Effects of Fulani Herdsmen Conflict on Productivity of Arable Crop Farmers in Ibarapa Areas of Oyo State

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ABSTRACT

This study examined 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 mean 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 mean income realized in 2016 and 2017 were #153,968.30 and #250,317.50 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. It was recommended that government should find a compensation measure for the affected farmers, government should provide grazing zone for the Fulani herdsmen and non-formal education should be encouraged among farmers.

Keywords: Arable Crops, Conflict, Farmers, Herdsmen, Productivity

INTRODUCTION

Agriculture plays a leading role in the non-oil sector of Nigeria. It supports 63 percent of the population directly by providing about 28 percent of the Gross Domestic Product (GDP) from the total exports and 70 percent (70%) non-oil export production (Oladele and Sakagami 2004).

Agricultural production requires an enabling environment to reach its maximum potentials. Sustainable development in agriculture, among other things, demands a peaceful co-habitation of producer communities. It is only through cooperation that local communities could implement sustainable common pool of resource conservation and management strategies. In addition,

stable and harmonious communities are only the ones that are able to be resilient and creative to respond to environmental stresses and sustain their livelihoods rather than those, which are frustrated by the circumstances in their localities. (Blench 2003)

Farmer-herdsmen conflict has remained the most preponderant resource-use conflict in Nigeria (Ajuwon, 2004; Fasona and Omojola, 2005). The necessity to provide food of crop and animal origin, as well as raw materials for industry and export in order to meet ever growing demands, has led to both "intensification and extensification" of land use (Nyong and Fiki, 2005). The competition between these two agricultural land user-groups, however, has often times turned into serious overt and covert manifestation of hostilities and social friction in many parts of Nigeria. The conflicts have demonstrated high potential to exacerbate the insecurity and food crisis particularly in rural communities where most of the conflicts are localized, with reverberating consequences nationwide (Adisa, 2012).

Folger *et al*. (2009) defined conflict as the interaction of interdependent people who perceive incompatible goals and interference from each other in achieving those goals. Gyong (2007) also defined conflict as the struggle for dominance or control of one person or group by the other in such a way as to subjugate or even eliminate the opponent.

Currently, Nigeria is experiencing conflicts that are causing community unrest, panics, homelessness and joblessness of great proportions among several ethnic and religious communities across the states. These conflicts significantly vary in dimension, but one of the most significant one is the herdsmen- farmers' conflicts. It was observed by Momale (2003) that, while some conflicts arise between same resource user group such as between one farming community and another, others occur between different user groups such as between herders and farmers or between foresters and farmers. Adisa (2012) observed that the farmers-herdsmen conflicts has remained the most preponderant resource-use conflict in Nigeria.

Social and economic factors continue to provoke violent conflicts among the Fulani pastoralists and farmers. The intensity and variations of the conflicts largely depend on the nature and type of the user groups where the pastoralists graze. These conflicts have constituted serious threats to the means of survival and livelihoods of both the farmers and pastoralists and what both groups are tenaciously protecting. The conflicts over access rights to farmland and cattle routes, have become ubiquitous and seems to have defied solutions (Abbas, 2009).,

Farm lands that are normally allowed to fallow for natural rejuvenation of the soil are fast disappearing, while lands that traditionally provide dry season grazing to pastoralists are becoming shorter in supply (Gef and Kolawole, 2002). This has heightened the frequency and intensity of competition among various land users. The Fulani herdsmen of lower Sahel and Sudan Savannah are now being found in the south (including the forest belt) in search of greener pasture for their herds (Ajuwon, 2004).

The movement of pastoralist from one area of the country to another is usually caused by the increasing demand for fresh grazing grounds especially during draught period, when the pastoralists move southwards because of the availability of pasture. In most cases, the pastoralists do encounter problems with the local people because farmers' crops were been destroyed by their cattle (Olaleye et al, 2010).

It is a social reality that considerable efforts had been made throughout the world to identify conflict, sources, effects, and appropriate methods of resolutions; (Pur et al., 2006). For farmers to take decision, for possession or lack of possession of the scarce resources, government through the extension workers who are in close contact with these agro – pastoralists should assist in wise choice of decision making among various alternatives

There is an alarming rate of Fulani herdsmen attack in rural communities of Nigeria which has led to serious reduction in productivity of farmers. Lives of farmers and citizens are lost each day as a result of the herdsmen threats and attack, extensive farm plot destruction and the ensuing bitter conflicts are eroding the gains of agriculture and rural development in Nigeria.

Competition-driven conflicts between arable crop farmers and cattle herdsmen have become common occurrences in many parts of Nigeria (Ingawa*et al.,* 1999). The competition between these two agricultural land user-groups has often times turned into serious overt and covert hostilities and social friction in many parts of Nigeria (Adisa, 2012). Cases of herders-farmers conflicts are widespread in recent times. Nweze (2005) also stated that, many farmers and herders have lost their lives and herds while others have experienced dwindling productivity in their herds. In most of these encounters, citizens are regularly killed and the destruction or loss of property leaves an already endangered populace even poorer. The frequency and scale of these communal conflicts have become alarming (Leadership Newspaper, May 17, 2011).

The increasing number of reports of violence at this occupational boundary makes understanding of herders-farmers conflict an urgent task. We need to know not just why friction begins, but also why and how, as some conflicts unfold they articulate with religious, ethnic, and political conditions (Morizt, 2010).
In addition, there is the need to comprehend how the "farmers and herders" on the one hand and the „community and the state" on the other have viewed such conflicting issues and the strategies put in place to ameliorate or even resolve them. Until the sources of such conflicts are clearly identified, understood, managed and resolved, such incidences will continue to show their ugly faces/ heads at the slightest provocation (Abbas, 2009). Conflict between farmers and herders could be reduced or averted when Government policies are clearly formulated and implemented aimed at setting a guiding principle on future cooperation between the two warring groups.

Hence, an understanding of the causes and effects of conflict between nomads and farmers in host communities is an important pre-requisite for the realization of the goals of agricultural development, social well being, socio- psychological well being as well as household well-being. There are a lot to be done in the area as regards to policy reforms to address socio-economic effects of the problem of conflicts in the country especially as it affects the agricultural service delivery. This will help to pay adequate attention to the strong relationship between the food security, pastoral productivity and conflict over resources.

There is a paucity of information on the effect of herdsmen attack among the affected and non-affected farmers. Therefore, this study tries to bridge the gap by examining the effects of Fulani herdsmen conflict on productivity of arable crop farmers in Ibarapa areas of Oyo state.

General Objective:

The main objective of the study is to determine the effects of Fulani herdsmen conflict on productivity of arable crop farmers in Ibarapa East Local Government Area of Oyo State.

Specific objectives are to:

- describe the Socio-economic characteristics of arable crop farmers
- investigate the amount realized between two seasons among farmers
- compare the productivity differential of affected and non affected arable crop farmers
- examine the effect of Fulani herdsmen conflict on productivity of arable crop farmers

Hypothesis of the study:

There is no significant difference between the productivities of affected and non-affected arable crop farmers.

METHODOLOGY

The study area

The research was carried out in Ibarapa Area of Oyo State, Nigeria. This area consists of three (3) Local Government areas namely; Ibarapa East, Ibarapa Central and Ibarapa North. In the whole area, there are seven (7) Major towns namely; Lanlate, Eruwa, Igboora, Idere, Ayete, Tapa, Igangan. The vegetation of the area is largely derived Savannah, thus allowing for the cultivation of wide array of arable and perennial crops. The rainfall pattern in the area follows a tropical pattern with an annual rainfall from 1000mm-1430mm and fair high temperature. The population of the study comprises the arable crop farmers.

Sampling procedure and sample size

A multi- stage sampling procedure was used to select Three hundred and fifteen (315) respondents for the study. Stage 1: Ibarapa Zone was purposively selected. Stage 2: selection of 3 political wards from the three local governments in Ibarapa Zone (East, Central and North), Stage 3: selection of 4 communities from these wards i.e 36 communities. Stage 4: selection of 9 respondents from each community and altogether, 324 respondents were interviewed. 315 interview schedules were found worthy for the study and eventually, there were 51 non-affected and 264 affected arable crop farmers. The data for the study were collected through a well-structured questionnaire for the literate respondents and interview guide for respondents that could not read and write.

Data analysis

The data were subjected to descriptive statistics such as Frequency and percentages. T-test was used to compare the productivity differential of affected and non affected arable crop farmers and Tobit regression was used to examine the effect of Fulani herdsmen conflict on productivity of arable crop farmers.

RESULLTS AND DISCUSSIONS

Table 1 revealed the socio-economic characteristics of the respondents. The mean age of the respondents was 46 years and this implies that the farmers were in their active age. Majority (82.84%) of them had primary school education. The findings were in line with Adisa (2012) that the farmers had highest percentage of primary education. Male respondents for none affected and affected farmers were 66.67% and 76.52% respectively while none affected and affected female respondents were 33.33% and 23.48% respectively. This is similar to the findings of Adisa (2012) where the male farmers were (70.3%) and female farmers were (29.7%). Also, majority (71.43%) of the respondents were married i.e 64.71% and 71.73% for affected and non-affected respectively. The mean farm size was 5.19 hectares. This implies that majority of the farmers were into small scale farming. This is in line with Adisa (2012) that the farmers were into small scale farming due to herdsmen conflict and the percentage was (67%). Finally 44.44% of them had farming experience between 1-10 years.

Table 1: Distribution of the socio-economic characteristics of the respondents

Variables	**Non affected**		**Affected**		**Total**		
	Freq	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**	**Mean**
Age							
Less than 30	9	17.65	48	18.18	57	18.10	
31 – 50	31	60.78	119	45.08	150	47.62	45.9
51 – 70	11	21.57	79	29.92	90	28.57	
Above 70	0	0.00	18	6.82	18	5.71	
Standard deviation							2.63
Religion							
Traditional	10	19.61	36	13.64	46	14.60	
Islamic	21	41.18	109	41.29	130	41.27	
Christianity	20	39.22	119	45.08	139	44.13	
E**ducation**							
Tertiary	13	25.49	57	21.59	70	22.22	
Secondary	10	19.61	93	35.23	103	32.70	
Primary	20	39.22	68	25.76	88	27.94	
non-formal	8	15.22	46	17.42	54	17.14	
Sex							
Female	17	33.33	62	23.48	79	25.08	
Male	34	66.67	202	76.52	236	74.92	
Marital status							
Divorced/separated	7	13.73	21	7.95	28	8.89	
Single	5	9.80	23	8.71	28	8,89	
Widowed	6	11.76	28	10.61	34	10.79	
Married	33	64.71	192	72.73	225	71.43	
Secondary occupation							
Civil service	7	13.73	37	14.02	44	13.97	
Traders	16	31.37	99	37.5	115	36.51	

Farming	0	0.00	3	1.14	3	0.95	
Artisan	28	54.88	125	47.35	153	48.56	
Farm size(Ha)							
1 – 5	45	86.23	182	68.93	227	72.06	5.187
6 - 10	3	5.88	58	21.96	61	19.36	
11 - 15	3	5.88	17	6.44	20	6.34	
Above 15	0	0.00	7	2.65	7	2.22	
Standard deviation	4.483						
Farming experience (year)	**Non affected**		**Affected**		**Total**		11.35
	Freq	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**	
1 – 10	38	74.51	102	38.64	140	44.44	
11 - 20	10	19.61	99	37.50	109	34.60	
21 - 30	2	3.92	37	14.02	39	12.38	
30 years and above	1	1.96	26	9.85	27	8.57	
Total	51	100.00	264	100.00	315	100.00	

Source: Field survey, 2017

Amount Realized in the Year 2016 by the Respondents

Table 2 revealed the amount realized in 2016. The mean amount realized in 2016 was #153,968.30. ₦80,000 and above was realized for none affected and affected farmers at 52.94% and 52.65% respectively, this implies that the non- affected farmers realize a bit higher income than the affected farmers due to the incidence of Fulani herdsmen.

Table 2: Distribution of the respondent According to Amount realized in the year 2016

Amount realized 2016 (₦)	**Non-affected**		**Affected**		**Total**		Mean
	Freq	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**	
Less than 20,000	7	13.73	25	9.47	32	10.16	153968.3
20,001 – 40,000	8	15.69	23	8.71	31	9.84	
40,001 – 60,000	9	17.65	44	16.67	53	16.83	
60,001 – 80,000	0	0.00	33	12.50	33	10.48	
Above 80,000	27	52.94	139	52.65	166	52.70	
Total	51	100.00	264	100.00	315	100.00	
Standard deviation	180373.3						

Source: Field survey, 2017

Amount Realized in the Year 2017 by the Respondents

Table 3 revealed that the mean income realized from arable crop was #250,317.50. #80,000 and above was realized in the year 2017 for none affected and affected farmers at 66.67% and 66.29% respectively. It also implies that non-affected still realized more than the affected farmers.

The implications between income realized by the farmers between the years of 2016 and 2017 are:

- More money was realized in 2017 than 2016. This may be due to the fact there was market for cassava especially in 2017 than 2016, since cassava production is the major arable crop in the study area.
- The experience of herdsmen attack in 2016 made the farmers to be more at alert and more prepared in 2017 through vigilante e.t.c. This reflected in the amount realized in 2017

Table 3: Distribution of the respondents according to the amount realized in the year 2017

Amount realized 2017 (₦)	**Non affected**		**Affected**		**Total**		Mean
	Freq	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**	
less than 20,000	2	3.92	26	9.85	28	8.89	250317.5
20,001 – 40,000	3	5.88	11	4.17	14	4.44	
40,001 – 60,000	7	13.73	17	6.44	24	7.62	
60,001 – 80,000	5	9.80	35	13.26	40	12.70	
Above 80,000	34	66.67	175	66.29	209	66.33	
Total	51	100.00	264	100.00	315	100.00	
Standard deviation 395541.6							

Source: Field survey, 2017.

Table 4 revealed that 50.98% non-affected and 61.36% affected farmers were into cassava production while 45.10% non affected and 31.44% affected farmers were into maize production.

Table 4: Distribution of the respondents according to type of crop produced

Crop produced	**Non affected**		**Affected**		**Total**	
	Freq	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**
Cassava	26	50.98	162	61.36	188	59.65
Maize	23	45.10	83	31.44	106	33.65
Yam	2	3.92	9	3.41	11	3.49
Watermelon	0	0.00	10	3.79	10	3.17
Total	51	100.00	264	100.00	315	100.00

Source: Field work: 2017

Productivity Differentials

The mean productivity of none affected farmers was 2.68 which means that their productivity is above average, while the mean productivity of affected farmers was 0.98 which means their

productivity is below average. The t- statistics is 16.8757 which is significant at 1% level. This shows that there is significant difference in the productivity of none affected and affected farmers. The implication is that none affected farmers were better in terms of productivity than affected farmers.

Table 5: Productivity Differentials

Group	Obs	Mean	Mean Difference	Standard error	Standard deviation
Non-affected	51	2.679 0.980.	1.699	0.136	
Affected	264			0.036	0.579
Diff= mean (O) – mean (1)				**t**=16.8757*	*=sig. at 1%
H_o: diff= 0				**degrees of freedom** 313	

Source: Data Analysis 2017

Effect of Herdsmen on Farmers Productivity

The result of herdsmen effect on farmers' productivity was presented in Table 6. Tobit Regression was used to determine the effect of herdsmen on the farmers' productivity. Tobit Regression was used because an index was generated for Total Factor Product (TFP). Herdsmen effect has a negative significant influence on farmers' productivity in the study area, while farm size and education has a positive significant influence/effect on farmers' productivity in the study area.

Herdsmen Effect: Table 6 shows that the herdsmen attack has a negative impact on farmers' productivity (-1.7366) in the study area at 1%. This implies that the more the herdsmen attack on their farm the lesser their productivity

Farm Size: revealed that the herdsmen attack on the farm size is positively significant (0.2442) with the total factor product (TFP) of the farmers at 1%. This implies the higher the farm size the higher the productivity of the farmers in the study area. This is similar to the study carried out by Adisa, (2012) in Land Use Conflict Between Farmers and Herdsmen – Implications for Agricultural and Rural Development in Nigeria, that increasing farm size requires more commitment from the farmer and he thus becomes more attached to the farm materially, physically and emotionally.

Education: it shows that the level of education is positively significant (0.2289) on the total factor product (TFP) at 5%. It implies that the more enlightened farmers be it formal or informal education were able to manage the crisis of Fulani herdsmen better. This is also in line with Adisa (2012), that increase in educational level will perhaps makes the farmer more aware of social support possibilities.

Table 6: Tobit Regression Result

TFP_1	**Coef**	**Standard error**	**T**	**P > /t/**	
Herdsmen effect	-1.736643	0.1025481	-16.93***	0.000	
Age	0.0404941	0.0997883	0.41	0.685	
Sex	0.0520706	0.0879089	0.59	0.554	
Religion	0.0266888	0.0743968	0.36	0.720	
Education	0.2289605	0.1043059	2.20**	0.029	
Marital status	0.0608041	0.0865118	0.70	0.483	
Farming experience	0.0023007	0.0046437	0.50	0.621	
Farming association	0.03317569	0.094648	0.34	0.737	
E.A contact	0.0377502	0.932441	0.40	0.686	
Farm size	0.2442401	0.0923796	2.64***	0.009	
-cons	2.625324	0.1815307	14.46	0.000	
/sigma	0.6425221	0.0255986			

Source: Data Analysis 2017 *= sig. at 10%, **= sig. at 5%, ***= sig. at 10%

Log likelihood = -307.62413Number of Obs = 315 obs. Summary 0, o left-censored observationNumber of Obs = 315 315 uncensored observation

LR ch12 (10) = 216.95 0 right – censored observation

Prob> chi2 = 0.0000 Pseudo R_1^2 = 0.2607

CONCLUSION AND RECOMMENDATIONS

CONCLUSION

The study was based on the effect of Fulani herdsmen conflict on productivity of arable crop farmers in rural areas of Oyo State Nigeria. Data were collected using interview guide and questionnaire. The effect of Fulani herdsmen conflict on productivity of arable crop farmers were identified by analyzing the data on affected and non-affected farmers.

The mean age of the respondents was 46 years old, majority of them had primary school education, most of them were male farmers. Also, majority of the respondents were married, greater percentage were Christians. The mean farm size was 5.19 hectares and this implies that majority of the farmers were into small scale farming and most of them had farming experience less than 10 years. The findings also revealed that the herdsmen attack was very rampant with

arable crops in the study area 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.

Based on amount realized on the arable crops, the mean amount realized in 2016 was #153,968.30 while #250,317.50 was realized in 2017. More money was realized in 2017 because there was market for cassava especially in 2017 than early 2016 and also the experience of herdsmen attack in 2016 made the farmers to be more at alert and more prepared in 2017 through vigilante e.t.c.

The null hypothesis was reflected in the study which states that there is significant difference in the productivity of none affected and affected farmers. 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. It was recommended that government should find a compensation measure for the affected farmers, government should provide grazing zone for the Fulani herdsmen and non-formal education should be encouraged among farmers. The implication is that none affected farmers were better in terms of productivity than affected farmers. Tobit Regression was used to determine the effect of herdsmen on the farmers' productivity; herdsmen effect has a negative significant influence on farmers' productivity in the study area, while farm size and education has a positive significant influence/effect on farmers' productivity in the study area.

In conclusion, the conflict between the herdsmen and arable crop farmers is increasing with alarming rate in Nigeria presently and the consequences has a negative influence on productivity and rural development. The conflict has threatened economic life, social life, community peace and household well being

RECOMMENDATIONS

Based on the findings of this study, the following recommendations were made especially for the farmers/ community affected:

1. Adequate security should be on farm such as fencing and boundaries.

2. Government should provide grazing zone for the Fulani herdsmen so that they stop intruding into people's farm

3. Non-formal education should be encouraged among farmers

3. Farmers' association in the study area should employ the help of vigilantes group to curb the activities of the Fulani herdsmen.

4. There should be compensation for the affected farmers.

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