



Effect of Fulani Invasion on Household Poverty Status Among Arable Crop Farmers in Southwestern, Nigeria

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Abstract – This study assessed the effect of Fulani invasion on household poverty level among arable crop farmers in southwestern Nigeria. Specifically, the study profiled the socio-economic characteristics of farmers based on poverty status, identified perceived causes of migration of the herdsmen, assessed the damages caused on farmland, and the factors influencing poverty. Primary data were collected from 212 arable crop farmers through multi stage sampling technique. The data were analysed using descriptive statistics and Logit regression model to establish the factors influencing farmers' household poverty. The result showed that 91.0% of the crop farmers were males with mean age of 49 years. Poverty incidence, gap and severity increased with increase in age. Mean household size and farming experience were 4 persons and 22 years respectively. Poverty incidence increases as household size increases while farmers with 11-20 years of experience relatively have the lowest poverty incidence, gap and severity. About 35 percent of the household monthly expenditure is on food items, 92 percent of the respondents perceived that absence or inadequate annual rainfall encouraged migration of herdsmen down south, 92.38% of them claimed herdsmen destroyed planted crops on their farmland while 75% of them attested they received threats from the herdsmen. Six factors significantly influence the farmers' poverty level. They include sex ($p \leq 0.05$), household size ($p \leq 0.05$), primary occupation ($p \leq 0.1$), unfavourable weather ($p \leq 0.05$), urbanization ($p \leq 0.1$) and traditional norms ($p \leq 0.1$). It was recommended that government should provide cattle ranches for the herdsmen to alleviate the damages and dangers posed by Fulani invasion in southern Nigeria.

Keywords – Crop Farmers, Fulani Herdsmen, Invasion, Poverty Status.

I. INTRODUCTION

Despite Nigeria's endowment in physical and human resources the nationals still experience progressive worsening welfare conditions due to impoverishment at the household level. The height of poverty in a household is commonly identified as a reflection of low wellbeing of the household and this is revealed in the central role that the concept of poverty plays in analysing social protection policy. The crucial objective of rural development in Nigeria involves raising incomes and outputs as well as increasing assets in order to improve the welfare of rural people in totality (Adepoju, 2012). Poverty exists when an individual or a group of individuals cannot attain a reasonable minimum level of well-being, by the standard of that society, especially in basic necessities of life such as food, clothing and shelter.

Poverty exists in both urban and rural areas, however, in Nigeria like other developing countries, poverty is

importantly a rural feature this is because most of the poor people live in the rural areas, where they derive their livelihood mainly from farming activities. Although, poverty also exists in the urban areas as well and it is also becoming of increasing concern, as reflected in the worsening trend in urban welfare, rural poverty is a wider issue than the urban counterpart. It is known that about 68 percent of the extreme poor are dependent on agriculture and live in the rural areas / communities (Etim and Ukoha, 2010).

As experienced in most developing economies across the globe, Nigerian rural households face one type of risk situation or another which leads to fluctuations in their income, among which is the trending Fulani herdsmen invasion on farmlands. This is because they are impoverished and vulnerable to negative changes in environmental, socio-cultural, political and economic situations because of their entanglement in the inhuman cycle of poverty. Regardless of the fact that these rural economies constitute the greater share of agricultural labour force, they earn low proceeds from their farming activities because of an array of problems which include, uncertainty in production output, poor marketing facilities, poor storage and preservation techniques, bad road network, poor health facilities, farm insecurity, low educational level, unfavourable government policies and lack of technological know-how. This further leads to additional impoverishment, and / or increased inequality. Rural households in Nigeria are invariably the most defenseless and very susceptible to various attacks due to the peculiar characteristics inherent in their primary means of income and major occupation source which is agriculture.

Agriculture is known to provide means of livelihood and economic sustenance for a majority of rural dwellers in Nigeria. Farmers and pastoralists, make significant contributions in meeting the nutritional needs of the nation and thus contributing to food security. The variety of food crops cultivable in Nigeria has made the country less dependent on importation of most staple foods except rice where local production is yet to meet up local demands (Isah 2010). In the area of animal husbandry, there has been an improvement in meeting local demands for animal protein through local supply of beef, poultry and fish to meet local demands.



II. PROBLEM STATEMENT

Production of arable crops in Nigeria is essentially the important feature of agricultural activities. In actual fact, almost all farmers in Nigeria cultivate one or more arable crops for household consumption and generation of income. According to Adisa (2012), agricultural production in Nigeria is dominated by rural-based small scale arable crop producers, who account for about 80% of total food requirement. The most widely grown arable crop in Nigeria is maize, accounting for 6.6 and 7.5 million hectares in 2004 and 2005 respectively. Maize is grown almost in every part of the country. Most arable crop farmers rely on rainfall to produce, with farming activities normally beginning as soon as the onset of rains. Apart from being veritable sources of income for farmers; arable crops are processed into other useful items at industrial and household levels.

On the other hand, there has been a large proportion of the population involved in herding in Nigeria and are making a significant contribution to the economy (Ibrahim *et al.*, 2015). The groups of people that are actively involved in pastoral activities in Nigeria are the Kanembu, Kwoya, Manga, Fulbe (Fulani) and the Shuwa Arabs. Over the years, Nigerians had depended on the Fulani cattle herdsmen for their daily supply of beef which constitutes more than 70 per cent of the animal protein on the dining tables of Nigerians. The Fulani herdsmen tend their cattle by herding them from one location to another in search of greener and luxuriant pastures. According to Omotola, (2016), this practice has been established as a culture by the Fulanis and before now it has been observed with the highest ethical standards whereby herded animals were prevented from grazing on crops. There existed a symbiotic relationship between the herdsmen and the farmers in the forest. This led to mutual respect and cross cultural relationships among the migrant Fulani's and the sedentary farmers.

However, unhealthy rivalries currently emerge between pastoralist and farmers. Animal husbandry and arable crop production mostly depend on water resources to sustain their livelihood activities. In recent times, challenges faced due to the changes in the climatic conditions has limited access to water and grazing land. Hence, the emergence of competition between farmers and herdsmen. According to Audu (2013), recent inadequate availability of water in northern Nigeria due to climatic change has increased the prevalence of conflicts in other parts of Nigeria between farmers and pastoralists because their source of livelihoods are most threatened. Competition for access to the diminishing water resources often pitched both groups against each other. According to Nformi *et al.*, (2014); John (2014), ethnic jingoists and politicians have been benefitting in these strives and without doubt have succeeded in creating a divide between the farmers and pastoralist, especially in communities that are less educated. In their opinion, leaders at the Federal, State, Local Governments and even at community levels become perplexed and wondered on how these issues can be resolved.

From the historical perspective, Saleh (2016) reported that in the beginning of the 20th century, the problem was mainly restricted to the savanna belts of West Africa. Cattle rearing were mainly prevalent in the Guinea, Sudan and Sahel savanna belts where crop production was carried out only during the short rainy season and on a small scale. This gave the Fulani cattle herders access to a vast area of grass land. As time went on, and with the introduction of irrigated farming in the Savanna belt of Nigeria, the withering of pasture during the dry season increased, hence, less pasture was available to cattle herders.

The herdsmen had to move southward to the coastal zone where the rainy season is longer and the soil retains moisture for long, in search of pasture and water. The factors that account for the increasing farmer-herder conflict include the southward movement of pastoral herds into the humid and sub-humid zones, promoted by the successful control of the menace posed by disease, the widespread availability of veterinary medicine and the expansion of farming activities into areas that hitherto served as pastureland, (Ofuoku and Isife, 2009).

The recent event that has taken place through the invasion of Fulani herders on farmland pose a threat to farming household income thereby aggravating their poverty status. Apart from the destruction of farm output experienced by farmers, activities of the herdsmen also point to some other event such as rural banditry of Fulani invasion in some communities, Saleh (2016). Tonah (2006), reported that the recent crisis in today's farming was traced to different sources. Vividly, it was discovered that Fulani herders has been the grassroots to the reduction in crop productivity of the farmers which consequently reduce farm income hence, increase in poverty level. This is as a result of their stealing habit on the farmers' crops and careless grazing of their cattle on the farm land. The invasion of Fulani herders has now led to conflicts between farmers and Fulani nomadic cattle herders which have been a common feature of economic livelihood in West Africa.

Cases of farm invasion by the Fulani herdsmen are widespread in Nigeria in recent times. Nweze, (2005) stated that many farmers and herders have lost their lives and herds, while others have experienced dwindling productivity on their farmland, while other diversify into non-agricultural practices. Crops farmers across the country are increasingly becoming apprehensive over the negative attitude of the cattle herders who unleash their herds on the poor farmer's crops, destroying them to points of no redemption. In view of these facts the study aims at providing answers to the following research questions.

1. What is the poverty profile to the arable farmers in the study area?
2. What are the perceived reasons of migration of the Fulani herdsmen down south?
3. What are the danger posed and damages caused by the Fulani herdsmen?
4. What strategies are adopted by the farmers to prevent, mitigate and cope with the damages done on their farm?
5. What the factors influencing poverty status among the arable crop farmers in the study area?

III. RESEARCH METHODOLOGY

The study was conducted in South-western Nigeria which consist of Lagos, Ogun, Oyo, Osun, Ondo and Ekiti states. It is also known as the South-west geographical zone of Nigeria. The area lies between longitude 20 311 and 60 001 East and Latitude 60 211 and 80 371N (Faleyimu *et al.*, 2010) with a total land area of 77,818 km² and a population of 27,581,992 (NPC, 2006). The study area is bounded in the East by Edo and Delta states, in the North by Kwara and Kogi states, in the West by the Republic of Benin and in the south by the Gulf of Guinea. According to Falalu (2007) south-western Nigeria owns and/or control 60% of the nation's industrial capacity, 44% of banking assets, 67% of insurance assets and is house to the nation's three deep sea ports of Apapa, Tin Can Island and Roro; the busiest international airport of Ikeja, three thermal stations of Egbin, Papalanto and Omotosho. In addition to these, the South-western population is the most educated as western education came through the zone and education as a resource was democratized since the early sixties. The geographical location, democratization of western education, availability of resources enhanced in recent years has collectively enabled the South-western economy to rank as first of the economies in Nigeria.

The climate of Southwest Nigeria is tropical in nature and it is characterized by wet and dry seasons. The temperature ranges between 21°C and 34°C while the annual rainfall ranges between 1500mm and 3000mm. The wet season is associated with the southwest monsoon wind from the Atlantic Ocean while the dry season is associated with the northeast trade wind from the Saharadesert. The vegetation is South-western Nigeria is made up of fresh water swamp and mangrove forest at the belt, the low land in forest stretches inland to Ogun and part of Ondo state while secondary forest is towards the northern boundary where derived and southern Savannah exist (Faleyimu *et al.*, 2010). South-western Nigeria is dominated by the Yoruba ethnic group. Economic activities undertaken include trading, handcraft, public service employment, and agriculture. The predominant crop production include cassava, maize, vegetables such as mango, cashew, okra, cucumber, tomatoes, pepper, cocoa, kolanut among others.

IV. SAMPLING TECHNIQUE

The primary data for this study were obtained through the use of structured questionnaire from farming households in the study area. A multistage sampling technique was employed for the study. The first stage was the simple random selection of two states from the six states that formed the southwestern region of Nigeria, that is, Oyo and Ogun states. The second stage involved the stratification of local government areas (LGAs) of each state into urban and rural strata as indicated by the Ministry of local government and chieftaincy offices of both states. Purposive selection of a LGA from the rural stratum based on high incidence of Fulani herdsmen activities for both states formed the third stage leading to 2LGAs in all. The number of respondents used in each state was proportionate to the population size

of the state. In all, 115 respondents were sampled in Oyo state, while 97 respondents were sampled in Ogun state.

V. DATA ANALYSIS

Data collected were analysed using descriptive, Foster Greer Thorbecke (FGT) Poverty Measures and Logit regression model. Descriptive tools used include mean, frequency tables and percentage.

FGT Poverty Measures FGT (1984) poverty index was employed to ascertain the poverty status of farmers and this was then used to profile them based on their socio economic characteristics. The measure relates to different dimensions of poverty, P_0 , P_1 , and P_2 for head count (Incidence), depth (gap) and severity of poverty respectively. The three measures were based on a single formula but each index puts different weights on the degree to which a household or individual falls below the poverty line. The popularly used FGT (Foster Greer Thorbecke) weighted poverty index for quantitative poverty assessment used is as specified below:

$$P \propto = \frac{1}{N} \sum_{i=1}^q \left(\frac{Z_i - Y_i}{Z_i} \right) \dots 1$$

Where,

$P\alpha$ = The weighted poverty index for the i_{th} sub-group
 α = Foster-Greer-Thorbecke (FGT) index and takes on the values of 0, 1 and 2 for incidence, gap and severity of poverty measures respectively.

Z_i = The poverty line for the i_{th} sub-group

q = The number of individuals below the poverty line

N = The total number of individuals in the reference population

Y_i = the per capita income of household j in the sub-group i

$Z_i - Y_{ij}$ = poverty gap of the i_{th} household

$\frac{Z_i - Y_i}{Z_i}$ = poverty gap ratio

Z

The quantity in bracket is the proportionate shortfall of expenditure/income below the poverty line.

$\frac{q}{n}$ = The proportion of the population that falls below the poverty line

If $\alpha = 0$, then FGT measures the incidence of poverty

If $\alpha = 1$, then FGT measures the gap of poverty

If $\alpha = 2$, then FGT measures the severity of poverty

Logistic regression analysis is a dichotomous regression analysis. Multiple logistic regression analysis applies when there is a single dichotomous outcome and more than one independent variable. The outcome in logistic regression analysis is often coded as 0 or 1, where 1 indicates that the outcome of interest is present, and 0 indicates that the outcome of interest is absent. If p is defined as the probability that the outcome is 1, the multiple logistic regression model can be written as follows:

$$\hat{p} = \frac{\exp(b_0 + b_1 X_1 + b_2 X_2 + \dots + b_p X_p)}{1 + \exp(b_0 + b_1 X_1 + b_2 X_2 + \dots + b_p X_p)} \dots (2)$$



\hat{P} is the expected probability that the outcome is present; X_1 through X_p are distinct independent variables; and b_0 through b_p are the regression coefficients. The multiple logistic regression model is sometimes written differently. In the following form, the outcome is the expected log of the odds that the outcome is present,

$$\ln\left(\frac{\hat{P}}{(1-\hat{P})}\right) = b_0 + b_1 X_1 + b_2 X_2 + \dots + b_p X_p \dots (3)$$

In assessing the factors affecting poverty status of the farmers the Logit regression model equation used was:

$$Y = b_0 + b_1 X_1 + b_2 X_2 + \dots + b_p X_p + e \dots (4)$$

Y = Poverty status

0- Non-poor households

1- Poor households

B_0 - B_p - regression coefficients

X_1 = Sex (1 = Male, 0 otherwise)

X_2 = Age (years)

X_3 = Marital status (Married = 1, otherwise =0)

X_4 = Years spent in school

X_5 = Household size (number)

X_6 = Farm size

X_7 = Primary occupation (1=farming, 0 otherwise)

X_8 = Farming experience (years)

X_9 = Inadequate rainfall (Yes =1 otherwise =0)

X_{10} = Poor grazing land

X_{11} = Unfavorable weather

X_{12} = Urbanization

X_{13} = Traditional norms

X_{14} = Infestation

VI. RESULTS AND DISCUSSION

This section analyzes and presents results from the data collected through the administration of questionnaires carried out for the purpose of this research.

The profiled socio-economic characteristics of the respondents are presented in Table 1. From the table, majority (43.87 percent) of the farmers are between 41-50 years of age. The lowest percentage of the respondents (16 percent) however, is those above 60 years of age. The mean age of the respondents (49 years) reveals that respondents are still in their active years, hence may be able to face the rigours of farming relative to older farmers. Poverty incidence (P_1) increases with increase in age except for age group between 40-50 years. The same pattern is observed for poverty gap (P_2) and poverty severity (P_3) except for those that are 40 years and below. Majority of the respondents used for the study are males (91.04%). It is worthy to note that there is no difference in poverty incidence and severity between the male and female respondents however, the poverty gap is more pronounced among the female respondents relative to their male counterpart. Eighty-two percent of the respondents are also married and the result from the table shows that the married are better-off than the singles in poverty incidence, gap and severity.

The table also reveals that about half of the respondents have a household size of three persons and below while only 1.89 percent of them have household size of more than nine persons. The average household size is four persons which is an indication of moderate household size. It could be seen from Table 1 that poverty incidence increases with increase in household size. The same pattern is observed for poverty gap and poverty severity. Worthy of note is the fact that households with more than 9 members experience 100 percent incidence of poverty and highest value for poverty gap and severity relative their other counterparts. In addition, results from farming experience reveals that about 42 and 43 percent of the farmers have between 11-20 years and 21-30 years of experience in farming activities respectively. The least are those having less than or equal to 10 years of experience and this accounted for 3.77 percent. The mean years of farming experiences is 22 years an indication that farmers are endowed with farming knowledge. Farmers with 11-20 years of experience recorded the lowest poverty incidence, gap and severity when compared with others.

Further revealed by the table is the educational level of the farmers where 62 percent of them claim to access primary education while only 9 percent had tertiary education. The mean year of schooling is 6 years. Respondent with higher educational qualification recorded the lowest poverty incidence, gap and severity. Noteworthy is the fact that farmers with secondary education have the highest poverty incidence, gap and severity relative to the other counterparts. Also, 34.34 percent of the farmers attested that the size of their farmland is between 5 – 7.5 hectares and this is closely followed by farmers with 2.5 hectares or less which accounted for 33.02 percent. The least however, are farmers having more than 7.5 hectares accounting for only 1.89 percent. Mean farm size is 2.27 hectares which is an indication that farming is at subsistence level in the study area.

The total household expenditure which is used as a proxy for income shows that 44.81 percent of the farmers spends between ₦40,000 and ₦60,000 monthly on their household while the least in that category are those who spent below ₦40,000 and above ₦80,000 monthly (7.08%). It is worthy to note that household that expend beyond ₦80,000 per month have no records of poverty incidence, gap and severity. Also, poverty incidence, gap and severity decreases as monthly expenditure increases across board. Lastly, majority of the farmers (78.30%) are members of one association or the other. Membership in association reveals a lower percentage of the occurrence of poverty incidence, gap and severity when compared to their other counterpart that does not belong to any form of association. This is an indication that there are benefits to be derived from membership in social or professional organization.



Table 1. Profiled socio economic characteristics of the respondents.

Socio-eco characteristics	Freq	Percentage	P ₁	P ₂	P ₃	Mean ± Std dev.
Age						
<= 40	27	12.74	0.3703	0.1147	0.0486	49.24±8.13
41-50	93	43.87	0.2688	0.0662	0.0245	
51-60	76	35.85	0.4473	0.1038	0.0345	
>60	16	7.55	0.5625	0.1811	0.0673	
Sex						
Female	19	8.96	0.3684	0.1037	0.0330	
Male	193	91.04	0.3678	0.0936	0.0345	
Marital status						
single	16	7.55	0.4022	0.1064	0.0396	
married	174	82.08	0.2105	0.0398	0.0106	
Household size						
<=3	104	49.06	0.0096	0.0037	0.0014	4.31±2.56
4- 6	62	29.25	0.5645	0.0854	0.0191	
7- 9	42	19.81	0.9047	0.2874	0.1096	
>9	4	1.89	1	0.5704	0.3387	
Farming experience						
<=10	8	3.77	0.3732	0.0959	0.0349	22.29±7.34
11-20	89	41.98	0.2696	0.0713	0.0271	
21-30	91	42.92	0.3736	0.0872	0.0272	
31-40	24	11.32	0.6363	0.1841	0.0722	
Education						
<=0	33	15.64	0.4242	0.1089	0.0424	6.3±3.77
1 -6	131	62.09	0.3511	0.0821	0.0266	
7 -12	28	13.27	0.7142	0.3184	0.1015	
>12	19	9	0.3	0.0589	0.0173	
Farmsize						
<=2.5	70	33.02	0.259259	0.064923	0.022301	2.27±1.36
2.51-5.0	65	30.66	0.547945	0.143811	0.054788	
5.1-7.50	73	34.43	0.5	0.010134	0.000205	
7.51-10.0	4	1.89	1	0.380383	0.144957	
Total expenditure						
<=40000	15	7.08	0.6	0.260892	0.130986	13,946±19,000
40001-60000	95	44.81	0.526316	0.141537	0.04897	
60001-80000	87	41.04	0.218391	0.030856	0.007858	
>80000	15	7.08	0	0	0	
Membership in Organisation						
No	46	21.7	0.347826	0.098845	0.038808	
Yes	166	78.3	0.373494	0.093355	0.033225	
Total	212	100.00				

Source: Field survey, 2017

VII. HOUSEHOLD DISTRIBUTION OF THE MONTHLY EXPENDITURE

Table 2 presents the distribution of the average monthly expenditure of households in the study area. The highest expenditure recorded by the household is on purchase of food items and this accounted for about 35 percent of the monthly expenditure. Next to this is expenditure on school activities which accounted for 22.39 percent of monthly expenditure. Transportation expenses and remittances paid on monthly basis accounted for 7.42 percent, while average clothing expenses for the households has a percentage of 5.66. Relative to other basic needs of life, housing expenditure is very minimal with a representation of just

about 2 percent of the total household expenditure. This is due to claim of non- payment of rent allowance as many households' heads claim they live in their own apartment and did not indicate how much it could cost monthly. Others reasons may owe to the fact that some live in houses bequeathed to them or live within their family house.

The least expenditure of the farming households in the study area is on water which accounted for less than 1 percent of the monthly expenditure. This is because most of the respondents attested that they source water for domestic use from piped borne water provided by government, stream use rain water among others. The mean *per capita* expenditure of the rural farming household is N20,836.62 which is less than N700/person/day irrespective of the household size.

Table 2. Distribution of household monthly expenditure.

Expenditure	Naira	Percentage
Food	20,671.93	34.82
Clothing	3,362.74	5.66
Rent allowance	1,226.42	2.07
Water bill	361.56	0.61
Electricity	2,750.71	4.63
Health	2,393.16	4.03
Education	13,350.24	22.49
GSM for communication	2,850.00	4.80
Fuel/firewood	1,737.74	2.93
Transportation	4,404.25	7.42
Remittance	4,407.08	7.42
Toiletries	1,852.123	3.12
Total	59,367.92	100.00
Mean per capita expenditure	20,836.62	

Source: Field survey, 2017

VIII. PERCEIVED CAUSES OF MIGRATION AND THE HERDSMEN

The distribution of farmers based on their perception of Fulanis' migration down to the southern part of Nigeria is as presented in Table 3. Unfavourable weather conditions in the northern part of the country is perceived by 95.75 percent of the farmers as a reason for the southward movement of the Fulani herdsmen and this accounted for the highest percentage. This is closely followed by the perceived search for grazing land for their animal and increasing urbanization due to civilization and population growth. This accounted for 93.40 percent of the farmers.

About 92 percent of the respondents perceived that absence or inadequate annual rainfall increase the size of desert in the northern part hence, the development encourages the herdsmen to migrate down south in search of green pastures for their animals. Also, 87.26 percent of the farmers equally feel that inadequacy of water cum water pollution could be the reason for the movement of the Fulanis' down south. Change in weather condition, lack of adequate water poor grazing land among others can lead to infestation of diseases on the animals reared. Hence 85.85 percent of the respondents perceived that migration to other part of the country could have been as a result of infestation of diseases. Lastly, less than average of the farmers (44.81%) opined that the movement of the Fulani herdsmen away from the north is based on traditional norms. By and large, the farmers attested that Fulanis movement down south is due to a reason or the other.

Table 3. Distribution of farmers based on their perception of Fulanis' migration

Perceived causes	Frequency	Percentage
Absence or adequate rainfall.	195	91.98
Poor grazing land for their animal	198	93.40
	203	95.75
	198	93.40
	185	87.26

Unfavourable weather condition	182	85.85
Urbanization due to civilisation	95	44.81
Lack of water.		
Diseases infestation on their cattle		
Traditional norms		

Source: Field survey 2017

IX. DAMAGES / DANGERS CAUSED DUE TO FULANI INVASION

Table 4 presents the distribution of respondents based on the damages as well as the danger caused by Fulani herdsmen invasion on their farmland. Farmers attested that overgrazing of farmland and contamination of stream water by herdsmen animals accounted for 94.34 percent and 90.57 percent respectively, while 92.38 percent of them claimed destruction of planted crops on their farmland. About 90 percent of the respondents confirmed that the herdsmen harass them on their farmland irrespective of the fact that the land belongs to them. Also, 88.21 percent of the farmers declared that Fulani invasion caused reduction in the efficiency of fertilizer sprayed on the farm and destruction of stored crops.

Eighty-six percent of the farmers indicated that Fulanis invasion on their farms destroy the various ridges made for crop production while 82.55 percent of them testified to they being discouraged from actively participating in farming activities. While 75 percent of the farmers testified that they constantly receive threats from the herdsmen, 40 percent substantiated that herdsmen went as far as killing farmers if any of their cows should die as a result of what they ate at any farmland. Obviously, the invasion of Fulani herdsmen with their cows on farmland causes a lot of damages to farmers output which may consequently affect income accruing from farming activities, hence, increase the rate of poverty proliferation in the study area.

Table 4. Distribution of respondents based on damages caused on their farmland

Damages/dangers caused	Frequency	percentage
Overgrazing of farmland	192	90.57
Contamination of stream.	200	94.34
Pollution of farms with defecations.	181	85.38
Destruction of planted crops	194	92.38
Destruction of ridges made by the farmers	183	86.32
Reducing the efficiency of fertilizer sprayed on the farm	187	88.21
Harassment of farmers	190	89.62
Destruction of stored crops	187	88.21
Reduction in farmers' output	189	89.15
Sexual harassment of women	168	79.25



Killing of farmers	86	40.57
Discouragement from farming	175	82.55
Threat from herdsmen	159	75.00

Source: Field survey 2017

X. PERCEIVED SOLUTION AND STRATEGIES ADOPTED TO MITIGATE / COPE WITH FULANI INVASION

The distribution of respondents' according to their perception on the solution to Fulani invasion and strategies adopted to mitigate/cope with damages done on farmland is presented in Table 5. On the preventive and mitigating measure adopted by the respondents, the results shows that majority of the farmers (97.17%) constructed fence round the farm while about 96 percent makes pegs around the farm all in the bid to prevent cattle invasion. About 80 percent and 41 percent of the farmers resolved to the use of spraying pesticides that will discourage cattle eating from their farmland as well as the use of local charms to drive away herds of cattle from their farm. On the other hand, the mitigating strategies used includes Communicating the community leaders about the herders' activities for appropriate resolutions (94.34%), instant settlement between the farmers and herdsmen (93.40%) and setting up of stakeholders to tackle the invasion (90.57%).

The coping strategies adopted by the farmers include diversification into other livelihood activities (83.02%) this accounted for the highest percentage. About 63 percent of the respondents indicated that they have accepted the damages caused on their farmland by the Fulani herdsmen invasion as their fate hence, they learn to cope with the situation they found themselves. Reduction in the quantity of farm products consumed by households and minimizing farming activities as methods of coping strategies accounted for 53.77 percent and 34.91 percent respectively. The least percentage of the adopted method to cope with damages done by Fulani invasion is changing of farm enterprise to livestock production and this gives a representation of 16.04 percent.

Furthermore, on the table, majority of the farmers suggested that establishment of grazing reserve and rearing ground (97.17%), establishment of stock routes (96.70%) and review of the grazing land policy by the central government on stock route (93.40%) will bring a lasting solution to damages and dangers caused by herdsmen invasion on various farmland. Also, 65.09 percent of the respondents opined that an enforced registration of Fulani herdsmen upon arrival into any state can curtail their destructive activities of such area.

Table 5. Distribution of respondents' perceived solution and strategies adopted to mitigate/cope with Fulani invasion

Strategies used	Freq	Percentage
Preventive / Mitigating measures		
Building of fence round the farm	206	97.17

Making of pegs round the farm	204	96.23
Spraying of pesticide on crop	170	80.19
Use of local charms	87	41.04
Restriction of people without clear identification	97	45.75
Communicating the community about the herders' activities	200	94.34
Settlement between the farmers and herdsmen	198	93.40
Setting up of stakeholders to tackle the invasion	192	90.57
Coping Strategies		
Diversified into other livelihood activity	176	83.02
Minimise farming activities	74	34.91
Changed to livestock production	34	16.04
Sale of asset to meet up household demands	52	24.53
Reduction of farm products consumed by households	114	53.77
Accepting fate	133	62.74
Perceived solution		
Establishment of grazing reserve and rearing ground	206	97.17
Establishment of stock routes	205	96.70
Review the policy on stock routes	198	93.40
Registration of Fulani herdsmen upon arrival into a state	138	65.09

Source: Field survey 2017

XI. FACTORS INFLUENCING THE POVERTY LEVEL OF ARABLE CROP FARMERS

Table 6 reveals the logit estimates of the factors influencing the poverty level of the arable crop farmers in the study area. Six different factors significantly influence the farmers' poverty level. The socio economic factors include sex, household size and primary occupation, while the Fulani herdsmen factors include unfavourable weather condition, urbanization and traditional norms.

Sex positively influenced poverty level at 5% level of significance. This means that increase in the number of male farmers will reduce the probability of household falling into poverty by 0.96. This is an indication that farming activities favours male farmers in the study area. Also, increase in household size negatively influence poverty level at 1% level of significance. This means that increase in house members will increase the probability of the fall in poverty by 0.53. Primary occupation negatively but significantly determined household poverty level at 10 %. This reveals that increase in respondents that have farming as their secondary occupation will reduce the probability of falling into poverty by 0.28. This shows that



engagement in other activities apart from farming helps alleviate poverty in the study area.

Considering the reasons for invasion factors, results reveals that unfavourable weather condition positively influence farmers' poverty level at 1% significant level. This is an indication that unfavourable weather condition increases the tendency of a farmer to fall into poverty by 0.93. Urbanization due to civilization and traditional norms positively influenced poverty status at 10%. This means that a unit increases in urbanisation and practicing of the traditional norms of the Fulanis will increase the probability of the farming households to fall into poverty by 0.78 and 1.03 respectively. This result has confirmed that migration of the herdsmen down south influences the poverty status of those farmers whose farm the herders invaded.

Table 6. Result of the Logit estimate of Fulani invasion on poverty level of farmers

Variables	Coefficient	Stdard error	z-value
Sex	0.9679**	0.4548	2.12
Age	0.0056	0.0415	0.14
Marital status	-0.6431	0.7569	-0.85
Year spent in school	0.0312	0.0484	0.65
Household size	-0.5370***	0.1612	-3.33
Farm size	-0.2667	0.2888	0.92
Primary occupation	-0.2824*	0.1578	-1.79
Farming experience	0.0483	0.0540	0.89
Inadequate rainfall	0.3934	0.6488	0.61
Poor grazing land	-1.5633	1.1845	-1.32
Unfavourable weather	0.9331***	0.3774	2.47
Urbanisation	0.7808*	0.2871	2.72
Traditional norms	1.0357*	0.5629	1.84
Infestation	-0.6160	0.5947	-1.04
Constant	7.7579	3.2810	2.34
*** Significant at 1%		**Significant at 5%	
*Significant at 10%			
Number of obs =212		LR chi2(14) =29.6	
Prob> chi2 = 0.0000		Pseudo R2= 0.2554	
Log likelihood = -43.342266			

Source: Field Survey 2017

XII. CONCLUSION

The study has been able to establish the great influence of Fulani invasion on farming household poverty level. It was discovered that majority of the respondents are in their productive age and farming was dominated by male gender. A moderate household size was recorded with a large

portion having access to education. Farmers are also discovered to produce at subsistence level. Unfavourable weather condition, urbanization and traditional norms have influence on the poverty status of the farming households. Based on the revelations from the study, farmers are encouraged to increase their sources of income and be enlightened about the need to control birth rate. Government should provide as well as encourage the use cattle ranches across the country to alleviate farmland invasion hence reduce or eradicate the dangers /damages cause by Fulanis invasion on farmland. Also, the central government should establish a grazing reserve and rearing ground.

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