



**EFFECT OF INSURGENCY ON FOOD CROP PRODUCTION IN THE ARID
AGRO-ECOLOGICAL ZONE: A CASE STUDY OF
FIKA LOCAL GOVERNMENT AREA, YOBE STATE, NIGERIA**

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ABSTRACT

The study investigated the effect of insurgency on food crop production in the arid agro-ecological zone of Fika Local Government Area, Yobe State, Nigeria. Multistage sampling technique was used to select 390 respondents from the study area. Data were collected using structured questionnaires and analyzed using descriptive and inferential statistical tools. The results showed that majority (70%) of the farmers were male while 35.1% were within the economically active age bracket of 31–40 years, and 50% had moderate household sizes (5–8 members). Educational attainment was generally low, with 40% having no formal education. Farm sizes were predominantly small-scale (1–3 hectares), and 40% of respondents earned below ₦50,000 annually. Extension services and access to credit were limited, reaching only 40% and 30% of the farmers respectively. Respondents with the mean score (4.30) strongly agreed that insurgency led to reduced food crop production, farmland abandonment, inaccessibility of rural markets, loss of crops, increased food prices, reduced income, and widespread hunger. The results revealed that Hike in prices of commodities with mean score (4.50) strongly agree, social vices mean score (4.15) strongly agree respectively. The results further revealed that farmers adopted coping strategies such as backyard farming with the mean of (4.50) strongly agree, petty trading, reducing food quality and quantity with the mean sore (4.40) strongly agree. The results of regression analysis revealed that Age ($P<0.01$), education ($P<0.01$) farm size ($P<0.01$) and income ($P<0.01$) influenced the impact of insurgency on food crop production. The study concludes that insurgency has deeply disrupted food crop production in Fika LGA, worsening food insecurity and economic vulnerability in the arid region. The study recommends increased government investment in agricultural extension, rural credit, infrastructure, and education, alongside strengthened security and peacebuilding interventions. Promoting resilient livelihood strategies and alternative income sources is also vital to reduce.

Keywords: Insurgency, Food, Production, Arid, Rural, Resilience,

INTRODUCTION

Insurgency in Nigeria, which began in 2009, continues to undermine food security conditions, particularly in ecologically fragile regions. Since the escalation of violence in 2012, poor households in the northeastern part of the country, especially those in the arid agro-ecological zone, have experienced significant levels of food insecurity as a result of insurgency (Mudi, 2021). According to Bukar (2019), insurgency refers to a violent movement by individuals or groups who resist or oppose law enforcement or revolt against constituted authority. In the northeastern arid region of Nigeria, insurgency has displaced thousands of people—many of whom are subsistence farmers—thereby disrupting the primary source of livelihood for the rural population. The United Nations Development Programme (UNDP, 2020) emphasizes that insurgency has been a major constraint to agricultural development in West Africa, often resulting in socio-political and economic instability. Such violent conflicts frequently culminate in complex humanitarian crises, economic destruction, recurring famine, hunger, and malnutrition. For example, Flores (2014) noted that civil conflicts in Liberia and Sierra Leone during the 1990s caused long-term declines in agricultural productivity. In the same vein,



the insurgency in northern Nigeria has led to high mortality rates, particularly among youths who constitute the majority of the agricultural labor force. Survivors are either conscripted into insurgent groups or join vigilante movements, thereby reducing the workforce available for farming (Adelaja & George, 2019). In Yobe State, particularly in Fika Local Government Area which lies within the arid agro-ecological zone—insurgency has adversely affected the cultivation of staple food crops such as maize, groundnut, beans, rice, and sorghum. Iweze (2020) noted that the insecurity has triggered rural-urban migration within Nigeria and to neighboring countries like Niger, Cameroon, and Chad. This migration primarily involves people in the productive age group, thereby diminishing the availability of farm labor. Adebayo (2014) highlighted that farmers now engage in agricultural activities at great personal risk due to rampant attacks, bombings, abductions, and killings. Such violent conditions have created an atmosphere of fear, thereby severely hindering agricultural operations. Bello, Sani, Bukar, and Rabi (2017) asserted that national development is influenced by many factors, with security being a central element. When security deteriorates, both local and foreign investors are discouraged, stalling economic growth and employment creation. As Marvelous *et al.* (2019) explained, combating insurgency requires enormous human and material resources, which otherwise could have been allocated to development projects. For rural dwellers in arid zones, where agriculture remains the principal livelihood activity, insurgency disrupts the entire production system—from land preparation and planting to harvesting and marketing (Idris & Abubakar, 2022). In the arid zone of Fika LGA, understanding the scope of insurgency's impact on food crop production is vital for designing sustainable interventions. Displacement of farmers, restricted access to farmlands, resource scarcity, and market disruptions are just a few of the many challenges affecting agricultural productivity and food security in the region. Despite the importance of this issue, there remains a research gap concerning the localized effects of insurgency on food crop production in arid ecological zones like Fika. Existing studies often generalize the impacts of conflict on agriculture across broader regions without investigating specific dynamics such as insecurity, displacement, and ecological limitations at the local level. Therefore, this study aims to fill this gap by analyzing the effect of insurgency on food crop production within the arid agro-ecological zone of Fika Local Government Area, Yobe State, Nigeria. The main objective of the study is to analyze the effect of insurgency on food crop production in the arid agro-ecological zone of Fika Local Government Area, Yobe State, Nigeria. The specific objectives are to:

- i. Examine the socio-economic characteristics of food crop farmers in Fika LGA of Yobe State, Nigeria;
- ii. Determine the effect of insurgency on food crop production in the arid agro-ecological zone of Fika LGA;
- iii. Assess the impact of insurgency on the socio-economic characteristics of food crop farmers in Fika LGA; and
- iv. Examine coping strategies adopted by food crop farmers in Fika LGA during insurgency.

METHODOLOGY

Study Area

Fika Local Government Area (LGA) is situated in Yobe State, northeastern Nigeria, within the arid agro-ecological zone of the country. Geographically, the area lies between latitude 11°30'N and longitude 11°50'E. It is characterized by a semi-arid climate with an annual rainfall range of 500 mm to 800 mm and average daytime temperatures between 30°C and 40°C during the dry season. These climatic conditions support the cultivation of drought-tolerant crops such as millet, sorghum, maize, cowpeas, and groundnuts, which form the backbone of local subsistence agriculture (Yusuf *et al.*, 2019).

As of 2023, the projected population of Fika LGA stands at approximately 150,000 people. Administratively, the LGA is divided into ten wards: Daya/Chana, Fika/Anze, Gadaka/Shembire, Gudi/Dozi/Godo Woli, Janga/Boza/Fa, Sawa/T. Nanai, Mubi/Fusami/Garin Wayo, Ngalda/Dumbulwa, Shoye/Garin Aba, Turmi/Maluri, and Zangaya/Mazawaun. In addition to crop production, the



residents are also engaged in livestock rearing, including goats, sheep, poultry, and cattle—adapted to the harsh climatic conditions and serving as alternative sources of income (Ahmed, 2018).

Sampling Procedure

A multistage sampling technique was employed in selecting the respondents for the study. Stage 1: Four wards—Daya/Chana, Gadaka/Shembire, Shoye/Garin Aba, and Turmi/Maluri—were purposively selected based on their relative agricultural activity and exposure to insurgency-related challenges. Stage 2: From each selected ward, three (3) villages were randomly selected, resulting in twelve (12) villages in total. Stage 3: From each selected village, thirty-three (33) farmers were randomly selected using a farmer register or community list where available, bringing the total sample size to 396 respondents. For balance, this was rounded to 390 respondents, selecting approximately 32 or 33 per village.

Table 1: Selected Villages and Sample Size

Selected Ward	Selected Villages	Number of Sampled Farmers
Daya/Chana	Chana, Kukar Gadu, Yelwa	33, 32, 32
Gadaka/Shembire	Bulabulin, Dala, Hausari	33, 32, 32
Shoye/Garin Aba	Balde, Gashinge, Lampo	33, 32, 32
Turmi/Maluri	Gurjaje, Manawachi, Turmi	33, 32, 32
Total	12 Villages	390 Farmers

Analytical Techniques

Data for this study were analyzed using both descriptive and inferential statistics. Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarize and describe the characteristics of the sampled respondents. The inferential statistics used was multiple linear regression. The explicit form of the model is expressed as follows;

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + e$$

Where:

Y = Effect of insurgency on food crop production using food insecurity index

a = Constant term

β_1 – β_{10} = Regression coefficients

X_1 = Age (years)

X_2 = Gender (male = 1, female = 0)

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

X_4 = Education level (years)

X_5 = Farm size (hectares)

X_6 = Income (₦)

X_7 = Access to credit (yes = 1, no = 0)

X_8 = Extension contact (yes = 1, no = 0)

X_9 = Farming experience (years)

X_{10} = Household size

e = Error term

RESULTS AND DISCUSSION

Socioeconomic and Institutional Characteristics of Respondents

The demographic and institutional characteristics of the respondents revealed a farming population dominated by men (70%) and adults within the economically productive age bracket of 31–40 years (35.1%). This aligns with the findings of Adebayo and Dauda (2020), who reported similar demographic dominance in conflict-affected agrarian regions of northeastern Nigeria, where youth are less likely to stay in farming due to insecurity and migration. The average household size (5–8 members) reflects a potential labor force that, if adequately utilized, could support agricultural activities (Ahmed, 2018).



Table 2: Socioeconomic Characteristics of the Respondents (n = 390)

Variable	Frequency	Percentage (%)
Gender (Male)	273	70.0
Age (31–40 years)	137	35.1
Household Size (5–8 members)	195	50.0
Marital Status (Married)	234	60.0
Educational Level		
No formal education	156	40.0
Primary education	117	30.0
Secondary education	78	20.0
Tertiary education	39	10.0
Farm Size (1–3 ha)	215	55.1
Annual Income (< ₦50,000)	156	40.0
Farming Experience (9–12 years)	175	44.9
Membership in Farmer Groups	117	30.0
Access to Extension Services	156	40.0
Access to Credit	117	30.0

Source: Field Survey, 2024

The results also revealed that education levels were generally low, with 40% of the respondents having no formal education, a situation that significantly impairs access to innovation and extension services. According to Mbah *et al.* (2017), illiteracy remains a major barrier to the adoption of improved agricultural technologies in conflict-prone zones. Moreover, limited farm sizes (1–3 ha) as reported by over half the respondents indicate a predominance of subsistence agriculture, corroborating earlier observations by Yusuf *et al.* (2019) in similar agro-ecological contexts. Furthermore, the results revealed that access to key institutional services remains poor. Only 40% of the respondents had access to extension services, and just 30% accessed credit facilities. These figures underscore systemic institutional deficiencies that hinder capacity building and resilience. Consistent with the work of Ezeomah and Okonkwo (2021), limited access to extension services in areas affected by insurgency reflects both physical insecurity and declining public sector engagement.

Effects of Insurgency on Food Crop Production

The results indicated a consensus among farmers that insurgency exerts a severe and multidimensional impact on food crop production. High mean scores for reduced production (4.30), farmland inaccessibility (4.10), and crop destruction (4.20) suggest that insurgency disrupts every aspect of the agricultural value chain—from planting to marketing. These findings are consistent with the work of Adelaja and George (2019), who reported that insurgent activities in northern Nigeria led to a drastic reduction in cultivated land and crop yields.



Table 3: Effects of Insurgency on Food Crop Production

Effect	Mean Score	Decision
Low food crop production	4.30	Strongly Agree
Inaccessibility of farmland	4.10	Strongly Agree
Inaccessibility of rural markets	3.90	Agree
Loss of crops to insurgents	4.20	Strongly Agree
Hike in prices of commodities	4.50	Strongly Agree
Loss of invested money	4.00	Agree
Increased social vices	4.15	Strongly Agree
Increased hunger	4.40	Strongly Agree
Rural-urban migration	4.10	Strongly Agree
Reduced income	4.25	Strongly Agree

Source: Field Survey, 2024

Market disruption due to inaccessibility and insecurity was another significant outcome, as indicated by a high mean of 4.50 for commodity price hikes. This reflects not only scarcity in supply but also heightened transportation risks, as corroborated by Iweze (2020), who found that insecurity inflates food prices in conflict-prone areas due to disrupted logistics. Furthermore, the findings revealed that the rise in hunger (4.40), income loss (4.25), and social vices (4.15) reflects the broader socioeconomic decay induced by prolonged conflict. The forced migration of productive individuals, often youth (mean = 4.10), contributes to labor shortages, thereby compounding the decline in agricultural productivity (Bukar, 2019).

Coping Strategies During Insurgency

The results in Table 3 shows the coping strategies adopted by farmers demonstrate considerable resilience and ingenuity. The results revealed that backyard farming (4.50) emerges as the most common used strategy, serving to reduce risk exposure while maintaining minimal food supply. This aligns with findings from Yahaya *et al.* (2021), who noted that conflict-affected households often shift to small-scale subsistence gardening as a survival mechanism. Reducing food quality and quantity (4.40) illustrates the immediate effect of food insecurity on household welfare. Petty trading and migration also reflect attempts to diversify income sources and escape the most intense effects of conflict, which is consistent with the adaptive strategies observed by Agbiboa (2020) in northeastern Nigeria. Livestock rearing (4.00) provides a flexible and portable livelihood strategy, although it remains vulnerable to theft and lack of pasture in displacement contexts.

Table 4: Coping Strategies Adopted

Coping Strategy	Mean Score	Decision
Backyard farming	4.50	Strongly Agree
Reducing food quantity/quality	4.40	Strongly Agree
Petty trading	4.30	Strongly Agree
Migration	4.10	Strongly Agree
Business activities	4.20	Strongly Agree
Livestock rearing	4.00	Agree

Source: Field Survey, 2024

Factors Affecting Food Crop Production

The regression model shows a strong explanatory capacity ($R^2 = 0.75$), indicating that 75% of the variability in food crop production under insurgency conditions is explained by the included socioeconomic factors. Farm size ($P < 0.01$) and income ($P < 0.01$) were significant in influencing predictors, suggesting that larger land holdings and greater financial capital enhance resilience. These



findings are consistent with the work of Idris and Abubakar (2022), who found that wealthier and more resource-endowed farmers in Borno and Adamawa States were better able to withstand conflict-related shocks. Education and age also significantly contribute to coping capacity, implying that older and better-educated farmers tend to adopt more effective adaptation strategies. Mbah *et al.* (2017) similarly observed that literacy and life experience play a vital role in conflict adaptation in rural agriculture. The significance of gender highlights gendered access to resources and information, echoing Ezeomah and Okonkwo's (2021) assertion that male farmers tend to benefit more from institutional support services in Nigeria.

This study critically examined the impact of insurgency on food crop production in the arid agro-ecological zone of Fika Local Government Area, Yobe State, Nigeria. Using structured questionnaires administered to 390 respondents, the study revealed a predominance of male smallholder farmers with low educational attainment and minimal access to institutional support such as credit and extension services. These socioeconomic and institutional limitations significantly affected the capacity of farmers to withstand the consequences of insurgency. Empirical results demonstrated that insurgency leads to reduced food crop production, abandonment of farmlands, loss of crops and income, market inaccessibility, and increased food insecurity. These outcomes align with prior findings by Adelaja and George (2019) and Iweze (2020), who similarly observed a collapse of the agricultural value chain in conflict-affected regions of northern Nigeria. Coping mechanisms among respondents included backyard farming, food rationing, migration, and petty trading, practices that mirror adaptive strategies reported by Yahaya *et al.* (2021) and Agbiboa (2020). Regression analysis revealed that farm size, income, age, gender, marital status, and education level significantly influenced farmers' resilience, echoing the findings of Idris and Abubakar (2022), who emphasized the centrality of socioeconomic capital in shaping agricultural adaptation under conflict conditions.

Table 5: Factors Affecting Food Crop Production

Variable	Coefficient	t-value	p-value
Age (X_1)	0.42	3.21	0.002**
Gender (X_2)	0.25	2.10	0.038*
Marital Status (X_3)	0.30	2.58	0.012*
Educational Level (X_4)	0.35	2.98	0.004**
Farm Size (X_5)	0.45	3.50	0.001**
Income (X_6)	0.40	3.15	0.002**

Model Summary:

- $R^2 = 0.75$
- Adjusted $R^2 = 0.73$
- F-statistic = 23.45 ($p < 0.01$)

Source: Field Survey, 2024

CONCLUSION AND RECOMMENDATION

The study concludes that insurgency presents a significant threat to agricultural sustainability and food security in the arid northeast of Nigeria. In Fika LGA, insurgency exacerbates existing vulnerabilities, particularly low literacy, poor income, and limited land access. While farmers have adopted a range of coping strategies, these responses are largely insufficient in offsetting the prolonged and multidimensional effects of conflict.

Based on the findings of this study, the following recommendations;

1. Government and relevant stakeholders should improve farmers access to extension and credit services through creating credit scheme that is affordable and accessible to all;
2. Stakeholders should strengthen food security systems through the introduction of drought resistance and climate resilient crops.



3. Government and other stakeholders should provide vocational training to farmers on alternative livelihood support program.
4. Government should enhance rural infrastructure such as feeder roads and solar powered irrigation system
5. Promote education and awareness and establish adult literacy centers and farmer field schools to increase farmers' capacity to absorb and apply technical knowledge.

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