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EMPIRICAL ANALYSIS OF CROP FARMERS/HERDSMEN CONFLICT AND AGRICULTURAL PRODUCTION IN NASARAWA STATE, NIGERIA: A FOCUS ON NASARAWA SOUTH SENETORIAL ZONE

Yunana Yakubu Aku	Department of Political Science, Nasarawa State University, Keffi
Prof. Eugene T. Aliegba	Department of Political Science, Nasarawa State University, Keffi
Dr. Canice E. Erunke	Department of Political Science, Nasarawa State University, Keffi
Dr. Jacho David Sunday	Department of Political Science, Nasarawa State University, Keffi

Abstract

This study examines the effects of Farmers- Herdsmen conflict on agricultural production in Nasarawa State, Nigeria using the eco-violence theory. The study used both primary and secondary data collected from 287 respondents who include farmers, herders, traditional rulers and security agencies through structured questionnaire and interview. A Multi-stage sampling technique was adopted for the study while simple descriptive statistics was used and analyzed the data collected and spearman rank correlation was adopted in testing hypotheses. The study found out that the major causes of the conflict were the destruction of crops by cattle as (42.9%) of the respondents said. (41.5%) of the respondents says that reduction in output and income of farmers/nomads were the major effect of the conflict. The conclusions drew from the findings shows that farmers-herdsmen conflict had affected agricultural production negatively in Nasarawa State. The spearman rank correlation indicated that, null hypotheses one and two were rejected. It was recommended that intensive system of grazing, through ranching should be introduced so that cattle's are restricted to a particular place and chances of future clashes foreclosed. The Nasarawa State government should partner with traditional rulers, and other relevant agencies and the civil society to build new methods for the monitoring and control of Fulani herdsmen movement across the State.

Keys Words: Agricultural Production, Conflict, Farmers, Herdsmen

1. Introduction

Conflict, according to Rashid (2012) appears to be an international feature of human societies, likely to occur at anytime and anywhere. For instance, a study conducted on environment induced conflict in Kwara state by Adebayo (1997) show that farmers were displaced as a result of the destructions inflicted on their crops by cattle, while only 39 per cent of the respondents were not displaced. This resulted in a very low yield of crops in the study area. Hussein (2000) also found that, in a border between Nasarawa and Benue states, nomadic pastoralists and farmers' conflict left not less than 50 persons dead, over 10 villages

sacked and over 200 persons both nomads and farmers displaced. In addition, in research conducted by Muhammad (2008), Fulanis have continued to clash with sedentary farming communities in Plateau, Ogun, Oyo, Sokoto, Nasarawa, Benue, Rivers, Bauchi states and federal capital territory. Also, Abbass (2012), in his study of major sources of conflict between the Fulani pastoralists and farmers shows that land related issues especially over grazing fields accounted for the highest percentage of the conflict.

Pastoralism and crop farming are two important sources of livelihood in Nasarawa State, Nigeria, and the world

as a whole as human beings rely on meat, milk, grain, other crops and leather (Turner, 2004). These two agricultural sectors have also been the source of concern and worries as a result of conflicts in almost all parts of Nigeria and Nasarawa State. While there have been several clashes between the Fulani herdsmen and the farming communities for more than two decades, the escalation reached another level in 2014 with the Fulani herdsmen killing 1,229 people in comparison with 63 deaths in 2013 (GTI, 2015). Further, reported attacks in the first half of the year 2016 are worrisome; it shows the escalation in the crisis of Fulani herdsmen attacks on the farming communities in many states in Nigeria (HART, 2016). The 2016 escalated tension has led to 300 hundred fatalities in February and 40 deaths in March (Mikailu, 2016), 15 people were killed in May (Stein, 2016), and 80 deaths in July (Akinwotu, 2016). Going by other reports, more than 500 people have lost their lives because of attacks from Fulani herdsmen by midyear of 2016, more than 600 in 2018 and over 2000 in 2020 (Akinwotu, 2016). The conflicts have been commonly credited to Fulani herdsmen expanding from the traditional grazing routes into the agricultural land which in turn always results into conflict over access to pasture (HART, 2016).

Agriculture has been the base of Nigerian economy in spite of the dominance of oil in providing the main source of livelihood for most Nigerians (Jemaneh & Okyere, 2012). The sector faces many challenges, notably an outdated land tenure system that constrains access to land (1.8 ha/farming household), a very low level of irrigation development (less than 1 percent of cropped land under irrigation), limited adoption of research findings and technologies, high cost of farm inputs, poor access to credit, inefficient fertilizer procurement and distribution, inadequate storage facilities and poor access to markets and more recent is the herders-farmers conflict have all combined to keep agricultural productivity low (average of 1.2 metric tons of cereals/ha) with high postharvest losses and waste (Saheed, 2014).

Even though agriculture still remains the largest sector of the Nigerian economy and employs two-thirds of the entire labour force, the production hurdles have significantly stifled the performance of the sector (Oji-Okoro, 2012). Over the past 20 years, value-added per capita in agriculture has risen by less than 1 percent annually (Oji-Okoro, 2012). It is estimated that Nigeria has lost USD 10 billion in annual export opportunity from groundnut, palm oil, cocoa and cotton alone due to continuous decline in the production of those commodities (Olajide, Akinlabi, & Tijan, 2012). Food (crop) production increases have not kept pace with population growth, resulting in rising food imports and declining levels of national food self-sufficiency (FMARD, 2008).

Nasarawa State has agriculture as the mainstay of its economy with the production of varieties of cash crops throughout the year. Farming is the main occupation of the people of the state with over 70% of its population engage in Agriculture and crops produced include cassava, yam, rice, maize, guinea corn, beans, soya beans, acha and millet. The Nasarawa State in 2014 exported yams to other countries, 118 metric tons of yams were exported which boosted the gross domestic product (GDP) of the country (Osewa, 2015). Unfortunately, the effort of the government has been jeopardized by the Fulani/herdsmen conflict that claimed the lives of so many citizens and destroyed farm produce and other properties in most parts of the state like Bassa, Awe, Obi, Keana, Kadarko, Nasarawa Eggon, Nasarawa Toto, Wamba, Andaha and UdeniRuwa which resulted to food insecurity in the State. A series of conflicts has been experienced in Obi, Doma, Keana and Awe local government areas of Nasarawa State since 2017. It has led to the displacement of communities and loss of lives and livelihoods. The conflict flared up after a new grazing regulation law took effect in neighbouring Benue State. Nasarawa, where the main economic activity is growing cash crops, received an influx of thousands of herders and about 2 million cows from Benue Adeyinka and Victor (2019). In April 2018 suspected Fulani herdsmen killed 32 villagers. The attack was carried out

simultaneously across Awe, Keana, Obi and Doma local government areas. Over 10,000 Tiv villagers were said to be trapped along Agwatashi-Jangwa road in Obi local government areas. (Sun, 16th April 2018). These large populations killed and some displaced cannot longer go to their respective farms which drastically affected agricultural productivity and economic activities in the state, as statistics clearly shows that guinea corn production were 107 tons in 2010 and 118 tons in 2011 reduced to 98 tons in 2012 and 88 tons 2013. It is on this note that, this research, examined the degree to which the prevalence of conflicts between herders and farmers affects agricultural production in Nasarawa State.

Farming has been the major occupation of the farming communities in Nigeria. Right from the beginning of human existence, agriculture was contributing over 70% of the Gross Domestic product in the 1960s. Even when famers were using primitive tools, they were producing 70% of Nigeria's export and 95% of its food needs (Oji-Okoro, 2012). In Nasarawa State, agriculture was contributing over 60% of the state gross domestic product and over 70% of its population is farmers. Government in Nigeria and Nasarawa State in particular developed programs to facilitate farming, communication, and distribution of agricultural products to improve the quality of life of the famers in the Country and state (Adeyinka and Victor, 2019). Currently, the Nigerian government is diversifying her economy with a focus on agriculture but unfortunately at the time the herdsmen are invading farming communities to graze any available vegetation they come across. This has given rise to un-healthy rivalry between farmers and herdsmen, leading to violence characterized by loss of lives and property, threatened the security of the State, reduced its economic productivity, and deepened food crisis.

The ongoing conflict between farmers and herdsmen across Nasarawa State is costing the state at least \$1.8 billion in potential revenues annually since 2001, significant reduction in agricultural contribution to GDP from 60% in 1990, 63% in 1995, 57% in 2000 to 30% in 2007, 31% in 2010, 26% in 2015 and 18% in

2020 (NBS, 2021). Losses to the country as a result of herdsmen activities since 2001 have been estimated at over \$14 billion, (Gundu, 2017). Between 2013 and 2017, herdsmen killed close to 2000 people in Nasarawa state and over 755,538 persons internally displaced. The farmers in southern Nasarawa Senatorial zone lost produce and other valuables worth over N39,823,798,469 between 2010 and 2017 (Idyorough, 2017).

The study analyzed the effects of famers/herdsmen conflict on agricultural production in Nasarawa State. The paper is organised in five sections: The first section covered the general introduction of the study, the second section deals with literature review and theoretical framework. Methodology is discussed in section three while section four deals with presentation and discussion of results. Conclusion and recommendations were made in section five.

2. Literature Review and Theoretical Framework

2.1 Conceptual Definition

Farmer: Farmer is a person who owns, works on or operates an agricultural enterprise, either commercially or to sustain himself or his family (Akande, 2006).

Concept of Herdsmen: Herdsmen are workers who live a pastoralist life gathering and caring for a herd of domesticated live stocks (Brooks, 2003). Herdsmen are nomadic cattle herders by tradition'. someone who herds and takes care of a group of animals as their job (Tonah, 2006).

Conflict: Stagner (1967) defines conflict as a situation in which two or more human beings desire goals which they perceive as being obtainable by one or the other, but not both; each party is mobilizing energy to obtain a goal; and each party perceive the other as a barrier or threat to that goal.

Agricultural Production: Agricultural production means the production of any grass or crop attached to the surface of the land, whether or not the grass or crop is to be sold commercially, and the production of any farm animals, whether or not the animals are to be sold commercially (Lal, 2002).

2.2 Empirical Literature Review

Harrison (2019) examines the Effects of Conflict on Household Agricultural Investment in Nigeria using a household panel dataset from Nigeria's Living Standards Measurement Survey - Integrated Surveys on Agriculture (LSMS-ISA) with detailed data on conflict events from the Armed Conflict Location & Event Data (ACLED). Using an event studies framework, these data allowed to estimate the effects of conflict on a variety of household agricultural decisions. Additionally, the study found evidence that households shifted production to riskier crops in the years prior to experiencing conflict. Finally, the study found little evidence that households change their use of inputs such as pesticide and equipment following a conflict.

Rukwe, Abdullahi, Faruk and Nwaeze (2019) evaluate the effects of Farmers-Herders conflict on the farming households of in southern Taraba State, Nigeria. Data were collected from 102 farming households using structured questionnaire, as respondents for the study. Multi-stage sampling was used for the study. Descriptive statistics was used to analyze the data collected. The results of the study shows that 61.8% of farmers were males, Majority (81.4%) of the farmers fell within 21-50 years with mean age of 41 years, majority (55.9%) were married with average household size of 11 persons. Majority of the farmers are predominantly small-scale farmers with average farm size of 2.82 ha, about 88.2% of the rural farmers had formal education. The major crops grown were cereals crops (47.1%), 73.5% of the respondents belonged to organizations with average annual income of farmers was N181, 050.52. The major perceived causes of conflicts by crop farmers in the study area was uncontrolled grazing and damage to crops by cattle (95.1%). The most severe consequences of conflicts were decrease in output and income of farmers (99.0%) and Loss of lives and injuries sustained (98.0%). This research uses structured questionnaire only, a study of this magnitude requires more than just questionnaires that is why both questionnaires and interviews are used. The interview helps us to critically interrogate some

key personalities with useful information on farmer's\ herders' clashes in Nasarawa State.

Ajibefun (2018) investigated the social and economic effects of the menace of Fulani herdsmen crises in Nigeria. The sample of the study consisted of 250 farmers and 150 respondents from Fulani tribe selected from affected Local Government areas in Southwest, Nigeria via purposive sampling technique. A questionnaire titled Economic and Social Effects of Herdsmen Clashes Questionnaire (ESEHCQ) was used to collect data. Descriptive statistics and inferential statistics of t-test were used to analyze the data generated from respondents. The findings revealed that the major cause of the conflict was destruction of crops. The social effect of the menace of Fulani herdsmen are loss of human life, sexual harassment of human life, acquiring of weapons/arms, reduction in quality of social relationship, reduction of social support and high cases of rape while the economic effect of the menace of Fulani herdsmen are reduction in output and income of farmers/nomads, loss of produce in storage, displacement of farmers, scarcity of agricultural products, loss of house and properties and infrastructural damages. Amao, Adeagbo, Olojede, Ogunleye and Ogundoyin (2018) examine the effects of Fulani herdsmen conflict on productivity of arable crop farmers in Ibarapa areas of Oyo state, Nigeria. Interview schedule was used to extract information on socio-economic characteristics of affected and non-affected arable crop farmers, productivity differentials and effects of Fulani herdsmen conflict on productivity of arable crop farmers from 315 respondents using a multi-stage sampling technique. Data obtained were analyzed using frequency counts, percentages, mean, standard deviation, t-statistics and Tobit regression. The Findings revealed that, majority of them (82.84%) had primary school education; most of them (74.92%) were male. Also, majority of the respondents (71.43%) were married. The main farm size was 5.19 hectares. The findings also revealed that the herdsmen attack was very rampant because 264 farmers were affected while just 51 arable crop farmers were not affected. 100% of the farmers were engage in cultivation of cassava and maize. The main income realized in 2016 and 2017

were N153, 968.30 and N250, 317.50 respectively. Herdsmen effect has a negative significant influence (-1.7366) on farmers' productivity at 1% while farm size (0.2442) and educational level (0.2289) has a positive influence on farmers' productivity at 1% and 5% respectively. The t-value was 16.8757 and is significant at 1%, which implies that there is significant difference in the productivity of non-affected and affected farmers.

Fajonyomi, Fatile, Bello, Opusunju, and Adejuwon (2018) examine the effect of farmers-herdsmen conflicts on food production in the North-Central geopolitical zone of Nigeria. The population of this study was drawn from the Kogi, Benue, Plateau, Nasarawa, Niger, Kwara and Federal Capital Territory, Abuja. The purposive sampling method was used to select a sample size of 400 respondents from the study population. The questionnaire was administered in two formats that addressed questions related to farmers-herdsmen conflicts and food security in North Central, Nigeria. Data collected from the respondents who are farmers, villagers, traditional rulers and NGOs across the North Central Zone of Nigeria were tested and verified using mean, simple percentages and regression. The study reveals that there is a significant relationship between the availability of food and insecurity; stability of food supply and displacement of people as well as the availability of food and disability and death in North Central Zone, Nigeria.

2.3 Theoretical Framework

The Eco-violence theory was adopted for this study and was developed Homer-Dixon (1999). The theory is useful to understand the rising conflicts between farmers and herdsmen. Homer-Dixon focuses on population variables. He views population pressure as closely linked to the potential scarcity of renewable resources. While he argues that resource scarcities can cause violent intrastate conflict under unfavourable conditions.

The theory believes that population growth, a decrease in the quality and quantity of renewable resources, and resource access act singly or in various combinations to

increase the scarcity, for certain population groups, of cropland, water, forests, and fish (Adeoye, 2017). The desperate quest for survival by groups in a competitive and resource-scarce ecological sphere is likely to precipitate violent conflict. The rising wave of militancy among the Fulani herdsmen in Nigeria is principally driven by a dire struggle for survival in an environment that is competitive and hostile to their collective sustainable livelihood.

The ultimate cause of the conflicts between farmers and herdsmen lie in the general degradation of resources and the increased competition for access and resources capture (Tonah, 2006). Critics have argued that though the fundamental theoretical assumption of the theory is that resource scarcity is the product of an insufficient supply that forces some sector of a society into a condition of deprivation, the nature of the farmer-herdsmen conflicts in the North Central. Despite the criticisms, the theory of eco-violence offers insights into the nature and dynamics of the herdsmen/farmers conflicts in Nasarawa State and Nigeria at large.

3. Methodology

3.1 Research Design

This study focuses on cross sectional and descriptive research design, because of the nature of the research topic. The study requires some detailed description of the conflict between the farmers and herders and the effects on Agricultural production. The cross sectional approach is necessary, because the study covers five local government areas in Nasarawa South Senatorial Zone. The study also applies the descriptive survey because a number of issues such as the causes and effects were observed and described.

3.2 Population, Sample Size and Sampling Techniques

The population of this study comprises of farmers and cattle breeders (herdsmen) in the study area, which includes Lafia Local Government Area, Doma Local Government Area, Obi Local Government Area, Keana Local Government Area and Awe Local Government Area which are the areas recognized as Nasarawa South

Senatorial District, Nasarawa State. See appendix II. Traditional rulers for example Emir of Lafia, Andoma of Doma, Emir of Obi, Osana of Keana and Emir of Awe local government areas were interviewed. Security agents (Nigerian Police and State Security Service), 6 officers of the Nigeria Police were interviewed, Among them are the Divisional Police Officer (DPO) of Lafia Central, Doma, Obi, Keana and Awe Local Government Area. Also interviewed was the Police PRO of Nasarawa State because most of the cases of conflict between herdsman and farmers were reported to the Nigerian Police Force and that gave them the opportunity to have vital information on the crisis. State Security Service officers in Nasarawa State were also interviewed, Local government staff (Heads of Agriculture Department) and State committee on herders/Farmers clashes as well, and the leaders of Miyetti Allah Cattle Breeders Association of Nigeria for each of the five local government areas were interviewed. The study area is Nasarawa State with particular reference to Nasarawa South Senatorial district where the herders/farmers conflict is predominant and frequent in Nasarawa State.

Since every family unit in the study area has a farm, the sampling frame of the study was drawn from the population of registered farmers in the study area which is 2,279 (NSADP,2021) while the sampling frame for population of registered Fulani herders in the five local governments in the study area is 778 (Miyetti Allah Cattle Breeders Association of Nigeria, 2021), first class traditional rulers are 8 (LGC. 2021), security personnel (Nigerian Police) is 587 (NPF, 2021) and 15 members of the state committee on herders-farmers clashes in the state. This provides the total population of the study to be 3,667.

Due to the cross sectional nature of the study area and nature of the study, a stratified sampling method was used to cluster the population into the most important groups to the study which includes Farmers, Herdsmen, Traditional rulers, Security Agency, and state committee on herders-farmers clashes. Therefore the sample size for the study according to Krejcie and

Morgan (1970) table based on the population is 342. Stratified random sampling was applied and selects the respondents from each Local Government areas according to the strata, questionnaires administered and data obtained and analysed.

Interviews were also conducted but due to the large population of the sample size, a total number of 37 persons were sampled according to strata and interviewed from these groups based on their knowledge of the conflict. For this reason, purpose or judgmental sample was used to get those who have good knowledge of the conflict under study, especially from the strata and areas most heated by the conflict. The decision to take a sample of only thirty seven (37), for the interviews, was to have a sizable population that would minimize cost and increase the effectiveness for the desired result.

Five traditional rulers (first class chiefs) from the five local government areas of study co-operated and were interviewed. The Fulani Ardors in the study areas made available two (2) herders in each of the local government area of study and were cooperated and interviewed. This brings the number of herders interviewed to ten. The chairman and secretary of farmers association in the area of study were interviewed bring the number of farmers interviewed to ten.

For the security Agency, six (6) security officers were interviewed: the divisional police officers and public relation officer Nasarawa State. The chairman and one person of the state committee for herders-farmers conflict were interviewed.

3.3 Data Collection and Technique of Analysis

The study used both questionnaire and interview as the sourced of data. The study also obtained secondary data for agricultural production in Nasarawa State spanning the period 2011-2019. Simple descriptive statistics and spear rank correlation were used for data analysis and testing of hypotheses.

4. Data Presentation and Discussion of Results

This data collected from both questionnaires and in-depth interviews were presented and analysed as presented below:

Table 1: Effects of farmers/herders conflict on agricultural production in Nasarawa State

Views	Frequency	Percentage
Reduction in output and income of farmers/nomads	119	41.5
Displacement of farmers	42	14.6
Loss of produce storage	18	6.3
Loss of money and potential business opportunity	37	12.8
Hike in food prices	41	14.3
Disrupt and threaten the sustainability of Agricultural and Pastoral Production	30	10.5
Total	287	100.0

Source: Field Survey, 2021

Table 1 shows the response on the effects of farmers/herders conflict on agricultural production in Nasarawa State. Majority of the respondents 119 (41.5%) said reduction in agricultural output and meat production as well as the income of both the farmers and nomads are the major negative effects of the conflict between the farmers and the herders. This decrease in output in the state affect the gross domestic product (GDP) and gross national product (GNP) thereby causing poverty and food insecurity of the nation at large. 42 (14.6%) said that the conflict results in the displacement of farmers in the affected areas. This displacement of farmers also affected crop cultivation and subsequently low output. 18 (6.3%) said there is loss of produce storage due to the conflict.

According to all the traditional rulers interviewed, they said that the lingering conflict between herders and farmers have affected negatively the money people generated annually in the state and loss of potential business opportunity for both farmers and nomads in Nasarawa State. Another serious effect of this conflict is the hike in food prices. Due to the loss output, supply of agricultural produce in the state has drastically reduced while the demand is still in an increasing

return. These situations push food prices up and affected the living standard of the people. These views are also in line with other respondents as 41 (14.3%) said the conflict have resulted to hike in food prices in the State.

Another group of herders and farmers interviewed said that the conflict between them will disrupt and threaten the sustainability of agricultural and pastoral production in the state and the nation in general if nothing is done to address the menace. They said that many farmers are reluctant in going to the farm and those going have reduced their farm size. The herders are also not interested in going out with their cattle for grazing due to fare of attack also by the community's youth. The herders are also complaining of their arm herders who involves in cattle theft. These are also disrupting and threaten the sustainability of agricultural and pastoral production. From the questionnaire, 30 (10.5%) said that the conflict is actually disrupting and threaten the sustainability of agricultural and pastoral production in the state and the nation in general. From the interpretation and analysis of the table above, it shows that reduction in output and income of herders and farmers are the major effect of the conflict on agricultural production.

Table 2: Factors that have propelled or brought about herders/farmers conflict in Nasarawa State

Views	Frequency	Percentage
Destruction of crops by cattle	123	42.9
Contamination of streams by cattle	57	19.9
Zero grazing of Land	22	7.7

Female Harassment by herders	37	12.9
Harassment of nomads by host communities youth	18	6.3
Indiscriminate bush burning	9	3.1
Defecation of cattle on roads	7	2.4
Cattle theft	14	4.8
Total	287	100.0

Source: Field Survey, 2021

Table 2 shows the response on the factors that have brought about herders/farmers conflict in Nasarawa State. 123 (42.9%) of the respondents have the view that destruction of crops by cattle were responsible for the continue conflict between the herders and farmers in the State. They said that herders moved into farms and allowed their cattle to feed on the crops in which farmers complained to the herders always trigger the conflict. 57 (19.9%) complained on the contamination of their streams by cattle are some of the factors that propelled the conflict. The farming communities use most of the streams as the sources of drinking water and the herders used their cattle and contaminate the streams.

Those who are of this view believed that contaminating their drinking water in almost daily basis by the cattle is responsible for conflict between the herders and farmers in some of the farming communities in the state, while 22 (7.7%) said they lack of grazing land is responsible for the conflict. They said, if the government can provides grazing land with good facilities for both the herders and their cattle, the lingering conflict between the herders and the farmers will either reduce or end completely. In the same vein, 37 (12.9%) of the respondents said that, harassment of female farmers by the herders is responsible for the continue conflict between the herders and the farmers. They said their female children and wives are being harassed and rape in their farms by the herders which also been a source of the conflict. Also 18 (6.3%) said the conflict between the herders and the farmers were as a result of harassment of herders by the community youth.

One of the traditional ruler interviewed explained some of the ways in which the conflict always started between the herders and farmers. He said that: “Indeed, some of the conflicts were as a result of bush burning by the herders which eventual destroyed growing crops in the farm. He said the herders put fire in the bush in search of bush animals or deliberate to cause damage to crops in the farms. This information is in line with the views of 9 (3.1%) whose said that indiscriminate Traffickers or their agents and relations, friends are well known citizens within the community. Defecation of cattle on roads is another factor responsible for herders-farmers conflict in the state as youth at times attack the herders for allowing their cattle to defecate on the roads as 7 (2.4%) of the respondents said. Another police man interviewed said that: “Some of the factors responsible for herders-farmers conflict in the State are cattle theft, killing of cattle and reprisals attacks. He said unknown Gunmen in some cases will visit the herders with guns and cater away with the herder’s cattle and killing of cattle by community’s youths in form of reprisals attack. In the same vein, 14 (4.8%) of the respondents said that cattle theft, killing of cattle and reprisals attacks are responsible for herders-farmers conflict in the State.

4.2 Test of Hypotheses

Spearman's Coefficient of Rank Correlation is used in testing the hypotheses of the study. A significant association between the sets of ranks by calculating Spearman’s rank correlation coefficient (r_s) is indicated by $p = 0.05$, as usual. The value of r_s ranges from -1 to +1. Table 15-17 shows the result of spearman’s correlation which indicates the direction of the

relationship between variables and also indicates whether or not one variable is statistically significant in influencing the other variable or not.

Table 3: Spearman's Rank Correlation for Hypothesis one

	Farmers/H erders	Agricultural Production
Spearman's rho		
Farmers/Herders	1.000	0.839**
Correlation Coefficient		0.009
Sig. (2.Tailed)		
N	287	287
Agric Production	0.839**	1.000
Correlation Coefficient	0.009	
Sig. (2.Tailed)		
N	287	287

Source: SPSS 16.0

Table 3 indicates that the correlation coefficient is positive (0.84) which means that there is a positive relationship between the effect of farmers/herders conflict and agricultural production in Nasarawa State. P - Value (2 Tailed) statistics is also less than

0.05 (0.009). This means that the null hypothesis is rejected and alternative hypothesis accepted that there is significant relationship between farmers/herders conflict and agricultural production in Nasarawa State.

Table 4: Spearman's Rank Correlation for Hypothesis two

	Crop Farmers	Herdsmen
Spearman's rho		
Crop Farmers	1.000	0.748**
Correlation Coefficient		0.006
Sig. (2.Tailed)		
N	287	287
Herdsmen	0.748**	1.000
Correlation Coefficient	0.006	
Sig. (2.Tailed)		
N	287	287

Source: SPSS 16.0

Table 4 indicates that the correlation coefficient is positive (0.748) which means that there is a positive relationship between factors that have propelled crop farmers and herdsmen conflict in Nasarawa State. The result shows that the more these factors increases, the more the conflict between crop farmers and herders. The (2 Tailed) statistics is (0.006) which is less than 0.05. When $P > 0.05$, it means that there are significant factors that have propelled crop farmers and herdsmen conflict in Nasarawa State. The study therefore rejects the null and accepts the alternative hypothesis that there are significant factors that have propelled crop farmers and herdsmen conflict in Nasarawa State.

4.3 Discussion of Major Findings

To ascertain the effect of herders/farmers conflict on agricultural production in Nasarawa State, the views of

342 questionnaires were administered but 287 questionnaires were returned. Interviews were also conducted to some selected herders, farmers, traditional rulers and the security agent. Descriptive statistics was used for the analysis of the data generated from questionnaire and interviews while spearman Rank correlation was used and test for the hypotheses of the study. Majority of the respondents 123 (42.9%) said that destruction of crops by cattle were responsible for the continue conflict between the herders and farmers in the State. Also, majority of the respondents 119 (41.5%) said reduction in agricultural output and meat production as well as the income of both the farmers and nomads are the major negative effects of the conflict between the farmers and the herders. The result also revealed that 69 respondents equivalent to 24.0% recommended the creation and use of grazing fields and

cattle routes as a preventive measure to herders and farmers conflict in Nasarawa State. Some of the traditional rulers interviewed also suggested the introduction of grazing reserves but the grazing fields should not be forcefully taking away from the host communities. The government should discuss with the host communities if possible compensation should be given to the communities before implementing the grazing fields' policy.

The hypotheses of the study indicate that, the alternative hypothesis that there are significant factors that have propelled crop farmers and herdsman conflict in Nasarawa State was accepted. The second hypothesis null was rejected and alternative hypothesis accepted that there is significant relationship between farmers/herders conflict and agricultural production in Nasarawa State.

5. Conclusion and Recommendations

The study examines the effect of farmers/herders conflict on agricultural production in Nasarawa State. Conflict, incessant violent and attacks between farmers and herdsman have become a defining feature of inter-group relations among communities in the Nasarawa State located in the Middle Belt region of Nigeria. Strongly for food sufficiency, land for grazing as a result of environmental degradation, social manipulation of ethno-religious biases, and technological advances have negatively affected the historical relationship that have been existing between farmers and herdsman in country particularly in Nasarawa State.

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- The continue clashes and lump loss of lives and properties as a result of herdsman and Farmers conflict in Nasarawa State have negative effects on agricultural production which include crop production and pastoral production which leads to high food insecurity, extreme poverty and hunger. It also has great implications in terms of security to the communities in Nasarawa State. Following the findings of this study, the study outlines the following recommendations that will help to address the conflict and provide a long-lasting solution to the increasing conflict in state.
- The Nasarawa Sate government should make provision of grazing field and cattle routes accompanied with necessary infrastructural facilities such as water, nomadic schools, veterinary and human medical services, etc. But the government should not forcedly take over the land from farmers without proper agreement. This will stop the herders from encroaching into people's farms and destroy their farm crops which will consequently reduce or prevent the frequent clashes between herders and farmers in the State. The Nasarawa State government should partner with traditional rulers, and other relevant agencies and the civil society to build new methods for the monitoring and control of Fulani herdsman movement across the State. This should include the registering and branding of cattle across the state for identification. Fulani in cattle business should be certified and registered. These policies would enable the government and security agencies to get any Fulani herders responsible for destruction of farm crops in the state.

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