (0.466), setting up of judicial commission of enquiry (0.312).

These findings have several implications. Firstly, the use of force or military might should be adopted as a last resort in resolving farmers-pastoralists conflicts. That is to say, use of diplomacy, political negotiation, expanding of security outfit by making use of community policing and Civil Defence Corp of Nigeria should be employed in resolving farmers-pastoralists conflicts before the use of force. This is because Kamilu *et al*(2012) in their study found that use of force in resolving conflicts between farmers and pastoralists in Taraba State resulted to destruction of properties and extra- judicial killings. Besides, there is need to apprehend and prosecute all marauders involved in farmers-pastoralists conflicts. Before doing that, there is need to put in place a legislated policy framework similar to anti-open grazing prohibition and ranches establishment law put in place by the Taraba State government in 2017. It is not enough

to put in place a legislated policy framework, hence there is need to put in place policy implementation strategies or structures in order to enforce strict implementation and compliance by both farmers and pastoralists.

Table 6: Factor Analysis of Strategies Mitigating Farmers-pastoralists Conflict in Taraba State.

Variable	FACTOR 1	FACTOR 2	FACTOR 3
Political negotiation	0.517*	0.288	0.042
Relative diplomacy	0.455*	0.069	0.039
Use of force	0.303*	0.280	0.600E-02
Contracted agreement	0.054	0.370**	0.611E-02
Security needs	0.691*	0.135	0.464E-03
Compensation needs	0.276	0.655**	0.095
Ranches establishment	0.315E-02	0.247	0.642***
Need for symbiotic relationship	0.552*	0.285	0.288
Use of arbitrators	0.122	0.275	0.572***
Confined negotiation	0.567*	0.130	0.209
Adjudication needs	0.120	0.231	0.628***
Construction of farm settlements for pastoralists	0.266	0.286	0.466***
Veterinary centres establishments	0.285	0.051	0.543***
Livestock route demarcation	0.043	0.569**	0.086
Setting up of judicial commission	0.434E-02	0.516E-02	0.312***
Need for clear mutual co-existence	0.510*	0.353E-02	0.707
Reconciliation committee	0.018	0.067	0.732***
Prosecution of pastoralists marauders	0.769*	0.034	0.017

Method: Varimax with Kaiser’s nominalisation

* Factor 1: National Security

** Factor 2: Land Administration

*** Factor 3: Policy Implementation

4. CONCLUSION AND RECOMMENDATIONS

4.1 Conclusion

The alarming rate of pastoralists attack in rural communities in Nigeria has led to serious reduction in productivity of maize farmers. Life of farmers and citizens were lost as a result of farmers-pastoralist threats and attack. These competition-driven conflicts between crop farmers and pastoralists have become common occurrences in many part of Nigeria and has often times turned into serious overt and covert hostilities. This study assessed effects of farmers-pastoralists conflicts on maize production in Taraba State, Nigeria. Evidence from the study indicated that there was poor acceptance of pastoralists by maize farmers due to the later’s failure to abide by

the rules and regulations of the host communities and disregard for traditional authority. As a result, there was a significant reduction in maize production in the study area. Result also indicated that the major causes of conflicts between farmers-pastoralists were destruction of life and property, destruction of crop, contamination of water by cattle. Result on strategies revealed that there were three major category of strategies for mitigating farmers-pastoralists namely; national security strategies, land use administration strategies and land implementation strategies with reconciliatory committee having the highest loading

4.2 Recommendations

Based on the above conclusion, the following recommendations were made:

1. It is not enough to put in place anti-grazing law but government should ensure compliance with the law.
2. Government should set up an administrative panel and a reconciliation committee to reconcile farmers and pastoralists and enlighten them on the needs to live together peacefully.
3. There is a need to hold town hall meetings with the farmers and pastoralists and educate them to comply with the law of the land. During the meeting, they should be warned not to violate the law of the land since non-compliance will attract sanction.
4. Religion and community leaders should enlighten their people about the need to embrace peace and unity.

REFERENCES

- Adisa, R. S. (2011). Management of farmer-herdsmen conflict in North-Central Nigeria. Implications for collaboration between Agricultural Extension Service and other Stakeholders. *Journal of International Agricultural Education and Extension*, 18(1): 60-72.
- Adisa, R. S. (2011). Patterns of conflicts and socio-psychological coping strategies among natural resource user-groups in tourism communities of the Nigerian Savannah. *The Journal of Tourism and Peace Research*, 1(3): 1-15.
- Blench, R. (2003). *Natural Resource Conflict in North Central Nigeria: A Handbook*. Mandarax Publishing Cambridge, UK, 162P
- Blench, R. (2010). Conflict between pastoralists and cultivators in Nigeria. Review paper presented for DFID Nigeria. Kay Williamson Educational Foundation Cambridge UK. Pp1-16. Available at <http://www.rogerblench.info/Development/Nigeria/Pastoralist/Fadama>. Retrieved on 12/10/2016
- Dong, S (2016). Overview: Pastoralism in the World, Springer International Publishing Switzerland pp1-38
- Egbetokun, O.A, Omonona, B.T and Ademola, S.A. (2014). Land Degradation and its impacts on Technical Efficiency of Maize-Based Farms in Oyo State, Nigeria. *America journal of Social Sciences*, 2(5):74-79.
- Fasona, M.J and Omojola, T, (2005). Climate change, Human Security and Communal Clashes in Nigeria. Paper at International workshop in Human Security and Climate Change. Holmen Fjord Hotel, Oslo October 21-23, Pp 3-13

- Gefu, J. O., Gill, J. E. (1990) Pastoralist Ranchers and the State in Nigeria and North Africa ; A comparative analysis .Nomad People 25-27;34-49.
- Ganiyu, M.O, Akinniran, T.N, Adeyemo. S.A, (2013). Rainfall Pattern and Trend On Arable Harald, M. and Tabo, R. (2015). Cereal Crops: rice, maize, millet, sorghum, wheat. AbdouDioufInternationalConference Center Dahar, Senegal.October21-23, 2015
- Ibrahim, A.A., Peter, M.B., Zainab, I.A. and Dahiru, H. (2013). Effectiveness of Agricultural Extension Methods in Conflict Resolution among Pastoralists Communities in Adamawa State. *Journal of Agriculture and Veterinary Science*, 6(3):01-05.
- Ibrahim, F.D., Adebayo, C.O. Alegieuno, O. P. and Ibrahim, P.A (2011). Costs and Returns of Yam/Maize Production in Bosso Local Government, Niger State, Nigeria, *Agro-Science Journal of Tropical Agriculture, Food, Environment and Extension Volume* 10(3), pp 69 - 74
- Kamilu, B.K., Fapojuwo, O.E. and Foloruso I.A. (2012). Conflict Resolution Strategies among Farmers in Taraba State Nigeria.*International Journal of SustainableDevelopment*,5 (2):11-20
- Messer, E.; Cohen, M. and Da'Costa, J. (1998). 'Food from Peace: Breaking the link Between Conflict and Hunger'. Food, Agriculture, and The Environment Discussion Paper No 24. International Food and Population Research Institute (IFPRI). Washington DC. Available online at <http://www.ifpri.org/2020/dp/dp2> Pp 128.
- Musa, S. D, Shabu, T and Igbawua, M.I (2014). Resource use conflict between farmers and Fulani Herdsmen in Guma Local Government Area of Benue State, Nigeria. *Journal of Basic and Applied Research International*, 20 (10 and10):20-20.
- National Population Commission (NPC) (2006). The National Population Office Jalingo, Taraba State Census Facts Sheets Issued 31 2007B, 82, Jalingo.
- National population commission (NPC), (2006). Federal Republic of Nigeria, census report.
- Ofuoku, A.U. and Isife, B.I. (2009). Causes, effects and resolution of farmers-nomadic cattle herders' conflict in Delta State, Nigeria. *International Journal of Sociology and Anthropology*, 1(2): 047-054.
- Oladele, O.T and Oladele, O.L. (2011). Effect of Pastoralist farmers Conflict on Access to Resources in Savanna Area of Oyo State, Nigeria. *Life Science Journal*, 8(2) 616-621. Available at <http://www.lifesciencesite.com>.
- Olobatoke, R. and Amusian, O. (2017). Effect of Fulani herders' intrusion on the economic livelihood of crops farmers in Yagba East Local Government Area of Kogi State, Nigeria. *International journal of agricultural policy and research*, 5 (3): 80-85.
- Oruonye, E. D. and Abbas B. (2011). The Geography of Taraba State, Nigeria. Lambert Academic Publishing (LAP) Company, Germany. P264
- Oruonye, E.D, Ahmed, Y.M, Gambo, M.N and Tukura, E. (2016). Effect of Rainfall Variability on Maize Yield in Gassol LGA, Taraba State, Nigeria.*Journal of Agriculture Biotechnology*, 01(01): 01-08.
- Sulaiman, A and Jafa-Furo, M.R. (2010).Economic Effects of Farmers-grazier Conflict in Nigeria. A Case Study of Bauchi State. *Trends in Agricultural Economics*, 3:147-157
- Taraba State Agricultural Development Programme (TADP) (2007) Annual report on Arable Crop Production

-
- Taraba State Agricultural Development Programme (TADP) (2016). Annual report on Arable Crop Production
- Tonah, S. (2006). Managing Farmer-Herder Conflicts in Ghana's Volta Basin. *Ibadana Journal of Social Sciences*, 4(1): 33-45.
- Uhembe, A. C and Ahar. (2015). The State and the management of Conflict between Nomadic Herdsmen and Crop Farmers in North Central Nigeria: Implication for Sustainable Development. *International Journal of Liberal Arts and Social Science*, 3(7):20-28.
- Umeh, G. N. and Chukwu, V. A. (2016). Socioeconomic Perspectives to Arable Crop Farmer-Herder Conflicts in Ebonyi North Zone, Ebonyi State, Nigeria: *International Journal of Science and Research*, 5(5):135-142.