



## EFFECT OF INSECURITY ON FOOD SECURITY STATUS OF FARMERS IN NIGER STATE, NIGERIA

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### ABSTRACT

This study attempts to determine examined the effect of insecurity on food security status of farmers in Niger State, Nigeria. Multi-stage sampling procedure was used to select a total of 82 farmers for the study. Data were collected using interview schedules and structured questionnaire. Data collected were analyzed using descriptive statistics and logit regression model. The result showed that the mean age of the respondents was 46.28 years. Only 25.6% of the respondents had formal education with average farm size, household size and farming experience of 1.65 ha. 10 persons and 29.67 years, respectively. Findings revealed that 52.44% of the respondents were food insured as result of wide range of insecurity activities. The commonness types of insecurity activities in area were blocking of local routes, killing, kidnapping, chasing of farmers out of farms, harvesting of farm produce and halting of market activities. Regression analysis result revealed that frequency of attack, number of people killed, number of kidnapped people and hectare of farms destroyed had significant negative effect on food security status of the farmers. Thus, it was concluded that insurgency had negative outcome on food abundance of farmers. To assuage the situation, it was recommended that communities should form viable and active vigilante groups for surveillance to complement government efforts in curbing insecurity. It was also suggested that new improved and high yielding crop varieties and farm inputs should be provide to farmers as palliatives by National Emergency Management Agency and Niger State Emergency Management Agency to cushion the negative effect of insecurity and improved food security of farmers and nation at large.

**Keywords:** Effect, Farmers, Food security, Insecurity, Niger State

### INTRODUCTION

Nigeria in recent times has witnessed an unprecedented level of insecurity. This has made security a major issue for government at all levels and has prompted huge allocation of budget to providing security in the country (Achumba *et al.*, 2013). No region of Nigeria is spared by the vicious scourge of conflict, though widespread and magnitude differ across the length and breadth of the country. The present scenario is further heightened by elements of globalization, natural disasters, climate change, proliferation of weapons and light arms, corruption, executive lawlessness and leadership ineptitude (Chinwokwu, 2012). This has greatly affected food production in Nigeria, and become more troublesome especially when the needy sections of the Nigerian masses are finding it increasingly hard to avoid hunger and starving to death. The resources that could have been used for developing the agricultural segment have been diverted to the rehabilitation of internally displaced persons. Thus, it will not be an overstatement to say that the contemporary wave of general insecurity has led to a grave food supply crisis and deficits. Food insecurity has caused many Nigerian citizens to find themselves in acute food poverty, hunger, malnutrition and undernourishment; a state



that has made the people highly prone and exposed to diseases and crises (Okoli and Atelhe, 2014).

The increase of insecurity in Niger State especially in the Eastern Senatorial Zone has forced many people to abandon their means of livelihood and survival, as a result of fear of attacks by criminal elements. Most of the people fled their houses and villages as well as their communities. The farmers are no longer able to produce food in sufficient and adequate quantities to meet the demand from other parts of Nigeria. Most of the youths who used to support agriculture in the rural communities have either been killed or moved away from the farms. This has abridged labour needed for agricultural production and consequently affecting yield and productivity negatively (Okoli and Atelhe, 2014).

In the past, the agricultural sector is considered to hold the key to economic growth for most Sub-Saharan countries including Nigeria, because it provides enough food for citizens and raw materials to the non-agricultural sectors of the economy, as well as gainful employment opportunities to the massive majority of unemployed youths and serves as a path by which valuable foreign exchange can be earned through the export of agricultural products and produce (Olukunle, 2013).

But presently, agriculture specifically farming which is a major source of livelihood for nearly all the people of the rural areas is on the decline in some part of Niger State. Farmers and investors in farming are getting worried and also becoming skeptical to invest in agriculture as a result of mounting insecurity in the State. Killings, kidnapping and destruction of farm lands in Niger State have to huge extent affected farm activities, as farmers in many areas run away from farmlands to avoid losing their lives or destruction of crops and harvests.

This act results in food scarcity for the general public, and most of the entrepreneurs who went into farming for food security and create jobs are now reappraising their continue involvement in agriculture due to insecurity, thereby raising the rate of unemployment and hunger. It is against this background that this study was carried out to determine the effect of insecurity on farmer's food status in Niger State, Nigeria. This will provide empirical research information on effect of insecurity on food security in terms of food availability, accessibility, utilization and safety for policy recommendations and actions to ameliorate food security in the area, state and country at large. The specific objectives of the study are to:

- i. describe socio-economic characteristics of respondents;
- ii. ascertain food security status of respondents;
- iii. examine type of insecurity related activities in the area; and
- iv. determine effect of insecurity on food security in the area.

## **METHODOLOGY**

### **Study Area**

The study area for this research is Shiroro and Munya Local Government Areas (LGAs) of Niger State where insecurity is prominent and prevalent. Niger State is located in the North-Central geopolitical zone of Nigeria. The State has a tropical climate and witnesses two distinct seasons which are the dry and the rainy seasons, with the average temperature of 30 degrees centigrade. Farming is also key to the economy of Shiroro LGA with the area known for the cultivation of many crops. Other important economic enterprises engaged in by the people of Shiroro LGA include fishing, animal rearing, and hunting. Similarly, Farming is an important economic activity undertaken by the residents of the Munya LGA. A number of crops such as maize, yam, millet, sorghum, cowpea and tomatoes are cultivated in the area.



Other important economic enterprises engaged in the area include hunting, wood work and animal rearing.

### **Sampling and Sample Size**

Multistage sampling technique was adopted for the study. At the first stage, Shiroro and Munya LGAs were purposively selected because of the prevalent of insecurity in the areas. In the second stage, three villages affected with insecurity were selected in both Shiroro (Gurumana, Erana, Pkaici) and Munya (Kuci, Guni, Bodo) LGAs to give a total of six villages. At the third stage, accidental sampling technique was used to interview 82 respondents from the selected villages for the study because of unavailability of sampling frame.

### **Method of Data Collection**

Interview schedules and structured questionnaire were used to collect primary data from the respondents in the study area in line with the study objectives. Data were collected on socio-economic characteristics of farmers, food security status and type of insecurity related activities in the area.

### **Analytical Techniques**

Socio-economic characteristics of respondents and type of insecurity related activities in the area were ascertain using descriptive statistics. While food security status of respondents was determine using Foster, Greer and Thorbeeke (FGT) model. Four points Likert type rating scale was used to generate data on the perceived effect of insecurity on food security. In order to determine the perception of farmers, the values of the scale (1+2+3+4) were summed up to get 10 which was divided by 4 to obtain 2.5 (mean). Thus, a mean score of 2.5 and above suggests perceived effect, while less than 2.5 was regarded as no effect. Furthermore, logit regression model was used to determine the inferential effect of insecurity on food security in the area.

### **Model Specification for FGT.**

The FGT model used is presented below:

$$F = \frac{1}{n} \sum_{i=1}^q \left( \frac{z - y_i}{z} \right)^\alpha$$

Where:

F= Food Security Index

z= Food security line (2/3 mean per-capita food expenditure)

q=Number of households below the food security line

n=Total number of households in the population

y<sub>i</sub>= Per capita food expenditure for all households

α =A version parameter that takes values of zero, one or two.

Setting α equal to zero, F<sub>0</sub> becomes the head count index, which measures the incidence of food insecurity. That is, the proportion of food insecure people from the total population.

Setting α equal to one, F<sub>1</sub> equal the food insecurity gap, measuring the incidence of food insecurity. That is, on the average, how far the food insecure households are from the food security line. Setting α equal to two, F<sub>2</sub> equal the severity of food insecurity among households; that is, the depth of food insecurity and inequality among the households.



### Food security line

Food security line is a pre-determined and well define standard of value of expenditure or consumption pattern in a given household. In this study, the food security line was based on the household's expenditure. Two-third of the mean per capital expenditure was obtained as the food security line. This is mathematically expressed as follows:

$$\text{Per Capital Expenditure (PCE)} = \frac{\text{Total Expenditure on Household Consumption}}{\text{Household size}}$$

$$\text{Mean Per Capital Household Expenditure (MPCHE)} = \frac{\text{Total household PCE}}{\text{Total number of households}}$$

$$\text{Food Security Line} = 2/3 * \text{MPCHE}$$

### Logit Regression Model

Logit regression was used to determine the effects of insecurity on the food security status of farmers.

The implicit form of regression model is expressed as:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} + b_{11}X_{11} + e$$

Where:

Y= Food security status of respondents (1=food secure; 0=food insecure)

X<sub>1</sub>= Houses destroyed (in Naira)

X<sub>2</sub>=Attack (number of attacks)

X<sub>3</sub>= Killing (number of family members killed)

X<sub>4</sub>=Kidnapping (number of family members kidnapped)

X<sub>5</sub>= Farms destroyed (ha.)

X<sub>6</sub>= Migration (in kilometers)

X<sub>7</sub>=Age (years)

X<sub>8</sub>=Household size (number)

X<sub>9</sub>=Level of education (Years)

X<sub>10</sub>=Farm size (ha,)

X<sub>11</sub>=Farming experience (years)

b<sub>1</sub> \_b<sub>9</sub> = Coefficients of independent variables

b<sub>0</sub>=Constant term

e=error term

## RESULTS AND DISCUSSION

### Socio-economics Characteristics of the Respondents

Table 1 shows the socio-economics characteristics of respondents and the result revealed that the mean age of the respondents in the study area was 46.28 years which implies that most of the farmers were of middle age, energetic and active which can be instrumental to food security. The mean size of the household size of the respondents was 10 persons. Agricultural activities in developing countries like Nigeria are highly subsistent and labour intensive, which often times depends on household labour. This may influence the family size of respondents for ensuring food security. The result further indicated that majority (74.4%) of the respondents had no formal education; suggesting that most of the farmers in area did not have any certificate as educated members of the society. This can negatively affect the food sufficiency of the farmers because of the limitations of awareness and knowledge. Only 25.6% of the respondents indicated having formal education.

The mean farm size was 1.63 ha.; showing that large proportion of farmers in the study area were into small scale farming. Large farm size is key to agricultural production,



because it determine the amount and varieties of food that can be produced for food availability and utilization. In a similar study, Umar *et al.* (2021) reported mean farm size of 1.65 ha. The mean farming experience of the respondents was 29.87 years; pointing to the fact that the farmers had long period of experience, which is an important factor in improving productivity and food security. Farming experience can influence decision making process of farmers with regards to risk aversion, adoption of technologies and other production related decisions, especially in insecure environment like the study area.

**Table 1: Socio-economics Characteristics of the Respondents**

Socio- economics characteristics	Frequency	Percentage	Mean
<b>Age</b>			
<31	14	17.1	
31-40	18	22.0	
41-50	19	23.2	
51-60	21	25.6	
60	10	12.2	
Total	82	100	46.28
<b>Household size</b>			
< 6	24	29.3	
6-10	26	31.7	
11-15	20	24.4	
16-20	7	8.5	
>20	5	6.1	
Total	2	100	9.63
<b>Educational Level</b>			
Formal	21	25.6	
No-formal	61	74.4	
Total	82	100.0	
<b>Farm size</b>			
≤ 1	46	56.1	
1.1-3.0	29	35.4	
3.1-5.0	6	7.3	
>5.0	1	1.2	
Total	82	100.0	16.3
<b>Farming experience</b>			
< 11	6	7.3	
11-20	19	23.2	
21-30	20	24.4	
31-40	22	26.8	
>40	15	18.3	
Total	82	100.0	29.87

**Source:** Field survey, 2022

### Food Security Status of Farmers

In assessing respondents' food security status at the household level, food security line for all the households was calculated and food secure or food insecure households were established. The food security status of respondents is presented in Table 2. Expenditure on farmer's food items were used to determine their food security status as proxies for food expenditure data. The incidence of food security shows that 47.56% of respondent were food secured, while 52.44% of the respondents were food insecure. More so, the food security line was ₦23,996.97 per month, which is the minimum monthly income needed for the household



to be food secure. The food security gap which measures the extent by which the respondents were below the line was 0.2130, which shows that about 21% of the food security line is required to bring the food insecure household to food security line. The food insecurity severity was 0.1115, which implies that about 11% of the household are highly food insecure. This result suggest that household income has a direct impact on food security status as households with relatively high income strive better than those with less income. This concurs with Umar *et al.* (2021) who reported that more than half of the farmer respondents in Niger State were food insecure.

**Table 2:** Food Security Status of farmers

Food security status	Frequency	Percentages
Food secure	39	47.56
Food insecure	43	52.44
Total	82	100.0
Food security line / month	₦23,996.97	
Food security incidence	0.5244	
Food security gap	0.2130	
Food security severity	0.1115	

**Source:** Field survey, 2022

### Type of Insecurity Related Activities

Type of insecurity related activities is presented in Table 3. From the result, all the respondents indicated that blocking of local routes, killing of people, kidnapping of rural farmers, chasing farmers out of their farms, harvesting of farm product and halting of market activities were the commonest insecurity activities witnessed in the study area with 100.0% response rate each. All these activities specifically harvesting of farm product and halting of marketing activities by bandits can greatly reduce the income of farmers which determine food expenditure and food security. Also, a large proportion of the respondents reported that raiding of markets, theft of other domestic animals, halting harvesting of crops, initiating of youth into banditry and burning of houses were prevalent in the area with 98.7% response each. Worthy of note here is the initiation of youths into banditry which is worrisome. In a related study, Adagba *et al.* (2012) also reported that young people are drawn into violent crimes in Nigeria. Almost all (97.5%) of the respondents further pointed out the following as insecurity activities namely; burning/raiding of farms, raping and seizing of farm lands. Additionally, 96.3% of the respondents stressed that taxes were collected by the bandits for free movement of farmers. These results generally show that a wide range of insecurity related activities were carried out in the area by criminal gangs which require collaborative effort to tackle.



**Table 3:** Type of Insecurity Related Activities in the Area

Insecurity related activities	Frequency	Percentage
Blocking of local route	82	100.0
Burning and raiding of farms	80	97.5
Killing	82	100.0
Kidnapping of rural farmers	82	100.0
Chasing of farmers out of their farms	82	100.0
Harvesting of farm produce	82	100.0
Raiding of markets	81	98.7
Rape	80	97.5
Tax collection for ease movement	79	96.3
Theft of other domestic animals	81	98.7
Halting of crops harvesting	81	98.7
Seizing of farm lands	80	97.5
Halting of market activities	82	100.0
Initiating of youth to be part of them	81	98.7
Burning down homes of farmers	81	98.7

**Source:** Field survey, 2022

### Perceived Effect of Insecurity on Food Security

Table 4 presents the result of the perceived effect of insecurity on food security in terms food availability, accessibility, utilization and safety. Finding showed that  $\bar{x} = 2.60$  for food availability which ranked first and this implies that there was no availability of enough food in the communities affected with insecurity. Food utilization and accessibility ( $\bar{x} = 2.55$ ) were ranked second respectively, because there was insufficient classes and varieties of food for a balance diet. More-so, it was difficult to access foods and foods were expensive due to insecurity in the area. Food safety ( $\bar{x} = 2.49$ ) ranked fourth and it was perceived unaffected by insecurity in the area.

**Table 4:** Perceived Effect of Insecurity on Food Security

Effect of insecurity	SA(4)	A(3)	DA(2)	SD(1)	WS	WM	Rank	Remark
Food availability	36	11	1	34	213	2.60	1 <sup>st</sup>	PE
Food utilization	33	12	4	33	209	2.55	2 <sup>nd</sup>	PE
Food accessibility	33	12	4	33	209	2.55	2 <sup>nd</sup>	PE
Food safety	31	14	1	36	204	2.49	4 <sup>th</sup>	NE

**Source:** Field survey, 2022

SA= strongly agreed (4), A= agreed (3), DA= disagree (2), SD= strongly disagreed (1), WS= weighted sum, WM= weighted mean

PE= Perceived Effect

NE= No Effect

### Effect of Insecurity on Food Security Status of Farmers

Logistic regression model was used to determine the effect of insecurity on food security status of farmers in the study area. As revealed in Table 5, the Chi-square value is 0.0000 which shows the fitness of the model at 1% level of probability. From the z-value of the regression, four variables were found to had significant negative effect on food security status of farmers at ( $P < 0.05$ ) namely attack frequency, kidnapping, farms destroyed and age, while people killed was negatively significant at ( $P < 0.10$ ) Frequency of attack disrupt



farming activities and the resources that should be used for food expenditure are paid to secure the release of family members kidnapped, while destruction of farms can lead to zero yield. Also, killing of people reduces family labour for production, all of which can affect yield, income and food security status of the farmers negatively. This result affirms the finding of Okoli *et al.* (2014) which stressed that insecurity affects crop yield and income, which negatively affect farmers' savings, expenditures, as well as food security and economic welfare of urban dwellers that depend on these farmers for food.

However, socio economic attributes of household size and farm size of the farmers had positive and significant effect on food security status ( $P < 0.05$ ). This is an indication that farmers with higher household size and large farm size can to some extent withstand the negative effect of insecurity and have guarantee of sufficient food to feed their families. Age had negative significant effect on food security status; this may be attributed to ageing which reduce strength for production.

**Table 5:** Effect of Insecurity on Food Security Status of the Farmers

Food security status	Coefficients	Standard error	Z-value
Houses destroyed	-.0798314	.635967	-1.26
Attack frequency	-.0089415	.0044186	-2.02**
People killed	-.0924371	.0521262	-1.77*
Kidnapping	-.076907	.0323962	-2.37**
Farms destroyed	-.0260878	.0115462	-2.26**
Migration of people	.0001778	.0004985	0.36
Age	-.1025956	.04691	-
2.19**			
Household size	.1556454	.0759954	2.05**
Education	-.075228	.0664137	-1.13
Farm size	.7985156	.3651075	2.18**
Farming experience	.0434453	.0471545	0.92
Constant	1.129104	1.301518	0.87

**Source:** Computed from field survey data, 2022

Number of observation = 82

LR chi2 (11) = 41.43\*\*\*

Prob >chi2 = 0.0000

Pseudo R2 = 0.3651

## CONCLUSION AND RECOMMENDATION

Based on the findings of the study, it can be concluded frequency of attack, kidnapping, farms destroyed, age, household size and farm size were the factors influencing food insecurity of the farmers in the study area. Also, farmers in the study area were in their energetic and active ages for farming. Majority of the respondents were food insecure with high percentages of food insecurity incidence, insecurity gap and insecurity severity. A wide range of insecurity related activities were carried out in the area. Insecurity activities were perceived not to have effect on food safety. Emanating from the findings the study made the following recommendations;

- Security agents should develop early warning systems to alert farmers of impending attacks in the study area.



- ii. Government should establish agro-rangers to provide security cover for the farmers in the farms in the study area.
- iii. Government should leverage on technologies such as drones for surveillance and general security of the farming communities.
- iv. Communities should form viable and active vigilante groups to complement government efforts in curbing insecurity in the area.
- v. In order to halt the initiation of youths into criminal gangs, value re-orientation of youths should be carried out by community and religious leaders, as well as National Orientation Agency (NOA).
- vi. The relevant agencies such as National Emergency Management Agency (NEMA) of Nigeria and Niger State Emergency Management Agency (NSEMA) should provide new improved and high yielding varieties of staple crops, and farm inputs to the farmers as palliatives. This will cushion the negative effect of insecurity and improved agricultural production, and by extension food security in the area, state and nation at large.
- vii. ICT such as GSM telephones should be used by extension agents for rendering extension services to farmers in the insecure areas.

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