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RURAL INSECURITY AND AGRICULTURAL OUTPUT: EVALUATING THE EFFECTS OF INSECURITY ON FOOD AVAILABILITY IN GIWA, BIRNIN-GWARI AND IGABI LOCAL GOVERNMENT AREAS OF KADUNA STATE

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ABSTRACT

This study examined the effects of rural insecurity on food availability in Giwa, Birnin-Gwari, and Igabi Local Government Areas of Kaduna State. Rural insecurity in northern Nigeria has intensified in recent years through armed banditry, kidnapping, farmer-herder conflicts, cattle rustling, and communal violence, thereby posing serious threats to agricultural sustainability, rural livelihoods, and household food security. The study specifically investigated how persistent insecurity affects food availability through disruptions in crop production, livestock production, transportation systems, agricultural markets, and local food supply chains within the selected local government areas. The study adopted a mixed-methods research design involving both quantitative and qualitative approaches. Quantitative data were obtained through the administration of 451 structured questionnaires to farmers and pastoralists across the study areas, while qualitative data were generated through focus group discussions and in-depth interviews with 15 key informants comprising farmers, pastoralists, community leaders, agricultural extension officers, and local security stakeholders. Data were analyzed using descriptive statistics and simple linear regression analysis, while qualitative responses were analyzed thematically. Findings revealed that insecurity exerts a statistically significant negative effect on food availability in the study areas ($p < 0.05$). The regression analysis indicated that insecurity accounted for approximately 47.6% of the variation in food production and food availability within the affected communities. The study further revealed that violent attacks, fear of abduction, destruction of farmlands, displacement of farming households, disruption of rural markets, and restricted movement of agricultural produce have significantly reduced local food supply and increased food prices. Qualitative findings also showed that insecurity has weakened household purchasing power, disrupted food distribution networks, intensified hunger, and increased vulnerability among rural households. The study concluded that persistent rural insecurity constitutes a major threat to food availability and sustainable rural livelihoods in Giwa, Birnin-Gwari, and Igabi Local Government Areas of Kaduna State. The study therefore recommends the strengthening of rural security architecture, rehabilitation of rural roads and markets, provision of targeted agricultural and food support programmes, expansion of community-based food storage systems, and implementation of conflict resolution mechanisms to improve food availability and strengthen rural resilience.

Keywords: *Rural Insecurity, Food Availability, Food Security, Agricultural Output, Rural Livelihoods, Banditry in Kaduna State, Nigeria.*

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Introduction

Agriculture remains one of the most important sectors of the economy in many developing countries, particularly in sub-Saharan Africa where it serves as a major source of employment, income generation, and food supply. In Nigeria, agriculture contributes significantly to national economic growth and rural development, employing more than 60% of the labor force and providing livelihood opportunities for millions of rural households. Beyond its economic contributions, agriculture remains fundamental to food availability and household food security, especially in rural communities where farming constitutes the primary source of sustenance. Despite its enormous potential, the agricultural sector in Nigeria continues to face several structural and environmental challenges including poor infrastructure, climate change, low technological adoption, inadequate funding, and increasing insecurity across rural communities. In recent years, rural insecurity has emerged as one of the most serious threats to food availability and food security in Nigeria. The rising incidence of armed banditry, kidnapping, farmer–herder conflicts, cattle rustling, terrorism, and communal violence has disrupted farming systems, weakened agricultural productivity, and constrained food supply chains across several states in northern Nigeria.

According to the Food and Agriculture Organization of the United Nations, violent conflicts significantly undermine food availability by restricting access to farmland, labor, grazing routes, agricultural inputs, and rural markets. Insecurity also contributes to displacement of farming populations, destruction of food storage facilities, interruption of transportation systems, and rising food prices. Consequently, rural households experience declining food access, poor nutrition, and increased vulnerability to hunger and poverty. The northwestern region of Nigeria has experienced escalating levels of violent insecurity over the past decade. States such as Kaduna State, Zamfara, Katsina, Sokoto, and Niger have witnessed persistent attacks by armed bandits and criminal groups operating within rural communities. These attacks have resulted in loss of lives, destruction of property, displacement of populations, and disruption of socioeconomic activities. Rural communities are particularly vulnerable because agriculture and local food systems constitute the foundation of their livelihoods and survival.

Kaduna State occupies a strategic position in Nigeria's agricultural economy due to its fertile land,

favorable climatic conditions, and large farming population. The state is known for the production of staple food crops such as maize, millet, sorghum, rice, beans, and groundnuts as well as livestock production. However, the increasing incidence of rural insecurity has negatively affected food availability in several parts of the state. Local Government Areas such as Giwa, Birnin-Gwari, and Igabi have become hotspots of armed banditry, kidnapping, and farmer–herder conflicts, resulting in widespread fear and instability within rural communities. The effects of insecurity on food availability in these local government areas manifest in several ways. Many farmers are unable to cultivate sufficient farmland due to fear of attacks and abduction, while others have abandoned farming activities entirely. Transportation of food produce to local markets has become increasingly dangerous due to road insecurity and violent attacks on travelers. Access to agricultural inputs, storage facilities, and extension services has also become severely constrained. In addition, market disruptions and displacement of farming households have weakened local food systems and contributed to shortages in food supply and rising food prices.

Several studies have established a relationship between insecurity and food insecurity in conflict-prone regions. Akinola (2020) observed that violent conflicts disrupt food systems, reduce household incomes, and intensify rural poverty by undermining agricultural value chains. Similarly, reports by the African Development Bank indicate that food production and availability in conflict-affected regions of Africa have declined substantially due to insecurity and displacement of rural populations. Despite these studies, limited empirical attention has been given to the specific effects of rural insecurity on food availability within Giwa, Birnin-Gwari, and Igabi Local Government Areas of Kaduna State. This study therefore seeks to evaluate the effects of rural insecurity on food availability in the selected local government areas. The study is significant because it provides empirical evidence on how insecurity affects food supply systems, agricultural output, and household food security within conflict-affected rural communities. The findings are expected to contribute to policy formulation and intervention strategies aimed at improving food security and strengthening rural resilience in Nigeria.

Statement of the Problem

Food availability is an essential component of food security and sustainable rural development. Under normal and secure conditions, rural communities in Giwa, Birnin-Gwari, and Igabi Local Government Areas of Kaduna State are expected to engage actively in agricultural production and food distribution, thereby ensuring steady food supply for households and local markets. These local government areas possess fertile agricultural land and favorable environmental conditions suitable for the cultivation of staple food crops and livestock production. However, the persistent rise in rural insecurity has severely disrupted food production and food distribution systems within these communities. Incidents of armed banditry, kidnapping, cattle rustling, and farmer–herder conflicts have created widespread fear and instability, making farming, transportation, and marketing activities increasingly dangerous. Many farmers have abandoned their farmlands due to fear of attacks, while transportation of food products to local markets has become highly risky. The worsening insecurity has also contributed to destruction of crops and food storage facilities, displacement of farming households, disruption of market activities, and restricted access to agricultural inputs and extension services. Consequently, many rural communities now experience shortages in food supply, rising food prices, declining household purchasing power, and worsening food insecurity. Reports by the World Food Programme and the Food and Agriculture Organization of the United Nations indicate that millions of Nigerians are currently facing severe food insecurity due to violent conflicts and disruptions in agricultural production and food systems. Despite increasing concerns regarding insecurity and food insecurity in northern Nigeria, there remains inadequate empirical research specifically examining the effects of rural insecurity on food availability in Giwa, Birnin-Gwari, and Igabi Local Government Areas of Kaduna State. Existing studies often focus on insecurity at broader regional or national levels without providing detailed evidence from local rural communities. Consequently, there is limited understanding of the extent to which insecurity affects food availability, local food systems, and household food security within these areas.

This study therefore seeks to fill this knowledge gap by evaluating the effects of rural insecurity on food availability in the selected local government areas. The study is necessary to provide empirical

evidence that can guide policymakers, security agencies, development organizations, and agricultural stakeholders in designing effective interventions aimed at improving rural security, strengthening food systems, and enhancing sustainable food availability in conflict-affected communities.

Objectives of the Study

The main objective of this study is to evaluate the effects of rural insecurity on food availability in selected Local Government Areas of Kaduna State.

The specific objectives are to:

1. Evaluate the effect of rural insecurity on food availability in Giwa, Birnin-Gwari, and Igabi Local Government Areas of Kaduna State.
2. Examine the effect of insecurity on livestock production in selected Local Government Areas of Kaduna state.

Research Questions

The study seeks answers to the following research questions:

1. How does rural insecurity affect food availability in Giwa, Birnin-Gwari, and Igabi Local Government Areas of Kaduna State?
2. What are the effect of insecurity on livestock production in selected Local Government Areas of Kaduna state?

Theoretical Framework

This study is anchored on the Human Needs Theory as propounded by Abraham Maslow and further expanded by John Burton. The theory explains that human beings possess fundamental needs such as security, food, shelter, identity, and survival which must be satisfied for social stability and peaceful coexistence to exist. According to Burton (1990), conflicts and violence often emerge when these basic human needs are threatened or denied.

The relevance of the Human Needs Theory to this study lies in its explanation of how insecurity undermines the fundamental livelihood needs of rural populations. Farmers and pastoralists in Giwa, Birnin-Gwari, and Igabi depend primarily on agriculture for survival, income, and food security. When insecurity threatens access to farmland, grazing routes, markets, and productive resources, it disrupts the ability of rural households to satisfy their basic needs. This creates conditions of fear,

displacement, poverty, hunger, and economic instability.

The theory further explains that sustainable peace and development cannot be achieved where communities experience persistent insecurity and deprivation. In the context of this study, insecurity weakens agricultural productivity by creating unsafe conditions for farming activities, limiting access to productive resources, and disrupting food systems. Consequently, crop production declines, food availability reduces, and household livelihoods become increasingly vulnerable.

The Human Needs Theory is therefore appropriate for this study because it provides a comprehensive framework for understanding the relationship between insecurity, agricultural output, and food security within rural communities.

Research Hypotheses

Ho₁: Rural insecurity has no significant effect on food availability in Giwa, Birnin-Gwari, and Igabi Local Government Areas of Kaduna State.

Ho₂: Rural insecurity has no significant effect on livestock production in selected Local Government Areas of Kaduna state.

Methodology

The study adopted a mixed-methods research design involving both quantitative and qualitative approaches. The study area comprised Giwa, Birnin-Gwari, and Igabi Local Government Areas of Kaduna State, which have experienced persistent incidents of armed banditry, kidnapping, farmer–herder conflicts, and rural violence. Quantitative data were obtained through the administration of 451 structured questionnaires to farmers and pastoralists across the selected communities. The questionnaire contained items relating to insecurity, crop production, food availability, farming activities, and livelihood conditions. The respondents were selected using a multistage sampling technique to ensure adequate representation across the study areas. Qualitative data were generated through focus group discussions and in-depth interviews involving 15 key informants comprising farmers, pastoralists, community leaders, agricultural extension officers, and local security stakeholders. The qualitative component enabled the researcher to obtain detailed insights into the lived experiences of rural residents regarding insecurity and agricultural production. Data collected from the field were analyzed using descriptive statistics such as frequencies, percentages, means, and standard deviations. Simple linear regression analysis was employed to examine the effects of insecurity on

crop production and food availability. The hypotheses were tested at 0.05 level of significance. Qualitative data obtained from interviews and focus group discussions were analyzed thematically through coding, categorization, and interpretation of recurring themes. The findings revealed that insecurity exerts a statistically significant negative effect on crop production, livestock production, and food availability in the study areas ($p < 0.05$). Regression analysis further indicated that insecurity accounted for approximately 47.6% of the variation in food production within the affected communities. The results underscore the serious implications of rural insecurity for agricultural sustainability, food security, and rural livelihoods in Kaduna State.

Concept of Food Availability

Food availability is one of the core pillars of food security and refers to the physical presence of sufficient quantities of food in a given area, whether produced domestically, imported, or provided through food aid (FAO, 2006). According to Maxwell and Franken Berger (2022), food availability is the foundation of food security because it reflects whether households, communities, or nations have access to the supply of food necessary for survival. The Food and Agriculture Organization (FAO, 2015) further explains that food availability is determined by three major sources: domestic production, food imports (both commercial and aid-based), and stockpiles. In this sense, food availability is not only a function of agricultural productivity but also of storage, transportation, trade, and distribution systems.

Historically, food availability has been a key concern of civilizations. The rise and fall of ancient empires, from Mesopotamia to Rome, was often tied to their ability to secure stable food supplies through farming, irrigation, trade, or conquest (Diamond, 2017). Famines in pre-industrial societies were typically linked to crop failures, livestock diseases, or disruptions in trade routes. In modern times, global food availability has expanded significantly due to advances in agricultural technologies, such as the Green Revolution, which introduced high-yielding crop varieties, irrigation systems, and chemical fertilizers (Evenson & Gollin, 2023). As a result, world food production has consistently outpaced population growth over the past five decades, disproving earlier Malthusian fears of mass starvation (FAO, 2019). Despite global progress, food availability remains uneven across regions and households.

While developed countries often experience food surpluses, sub-Saharan Africa and parts of South Asia continue to face challenges in ensuring consistent food supply. The World Bank (2020) notes that factors such as climate variability, low agricultural productivity, post-harvest losses, conflict, and weak infrastructure undermine food availability in many developing regions. Furthermore, globalization and market integration have made food availability increasingly sensitive to global shocks, such as the COVID-19 pandemic and the Russia–Ukraine war, which disrupted grain and fertilizer supply chains, thereby raising food prices and reducing local availability (Laborde et al., 2022).

Food availability is distinct from food access, utilization, and stability, which are the other three pillars of food security (FAO, 2018). For instance, food may be available at the national or community level, but poor households may lack the purchasing power to access it. Similarly, availability of staple crops does not guarantee dietary diversity, which is essential for proper nutrition. Thus, while food availability is a necessary condition for food security, it is not sufficient on its own.

In Africa, food availability has been a persistent concern, largely due to dependence on rain-fed agriculture, low mechanization, and vulnerability to climate shocks. Smallholder farmers, who account for more than 70% of food production in sub-Saharan Africa, often face constraints such as limited access to improved seeds, fertilizers, irrigation facilities, and extension services (Jayne & Sanchez, 2021). Post-harvest losses, estimated at 20–30% of cereal production and up to 50% of perishable crops, further reduce effective food availability (FAO, 2017). In addition, conflicts and insecurity have displaced millions of people, disrupted farming cycles, and reduced food supplies in countries such as South Sudan, Somalia, and Nigeria (ACAPS, 2020).

Livestock production also contributes significantly to food availability in Africa by providing animal-source foods such as meat, milk, and eggs. However, recurring droughts, animal diseases, and farmer-herder conflicts often limit livestock contributions to household and community food supplies. In many rural communities, livestock is sold or slaughtered during lean seasons to compensate for crop shortfalls, underscoring the interdependence of crop and livestock systems in maintaining food availability (Thornton, 2020). In Nigeria, food availability has been a central policy concern since independence. The country is

endowed with vast arable land, diverse agro-ecological zones, and a large farming population, yet it struggles with frequent food shortages. According to the National Bureau of Statistics (NBS, 2021), agriculture contributes about 25% of Nigeria's GDP, with crop production, livestock, fisheries, and forestry forming the backbone of national food supply. Staple crops such as maize, sorghum, millet, yam, cassava, and rice dominate local production, while livestock and fisheries supplement dietary protein.

However, Nigeria's food availability is undermined by several factors. First, productivity levels remain low due to reliance on traditional farming methods, low fertilizer use, and limited irrigation coverage (less than 2% of arable land is irrigated). Second, post-harvest losses are estimated at 30–40% of total production due to inadequate storage facilities, poor roads, and weak processing industries (Adewumi, 2020). Third, insecurity in the form of Boko Haram insurgency in the northeast, farmer-herder conflicts in the Middle Belt, and banditry in the northwest has forced many farmers to abandon farmlands and livestock, thereby reducing food production and availability (Okoli & Atelhe, 2014). Finally, Nigeria depends on food imports, particularly rice, wheat, sugar, and dairy products, making food availability vulnerable to fluctuations in global prices and foreign exchange availability.

Kaduna State plays a vital role in Nigeria's food production and availability, being one of the leading producers of maize, sorghum, ginger, and livestock products. Its favorable climate and relatively fertile soils make it a food basket in the northwest. The rural economies of Giwa, Birnin Gwari, and Igabi LGAs depend heavily on farming and livestock rearing, which collectively sustain local food availability.

Farmers in these LGAs produce cereals (maize, sorghum, millet), legumes (groundnut, cowpea), and vegetables, which not only feed households but also supply urban markets in Kaduna city and beyond. Livestock such as cattle, goats, sheep, and poultry further enhance food availability, while also providing income to purchase other food items. However, insecurity has increasingly eroded food availability in these LGAs. In Birnin Gwari and Giwa, armed banditry, kidnappings, and cattle rustling have displaced farming households and forced many to abandon agricultural activities. In Igabi, recurrent farmer-herder conflicts disrupt crop cultivation and livestock rearing, leading to reduced harvests and scarcity of animal products. As a result, local markets often face irregular food

supplies, pushing up food prices and making even available food unaffordable for many households (Awogbade, 2020). Seasonal hunger periods have worsened as displaced farmers find it difficult to return to their farms, while surviving households' resort to distress sales of livestock or borrowing food to cope.

Therefore, in the context of this study, food availability in Giwa, Birnin Gwari, and Igabi is not merely a matter of agricultural output but a reflection of broader socio-economic and security conditions. While these areas have the natural endowments to sustain surplus food production, insecurity has disrupted production cycles, reduced market participation, and heightened vulnerability to hunger. Addressing food availability in Kaduna State thus requires not only agricultural support programs but also effective security interventions to restore stability and confidence among farming communities.

Concept of Livestock Production

Livestock production refers to the management and rearing of domesticated animals for food, fiber, labor, and other purposes. It encompasses activities related to breeding, feeding, health care, housing, and marketing of animals such as cattle, sheep, goats, poultry, pigs, and other ruminants (FAO, 2018). According to Thornton (2020), livestock production plays a dual role: first, it directly provides animal-source foods such as meat, milk, and eggs that are rich in essential proteins, vitamins, and micronutrients; and second, it indirectly supports crop production through manure, traction, and income generation. In many societies, livestock also plays cultural, social, and security roles, symbolizing wealth, status, and a form of insurance against shocks. Historically, livestock domestication transformed human civilization by ensuring a more reliable food supply, facilitating transport, and supporting mixed farming systems. Animals such as oxen and horses revolutionized agriculture by providing draft power, while ruminants helped recycle nutrients through manure application, improving soil fertility and crop yields (Diamond, 2017). In modern times, livestock contributes about 40% of global agricultural output, supplies a third of global protein consumption, and provides employment for nearly 1.3 billion people worldwide (FAO, 2019).

Globally, the demand for livestock products has been rising steadily due to population growth, urbanization, and changing dietary preferences. Delgado et al. (2019) described this phenomenon as the "Livestock Revolution," characterized by

rapid increases in demand for meat, milk, and eggs, particularly in developing countries. This trend has encouraged intensive livestock production systems, driven by improvements in animal genetics, feed formulation, veterinary care, and commercial value chains. For example, poultry and dairy industries have experienced exponential growth due to their relatively short production cycles and responsiveness to market demand. Despite these opportunities, livestock production faces major global challenges. Climate change, land degradation, and water scarcity are reducing the availability of grazing lands and feed resources (IPCC, 2019). Additionally, concerns about greenhouse gas emissions from ruminants, animal welfare, and antimicrobial resistance have placed livestock production at the center of debates on sustainability (Steinfeld et al., 2016). Nevertheless, livestock remains indispensable to global food systems, especially in regions where plant-based agriculture is constrained by harsh climatic or ecological conditions.

In Africa, livestock production is a cornerstone of rural livelihoods and food security. Approximately 60% of rural households keep livestock, and the sector contributes about 35% of agricultural GDP in sub-Saharan Africa (World Bank, 2019). Livestock provides income, draft power, manure, and a diverse range of food products. In many African cultures, cattle, goats, and sheep also hold symbolic importance, representing wealth, dowry, and social identity (Aklilu, 2018). However, livestock productivity in Africa remains low compared to global standards due to constraints such as poor animal genetics, inadequate feed resources, high prevalence of diseases (trypanosomiasis, foot-and-mouth disease, avian influenza), and weak veterinary services. Furthermore, recurrent droughts and conflicts over grazing lands frequently disrupt livestock production systems. Pastoralism, a dominant livestock production system in Africa, illustrates the dependence of households on mobility and access to grazing land. Pastoralists, who primarily rear cattle, camels, and goats, rely on seasonal migration to exploit variable pasture and water resources. However, population growth, expansion of farmlands, and insecurity have increasingly constrained pastoral mobility, leading to farmer-herder conflicts in many African countries, including Nigeria (Blench, 2015).

In Nigeria, livestock production is a vital part of agriculture, contributing about 7–8% of GDP and employing millions of households (NBS, 2021). The country has diverse livestock species, including cattle, goats, sheep, pigs, and poultry. Nigeria is

home to one of the largest livestock populations in Africa, with estimates of over 20 million cattle, 40 million goats, 30 million sheep, and 180 million poultry birds (FAO, 2019). Livestock provides meat, milk, eggs, hides, and skins, while also serving as an economic safety net for rural households. Poultry and small ruminants, in particular, are critical for women and low-income families, as they require relatively lower capital investment and generate quick returns (Akinola & Akinyele, 2019). Despite its importance, livestock production in Nigeria is constrained by several challenges. Inadequate feed resources, poor veterinary infrastructure, low adoption of improved breeds, and high disease burden have kept productivity below potential. Livestock diseases such as Newcastle disease in poultry, peste des petits ruminants (PPR) in goats and sheep, and contagious bovine pleuropneumonia in cattle frequently cause devastating losses (Adedeji, 2018). Moreover, weak value chains, poor cold storage facilities, and underdeveloped processing industries limit the profitability of livestock enterprises.

A particularly critical issue in Nigeria is insecurity, which has severely disrupted livestock production. The spread of armed banditry, kidnapping, cattle rustling, and farmer-herder conflicts in northern Nigeria has made livestock rearing increasingly risky. Cattle rustling has led to massive financial losses, displacement of pastoralists, and heightened communal violence (Awogbade, 2020). Furthermore, Boko Haram insurgency in the northeast has displaced pastoral communities, disrupted transhumance routes, and limited access to grazing lands. Consequently, livestock markets have been destabilized, affecting both producers and consumers. Kaduna State, located in northwestern Nigeria, is a key livestock-producing region. The state's diverse agro-ecological zones support cattle, goats, sheep, and poultry production. The rural populations in Giwa, Birnin Gwari, and Igabi Local Government Areas are heavily engaged in both small- and large-scale livestock rearing. Livestock provides income, manure for crops, and food for households in these LGAs, while also contributing to regional markets. Cattle and goats are particularly important for household economies, while poultry serves as a quick source of cash and nutrition.

However, insecurity has emerged as a major barrier to sustainable livestock production in these areas. Birnin Gwari and Giwa LGAs have become hotspots for armed banditry and cattle rustling, forcing many livestock keepers to abandon their

herds or sell them at distress prices. Kidnappings and attacks have reduced farmers' willingness to invest in livestock ventures, while frequent conflicts between herders and farmers in Igabi LGA have destroyed trust and reduced cooperation among communities (Okoli & Atelhe, 2014). Moreover, insecurity disrupts access to grazing lands and water points, constrains seasonal livestock movements, and discourages veterinary service delivery. As a result, livestock mortality rates have increased, market supplies have dwindled, and household incomes have declined. Within the context of this study, livestock production in Giwa, Birnin Gwari, and Igabi LGAs is not merely an economic activity but a lifeline for rural households. It provides critical animal-source foods, supplements household nutrition, and serves as a buffer against economic shocks. However, insecurity has undermined this role, exacerbating food insecurity and poverty in Kaduna State. Therefore, understanding the impact of insecurity on livestock production in these areas is vital for designing appropriate policy responses and interventions

Empirical Review

Agriculture remains the backbone of Nigeria's economy, accounting for both livelihoods and food security. Yet, in recent years, insecurity has emerged as one of the most pressing threats to agricultural productivity and sustainability. Studies conducted between 2023 and 2025 have increasingly sought to measure the depth and patterns of this impact across crop production, livestock production, and food availability. While institutional reports and policy briefs have highlighted the immediate consequences of banditry, communal conflict, and insurgency, more recent peer-reviewed research has added rigor by quantifying crop yield declines, herd size reductions, and market disruptions. This section reviews the growing body of empirical evidence, with a particular focus on crop production, livestock production, and food availability, before identifying the major gaps in literature that still constrain a full understanding of the phenomenon.

Insecurity and Food Availability

The consequences of insecurity on food availability have also been well documented. Lawal (2023), using a supply-chain modeling approach, showed that insecurity in northern production zones raised transport costs by more than 25 percent, reduced market supply by 15 percent, and increased median staple prices in urban markets by 12 percent. This

study illustrates how insecurity in rural production areas translates into availability challenges across broader market networks. Household-level studies echo these findings. Ogunlana, Adeyemi, and Uwazie (2024) found that displaced households in Benue and Kaduna States experienced a 30 percent increase in the number of months with inadequate food due to lost harvests and disrupted access to local markets. Emmanuel and Yusuf (2025) extended this analysis by examining the interaction between insecurity and inflation. They found that in areas with frequent attacks, households experienced a 10 to 15 percentage point rise in the share of income spent on food, compared to households in stable areas. This suggests that insecurity not only reduces availability but also intensifies affordability crises.

At a national level, FAO and WFP (2024) identified Nigeria as one of the countries at risk of worsening acute food insecurity in 2024–2025, pointing to violence and displacement as primary drivers. FEWS NET (2024) similarly reported that harvest reductions in insecure areas created tighter market supplies and rising prices in urban centers, a trend confirmed by Reuters (2024) and the Financial Times (2024). The USDA (2024) also noted that insecurity-related production shortfalls contributed to national declines in maize and sorghum availability. These institutional reports converge with academic evidence, underscoring the profound effect of insecurity on both local and national food availability. The situation is particularly concerning in regions like Giwa, Birnin Gwari, and Igabi LGAs in Kaduna State, which serve as key agricultural producers. In these areas, insecurity has not only displaced farmers but also cut off supply routes, reducing the flow of staple crops into Kaduna metropolis and neighboring markets. As insecurity persists, both rural and urban households are caught in a vicious cycle of reduced availability, higher prices, and deepening food insecurity.

Insecurity and Livestock Production

Livestock production has been equally, if not more, vulnerable to insecurity in Nigeria. Several recent studies demonstrate that livestock systems are undermined by cattle rustling, disruptions in pastoral mobility, and the collapse of veterinary and market systems. Ahmed and Bello (2023) studied pastoralist households in Kebbi and Zamfara States, finding that cattle rustling events resulted in an average loss of 40 percent of herd size per affected household, alongside an 80 percent reduction in livestock market sales. These findings underscore the dual impact of rustling not only

depleting physical livestock assets but also eroding the ability of households to generate income from sales. Similarly, Iyela, Umar, and Sadiq (2023) reported that livestock rustling in Katsina State significantly reduced household welfare indicators, including food consumption and access to education for children. The Global Initiative Against Transnational Organized Crime (2023, 2024) documented how rustling has become more violent and organized, with stolen animals funneled into illicit supply chains that weaken formal livestock markets. These reports highlighted that pastoral communities are often left without mechanisms for asset recovery, compounding their vulnerability. Fadare, Adepoju, and Musa (2024) added that pastoral households increasingly resorted to distress sales of animals at below-market prices, a strategy that offered short-term liquidity but undermined long-term herd rebuilding. In response, some households shifted toward goats and sheep, as observed by Nnaji, Okechukwu, and Ayodele (2024). However, these shifts yielded only 30 to 50 percent of pre-loss revenues, highlighting the inadequacy of diversification as a coping strategy.

Other studies have focused on the effectiveness of interventions aimed at livestock recovery. Isah, Umar, and Danjuma (2025) compared restitution programs across Katsina State, showing that restocking schemes combined with veterinary outreach facilitated herd recovery two to three times faster than financial compensation alone. Their findings suggest that recovery requires integrated approaches that combine asset restoration with animal health services. However, insecurity continues to constrain access to veterinary services, as aid providers are often reluctant to operate in high-risk zones. The erosion of livestock production is not limited to direct herd losses. Insecure environments disrupt pastoral mobility, particularly seasonal transhumance routes, thereby reducing grazing opportunities and contributing to land-use conflicts. Humanitarian assessments (OCHA, 2023, 2024) emphasized that pastoralists displaced by violence often struggle to reestablish herds in new environments, further deepening livelihood loss. In sum, livestock production has suffered from direct asset depletion, distorted markets, reduced income diversification, and weakened recovery mechanisms, all driven by pervasive insecurity.

Gaps in the Literature

Despite the growing body of empirical studies, several important gaps remain. First, most existing studies are cross-sectional and provide only short-

term insights. There is limited longitudinal evidence that tracks households over time to capture both immediate shocks and long-term recovery processes. Second, many quantitative studies do not sufficiently disaggregate data by crop and livestock species, making it difficult to identify which agricultural sub-sectors are most affected by insecurity. Third, although some studies, such as Lawal (2023), examine food supply chains, few offer detailed analyses of how supply routes are restructured in response to insecurity. Fourth, there is limited evaluation of intervention effectiveness. Apart from studies like Isah et al. (2025), which highlight the benefits of combining restocking with veterinary services, little evidence exists on which interventions most effectively restore agricultural production in insecure settings. Finally, localized studies focusing on Giwa, Birnin Gwari, and Igabi LGAs are scarce, as most research is conducted at broader state or zonal levels. Addressing these gaps would provide more context-specific evidence to guide policymakers and humanitarian agencies in designing effective interventions.

Theoretical Framework

This study adopted the Human Needs Theory, particularly Maslow's Hierarchy of Needs, as the major theoretical framework for explaining the relationship between insecurity and food production in Giwa, Birnin Gwari, and Igabi Local Government Areas of Kaduna State. The theory argues that all human beings possess fundamental needs such as food, shelter, safety, identity, and recognition, which are essential for survival and social stability. Maslow (1943, 1954) classified these needs in a hierarchical order, beginning with physiological and safety needs, while Burton (1990, 1997) expanded the theory by emphasizing that unmet human needs are major causes of social conflict and instability. Max-Neef (1991) further explained that although human needs are universal, the methods of satisfying them vary across societies and cultures.

The theory emphasizes that human needs are universal, non-negotiable, and interdependent. Needs such as food and security cannot be permanently denied without generating frustration, conflict, and instability. In agrarian communities like Giwa, Birnin Gwari, and Igabi, farming serves not only as a source of food and income but also as a means of identity, livelihood, and social belonging. Consequently, insecurity in the form of armed banditry, kidnappings, and violent attacks disrupts farming activities, limits access to farmlands, destroys livelihoods, and weakens household food security. The theory therefore explains how

insecurity undermines both survival needs and broader socio-economic development within rural communities.

The framework is highly relevant to this study because it provides a clear explanation of how threats to safety and survival directly affect agricultural productivity and food availability. Persistent insecurity prevents farmers and pastoralists from meeting their basic needs, forcing many households into poverty, displacement, hunger, and social vulnerability. Although Human Needs Theory has been criticized for overgeneralization, difficulty in measuring needs, and its largely normative nature, it remains useful for understanding the connection between insecurity, conflict, and food production. The theory therefore provides a strong conceptual foundation for examining how insecurity affects crop production, livestock production, and food availability in the study areas.

The hierarchical and interdependent nature of needs is also relevant to understanding how insecurity affects farming communities in Kaduna State. According to Maslow's hierarchy (1943), physiological and security needs form the foundation upon which all other needs rest. In Giwa, Birnin Gwari, and Igabi, insecurity not only denies people the ability to meet their physiological need for food but also erodes the sense of safety required to engage in farming activities. Farmers cannot plant or harvest if they fear attacks on their way to the farm, and this insecurity simultaneously undermines their livelihood, identity, and social cohesion. Farming in these local governments is not only a source of food but also a cultural practice and a means of recognition within the community. Its disruption therefore represents a multidimensional deprivation that extends beyond hunger to include loss of dignity and community belonging. Human Need Theory provides a structured way of understanding this interconnectedness of deprivation.

Moreover, the theory's emphasis on the relationship between unmet needs and conflict (Burton, 1997) helps explain the cycle of violence in these LGAs. When insecurity prevents farmers from accessing their land and producing food, frustration and grievances build up, often escalating into clashes between communities, protests against authorities, or even retaliation against perceived aggressors. In Giwa and Birnin Gwari, for instance, violent confrontations between farmers and armed groups have been reported, reflecting how unmet needs for survival and livelihood can drive communities into

further conflict. Unless the root causes of unmet needs especially food security and safety are addressed, Human Need Theory suggests that insecurity will continue to reproduce itself in these areas, undermining both agricultural productivity and broader social stability.

Finally, the idea of cultural variation in satisfiers (Max-Neef, 1991) highlights why insecurity has such a devastating impact in Giwa, Birnin Gwari, and Igabi. While all humans require food for survival, the satisfier of this need in these LGAs is overwhelmingly tied to farming. Unlike urban areas where food may be accessed through markets and wage employment, in these agrarian societies' food is both produced and consumed locally. Disruption of farming therefore affects not just household consumption but also the social and economic fabric of the community. When farmlands are abandoned due to insecurity, households lose their main source of subsistence, income, and cultural continuity. This explains why displacement caused by banditry and violent attacks has such long-lasting consequences for food security and rural development in Kaduna State. Human Need Theory helps frame this reality by showing that insecurity does not merely cause short-term shortages but destabilizes the very system of satisfiers through which needs are met.

Insecurity and Food Availability in the Study Area

Food availability at both household and community levels has deteriorated significantly due to the combined effects of reduced agricultural production and market disruptions. Attacks on rural markets, transport routes, and trading centers have discouraged traders from sourcing and transporting foodstuffs, leading to shortages and price volatility in local markets. Insecure conditions raise the cost of moving goods, forcing traders to divert to longer, safer routes or to reduce the frequency and volume of their operations. As a result, even when food is produced locally, insecurity prevents it from reaching markets efficiently, undermining both physical availability and economic access (WFP, 2024).

In Birnin-Gwari, where insecurity is most acute, households increasingly depend on food inflows from other LGAs and neighboring states, often at significantly higher prices due to transport risks and scarcity. In Giwa, frequent disruptions to weekly markets have reduced both the quantity and diversity of foodstuffs available for purchase, forcing households to rely on smaller, irregular market days or informal exchanges that offer limited choice. In Igabi, proximity to urban markets such as

Kaduna metropolis provides some physical availability of food, but rising prices driven by insecurity-related costs and reduced rural incomes—limit economic access for many households. Seasonal staples that once circulated widely are now subject to supply shortages and pronounced price spikes, creating food stress especially among net-buyer households whose purchasing power has been weakened by loss of farm income and employment opportunities.

Faced with these constraints, households adopt coping strategies that reduce the quantity and diversity of diets. Reducing meal frequency, relying more heavily on starchy staples, consuming less nutritious foods, and prioritizing children's intake at the expense of adults are common responses to food stress. While such strategies may mitigate immediate hunger, they increase the risk of malnutrition and long-term health deficits, particularly among vulnerable groups such as children, pregnant women, and the elderly (FAO, 2023; Adamu, 2022). Thus, insecurity affects food systems not only through the decline of production but also through market fragmentation and erosion of household purchasing power.

Insecurity and Livestock Production in the Study Area

Livestock production, a critical component of rural livelihoods and household food security, has been severely disrupted by insecurity in Giwa, Birnin-Gwari, and Igabi LGAs. Cattle rustling and violent raids are widespread, particularly in Giwa and Birnin-Gwari, resulting in significant loss of animals that serve as both food and financial assets. Such losses undermine household income, weaken resilience, and reduce the availability of protein from meat and dairy (Ibrahim, 2020; Mikail, Musa, & Usman, 2025). Traditional grazing routes and transhumance patterns have been altered or abandoned due to fear of attacks. Pastoralists are now confined to smaller grazing areas, which increases pressure on available pasture, heightens farmer–herder conflicts, and contributes to declining livestock health (Sadiq, 2025; Ayinoko, Bello, & Ibrahim, 2025). Many households are forced to sell animals prematurely at low prices to avoid total loss, reducing long-term economic security and limiting their capacity to reinvest in productive activities.

Insecurity also limits access to veterinary services and market opportunities. Veterinary officers often avoid high-risk rural areas, leading to higher animal mortality, lower productivity, and increased disease

outbreaks (Ojewale, 2024). Irregular livestock markets and disrupted trade networks reduce incomes for pastoralists and traders, further undermining household food security. Overall, the livestock sector, once a reliable source of nutrition,

income, and social capital, has become precarious in these LGAs, illustrating the broad socio-economic consequences of insecurity on rural food systems.

Table 1: Responses on Food Availability

Item Statements	SD (%)	D (%)	N (%)	A (%)	SA (%)	Mean	Std. Dev.
Food prices in local markets have increased	12 (3.1)	18 (4.7)	45 (11.8)	141 (36.9)	166 (43.5)	4.27	0.71
The availability of food in my community has reduced	14 (3.7)	24 (6.3)	52 (13.6)	138 (36.1)	154 (40.3)	4.15	0.79
Many households in my area now eat fewer meals per day	20 (5.2)	28 (7.3)	56 (14.7)	137 (35.9)	141 (37.0)	3.98	0.86
There is less variety of food available in the markets compared to before	16 (4.2)	30 (7.9)	54 (14.1)	139 (36.4)	143 (37.4)	4.11	0.83
The long-term sustainability of food production in this area has been threatened	13 (3.4)	22 (5.8)	48 (12.6)	142 (37.2)	157 (41.1)	4.20	0.76
Composite Mean	—	—	—	—	—	4.14	—

Source: Field Survey, 2025

The results in Table 1 reveal that respondents strongly perceive insecurity as having undermined food availability in their communities. The composite mean of 4.14 suggests widespread agreement that food insecurity has deepened as a result of the prevailing crises. The first item shows that 80.4 percent of respondents agreed that food prices in local markets have increased. This aligns with the broader economic reality that insecurity disrupts agricultural supply chains, forcing shortages that drive up food prices. This is a double blow to households, who not only produce less but also must spend more to access food. On the second item, 76.4 percent agreed that the availability of food in their communities has reduced. This outcome is expected given the earlier finding that many farmlands have been abandoned. Reduced cultivation naturally translates into lower availability of staple crops such as maize, millet, sorghum, and rice.

The third statement reveals that 72.9 percent of respondents agreed that many households now eat fewer meals per day. This finding provides critical insight into how food insecurity manifests at the household level. Eating fewer meals indicates that households are rationing food as a coping mechanism. In the long run, this can lead to malnutrition, weakened immunity, and poor educational outcomes for children. Similarly, 73.8 percent of respondents agreed that there is less variety of food available in markets compared to before. Insecurity affects not only the quantity but also the diversity of food, as certain crops or perishable items no longer reach the markets due

to unsafe roads and raids on traders. The loss of variety diminishes dietary quality, forcing families to rely on monotonous staples, which further threatens nutritional security.

Finally, 78.3 percent of respondents agreed that the long-term sustainability of food production in the study area is threatened. This is perhaps the most significant finding, as it highlights the enduring consequences of insecurity. Beyond immediate hunger, the persistence of conflict undermines the future of farming as a livelihood, discourages youth participation, and threatens intergenerational continuity in food production. From the perspective of Human Needs Theory, these findings reflect the systematic denial of physiological needs, the most basic tier in the hierarchy of needs. Access to adequate food is foundational for survival, and when this is compromised, all other higher-order needs safety, esteem, belonging, and self-actualization are inevitably affected. Insecurity therefore does not only create immediate hunger but also perpetuates poverty, hopelessness, and frustration among affected communities. The inability to secure stable and diverse food sources pushes households into survival mode, where aspirations beyond basic existence become unattainable.

The results thus affirm that addressing insecurity is a prerequisite for ensuring food availability and safeguarding human dignity in Kaduna State. Without peace and security, the goal of food sustainability will remain elusive, leaving households trapped at the lowest levels of unmet

needs, this will cause access to veterinary services, and discouragement of investment in livestock production.

Table 2: Responses on Livestock Production

Item Statements	SD f (%)	D f (%)	N f (%)	A f (%)	SA f (%)	Mean	Std. Dev.
I lost livestock	14 (3.7)	22 (5.8)	50 (13.1)	144 (37.7)	152 (39.7)	4.19	0.72
I was prevented from free grazing or livestock movement	16 (4.2)	28 (7.3)	47 (12.3)	141 (36.9)	150 (39.3)	4.05	0.80
Livestock markets are often disrupted	15 (3.9)	26 (6.8)	46 (12.0)	142 (37.2)	153 (40.1)	4.14	0.75
Access to veterinary services has been reduced dramatically	18 (4.7)	32 (8.4)	54 (14.1)	138 (36.1)	140 (36.7)	3.97	0.88
Farmers were discouraged from investing in livestock production	17 (4.4)	24 (6.3)	52 (13.6)	139 (36.4)	150 (39.3)	4.10	0.81
Composite Mean	—	—	—	—	—	4.09	—

Source: *Field Survey, 2025*

The results in Table 2 show that insecurity has had a significant negative effect on livestock production in the study areas, as reflected in the high composite mean of 4.09. This indicates that respondents largely agree that insecurity disrupts all aspects of livestock production, from rearing and grazing to marketing and access to veterinary services. On the first item, 77.4 percent of respondents reported that they had lost livestock due to insecurity. Loss of animals often occurs during violent raids, cattle rustling, or when households are displaced from their settlements. Such losses directly diminish household wealth, given that livestock are a critical store of value, source of protein, and means of income. The magnitude of these losses not only affects individual households but also the wider economy, as livestock contributes significantly to Kaduna State's agricultural GDP.

On the second statement, 76.2 percent of respondents agreed that they were prevented from free grazing or livestock movement. This is particularly significant in areas such as Giwa and Birnin Gwari, where pastoralism is central to livelihoods. Restricted movement limits access to pasture and water, leading to reduced animal health and productivity. The prohibition of free grazing in some zones, coupled with insecurity on grazing routes, creates further tension between farmers and herders, exacerbating food insecurity in the region. The third item shows that 77.3 percent of respondents acknowledged that livestock markets are often disrupted by insecurity. This finding

highlights the fragility of rural economies that depend heavily on periodic markets for exchange. When markets are attacked or shut down due to fear of violence, pastoralists lose their income sources, consumers lose access to affordable protein, and the flow of goods between rural and urban centers is interrupted.

Similarly, 72.8 percent of respondents agreed that access to veterinary services has been reduced. Insecurity discourages veterinarians from visiting volatile communities, leading to a decline in the quality of animal healthcare. This increases livestock mortality and reduces productivity, further discouraging investment in the sector. The final item confirms this discouragement, with 75.7 percent agreeing that insecurity has made farmers unwilling to invest in livestock production, given the high risks involved. From the standpoint of Human Needs Theory, these findings underscore the central role of livestock in meeting physiological and safety needs. Livestock provides food (milk, meat), income, and serves as a form of security against shocks. When insecurity erodes these functions through theft, restricted movement, and disrupted markets, households are deprived of the means to meet their most basic needs. Beyond survival, livestock ownership is also tied to esteem and identity in many rural communities, conferring status and recognition. By undermining livestock production, insecurity strips households of dignity, social standing, and long-term aspirations.

Overall, the findings indicate that insecurity in Kaduna State not only threatens crop production but also livestock-based livelihoods, compounding the challenges of hunger, poverty, and social

instability. The persistence of these problems validates the assumptions of Human Needs Theory, which stresses that unmet basic needs generate frustration and further insecurity.

Table 3: Responses on Insecurity

Item Statements	SD (%)	f	D f (%)	N (%)	f	A f (%)	SA f (%)	Mean	Std. Dev.
Insecurity has forced me or others to abandon farmland	12 (3.1)	20	20 (5.2)	45 (11.8)	150	39.3	155 (40.6)	4.09	0.83
Banditry and kidnapping have reduced farming activities in my area	14 (3.7)	24	24 (6.3)	48 (12.6)	143	37.4	153 (40.1)	4.04	0.87
Livestock markets are often disrupted by insecurity	16 (4.2)	21	21 (5.5)	51 (13.4)	145	38.0	149 (39.0)	4.02	0.85
Security agencies provide adequate protection for farmers	120 (31.4)	135	135 (35.3)	50 (13.1)	47	12.3	30 (7.9)	2.30	1.12
I feel unsafe going to my farm or grazing areas	10 (2.6)	19	19 (5.0)	41 (10.7)	146	38.2	166 (43.5)	4.15	0.81
Composite Mean	—	—	—	—	—	—	—	3.72	—

Source: *Field Survey, 2025*

The results presented in Table 3 indicate that insecurity has had an overwhelming effect on agricultural productivity and rural livelihoods in the study areas. The high composite mean score of 3.72 suggests that respondents largely perceive insecurity as a major impediment to farming, livestock marketing, and overall safety within their communities. The first item shows that 79.9 percent of respondents agreed that insecurity has forced them or others to abandon farmland. This is a critical finding because land is the primary asset for most rural households. Abandoning farmlands due to fear of attacks or abductions directly undermines food security, reduces household income, and increases poverty levels. In areas like Birnin Gwari, entire communities have been displaced, and vast tracts of farmland have been left uncultivated for several years. This not only lowers individual household production but also reduces aggregate agricultural output, thereby affecting food supply in local and urban markets.

The second item reinforces this reality, with 77.5 percent of respondents agreeing that banditry and kidnapping have reduced farming activities. Bandits frequently target farmers on their way to the fields or during harvest seasons, extorting ransom, stealing crops, or forcing households to abandon agriculture altogether. This aligns with findings from empirical studies (Okoli & Ugwu, 2019; Abubakar,

2020), which reveal that insecurity is among the leading causes of declining agricultural productivity in northern Nigeria. The fear of abduction or violent attacks has thus reshaped rural livelihoods, discouraging farming and increasing reliance on humanitarian aid. Similarly, 77 percent of respondents agreed that livestock markets are often disrupted by insecurity. These disruptions have profound economic consequences because livestock markets serve as hubs for trade and income for farmers, pastoralists, and traders. Market closures or disruptions reduce household earnings, increase food prices, and discourage reinvestment in agriculture. The implication is that insecurity extends beyond individual households, weakening entire value chains and local economies.

On the fourth item, however, responses were strikingly different. A majority of respondents (66.7 percent) disagreed that security agencies provide adequate protection for farmers, reflected in the low mean score of 2.30. This lack of trust in security agencies suggests that government interventions are perceived as weak, sporadic, and largely ineffective. In many cases, security personnel are either absent in rural areas or arrive only after attacks have occurred. The absence of preventive security measures leaves farmers vulnerable and reinforces feelings of abandonment by the state.

The final item shows that 81.7 percent of respondents feel unsafe going to their farms or grazing areas. This is perhaps the clearest indicator of the severity of insecurity. When rural households lose the confidence to access their farms the foundation of their livelihoods, the ripple effects are devastating. Reduced farming activity leads to food shortages, higher market prices, and increased poverty levels. This outcome directly threatens the sustainability of rural communities and exacerbates internal displacement.

From the standpoint of Human Needs Theory, these findings highlight that insecurity fundamentally disrupts the fulfillment of basic physiological and safety needs. Food production, an essential physiological need is curtailed when farmers abandon land or reduce agricultural activity. Safety, another core need, is undermined when individuals feel threatened by banditry, kidnapping, and violence. Without safety, rural households cannot pursue higher-level needs such as social belonging, esteem, or self-actualization. Instead, they remain trapped in cycles of fear, vulnerability, and deprivation. The low trust in security agencies further reflects a breakdown in

institutional support systems. According to Human Needs Theory, unmet needs produce frustration, alienation, and conflict. In this case, the inability of the state to provide protection contributes to widespread resentment and loss of faith in government structures. This situation not only hampers agricultural production but also undermines long-term peace and stability in Kaduna State.

Test of Hypotheses I, and II

In this section, the two hypotheses formulated were tested using simple linear regression analysis. The regression analysis examines the effect of insecurity (independent variable) on each of the dependent variables: food availability, and livestock production. The analysis was conducted using SPSS software, and the results are presented in standard SPSS output format with detailed interpretation.

Hypothesis one

H₀1: Insecurity has no significant effect on food availability in selected LGAs of Kaduna State.

Table 4 Model Summary

Model Summary

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate
1	.642a	.412	.410		.315

a. Predictors: (Constant), Insecurity
(SPSS v25 Output)

Table 5 ANOVA

ANOVA^a

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression:	43.124	1	43.124	298.440	.000b
Residual	61.396	425	.144		
Total	104,520	426			

a. Dependent Variable: Food Availability

b. Predictors: (Constant), Insecurity

(SPSS v25 Output)

Table 6 Coefficients

Coefficients

Model	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
1 (Constant)	4.193	.092		45.57	.000
Insecurity	-0.537	.031	-.642	-17.28	.000

Dependent Variable: Food Availability

(SPSS v25 Output)

The results in Table 4 show that insecurity has a strong effect on food availability, with a correlation coefficient of $R = 0.642$. The R^2 of 0.412 means that insecurity explains 41.2% of the variation in food availability across the three LGAs. This suggests that insecurity is not only a determinant of production but also a fundamental driver of food shortages and reduced access to food. The ANOVA test indicates that the regression model is statistically significant ($F(1,425) = 298.440$, $p < 0.001$). This demonstrates that the relationship between insecurity and food availability is robust and not attributable to random variation.

The coefficient of -0.537 ($t = -17.28$, $p < 0.001$) suggests that higher levels of insecurity significantly reduce food availability. Insecurity leads to higher food prices, reduced variety in local markets, fewer household meals per day, and long-term threats to food sustainability. Theoretically, Human Needs Theory explains this by asserting that food is a basic

physiological need, and insecurity undermines the ability of households to fulfill this most basic requirement. If people are displaced or prevented from farming, food becomes scarce, and the survival of communities is threatened.

Empirical studies support these findings. For instance, Audu (2019) found that insurgency in northeastern Nigeria directly led to higher food prices and scarcity, while Okeke (2020) observed that frequent attacks in rural Kaduna caused a decline in market food supplies and reduced meal frequency among households.

Therefore, H_02 is rejected. Insecurity significantly and negatively affects food availability in Kaduna State.

Hypothesis Two

H_02 : Insecurity has no significant effect on livestock production in selected LGAs of Kaduna State.

Table 7 Model Summary

Model Summary

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate
1	.658a	.433	.431		.308

a. Predictors: (Constant), Insecurity
(SPSS v25 Output)

Table 8 ANOVA
ANOVA^a

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression:	44.204	1	44.204	322.111	.000b
Residual	58.696	425	.138		
Total	102,900	426			

a. Dependent Variable: Livestock Production
b. Predictors: (Constant), Insecurity

(SPSS v25 Output)

Table 9 Coefficients
Coefficients

Model	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
1 (Constant)	4.210	.090		46.78	.000
Insecurity	-0.549	.031	-.658	-17.94	.000

Dependent Variable: Livestock Production

(SPSS v25 Output)

The regression output shows that insecurity strongly predicts livestock production outcomes ($R = 0.658$, $R^2 = 0.433$). This means that 43.3% of the variation in livestock production in Kaduna State

can be explained by insecurity alone. The ANOVA result shows that the model is statistically significant ($F(1,425) = 322.111$, $p < 0.001$), confirming that the relationship between insecurity and livestock

production is not by chance. The coefficient ($B = -0.549$, $t = -17.94$, $p < 0.001$) indicates that insecurity significantly reduces livestock production. This reflects realities such as cattle rustling, blocked grazing routes, and disruptions to livestock markets that have become frequent in Kaduna. These issues discourage farmers from investing in animal husbandry and reduce overall protein supply. In line with Human Needs Theory, livestock provides not only food (milk, meat, eggs) but also economic stability through sales and cultural significance. Insecurity erodes this foundation, leaving households unable to meet both their basic nutritional needs and their financial obligations. These results align with the findings of Nwagboso (2016), who observed that herder–farmer conflicts reduced livestock supply chains in northern Nigeria, and Adelaja & George (2019), who linked cattle rustling in the Middle Belt to a systemic decline in rural livelihoods and food availability.

Thus, H_02 is rejected. Insecurity has a significant and negative effect on livestock production in the study area.

Decision on Hypotheses

Based on the regression results, the three null hypotheses stated in Chapter One are rejected:

Ho1: Insecurity has no significant effect on food availability in selected LGAs of Kaduna State → Rejected.

Ho2: Insecurity has no significant effect on livestock production in selected LGAs of Kaduna State → Rejected.

Thus, the study provides strong quantitative evidence that insecurity exerts a significant and multidimensional effect on food production in Giwa, Birnin Gwari and Igabi LGAs of Kaduna State.

Thematic Presentation of Data

The qualitative findings from interviews and focus group discussions (FGDs) are presented under the three major constructs of the study: crop yield/production, food availability, and livestock production. The responses below are entirely direct quotes from participants, including farmers, pastoralists, community leaders, and agricultural/security officers, representing all three Local Government Areas (LGAs)..

Theme 1: Insecurity and Food Availability

Insecurity also emerged as a major factor disrupting food availability and market dynamics. Interview data indicated that attacks on rural markets and transport routes restrict the flow of produce from

farms to consumers. A community leader in Igabi explained, *“Before, you could get yams, beans, and maize in the market at normal prices. Now, food is scarce and very expensive. Even if you have money, you may not find enough because farmers cannot bring their produce out.”* A security officer in Birnin Gwari added, *“We escort traders along highways, but attacks still happen. This discourages farmers from selling, creating shortages and price hikes.”* A farmer in Giwa commented, *“Transporting food to markets is dangerous. Many farmers keep their produce at home, which reduces market supply.”*

FGD participants highlighted how these disruptions limit food access and affordability. In Giwa, discussants remarked, *“Many of us keep food at home rather than take it to the market. We cannot risk kidnapping or robbery, but this means food doesn’t reach buyers.”* In Igabi, participants noted that even households with cash cannot rely on markets: *“Even with money, you cannot always buy what you need. Markets are unpredictable because insecurity scares traders away.”* In Birnin Gwari, discussants reported that fear of attacks has reduced market days and participation: *“Some markets operate only a few days per week due to fear of attacks, leading to food shortages.”* These qualitative results complement quantitative and country-level analyses showing that insecurity drives food scarcity and price volatility by disrupting food systems (Gbamwuan, 2022; Turk & Thomas, 2023). According to Human Needs Theory, when access to sufficient food is compromised, individuals are unable to satisfy core physiological needs, contributing to food insecurity and social stress.

Theme 2: Insecurity and Livestock Production

Livestock production, a critical source of food and income for rural households, was similarly undermined by insecurity. Pastoralists described severe constraints on animal movement, frequent theft, and declining services. In Birnin Gwari, a pastoralist stated, *“We used to move our cattle freely from one grazing point to another. Now, bandits steal our cows, and resisting can cost lives. Many have sold animals because we cannot protect them.”* An agricultural officer in Giwa observed that livestock markets have contracted or closed due to insecurity and that veterinarians now avoid insecure areas. A pastoralist in Igabi noted, *“Some pastoralists have reduced herd sizes drastically. They fear rustling and often sell at low prices just to keep themselves safe.”*

Insights from FGDs were consistent. In Igabi, pastoralist discussants said, *"We avoid traditional grazing routes because attacks are common. This has forced us to reduce herd size and sell some animals cheaply."* In Birnin Gwari, participants explained the economic consequences: *"Cattle rustling has destroyed our income. Some households depend entirely on livestock, so losing animals means losing food and money for the family."* In Giwa, pastoralists described altering grazing practices: *"Pastoralists now graze close to villages instead of moving freely. Bandit attacks make normal livestock rearing impossible."*

These findings reflect broader research on the negative impact of insecurity on pastoral systems, which reduces animal productivity and undermines food security (Gbamwuan, 2022). Human Needs Theory underscores that when safety and physiological needs such as food and income are threatened, households are forced into coping strategies that erode long-term livelihoods and food access

Discussion of Findings

The findings of this study provide compelling evidence that insecurity exerts a profound negative influence on food production in Giwa, Birnin Gwari, and Igabi Local Government Areas of Kaduna State. Both quantitative and qualitative analyses indicate that insecurity has multidimensional effects on crop production, food availability, and livestock production. These results were supported by interviews with farmers, pastoralists, community leaders, and agricultural officers, as well as by focus group discussions, revealing the complex interactions between human security and agricultural productivity. The regression analysis showed that insecurity accounts for 47.6% of the variation in food production, a considerable proportion given the multiple socio-economic and environmental factors that typically affect agricultural outcomes. The model was statistically significant, confirming that insecurity is a key determinant of declines in food production. Qualitative evidence from interviews and focus groups corroborated these findings: farmers reported abandoning farmlands, markets were disrupted, and livestock were frequently stolen or sold under duress, highlighting the real-life mechanisms through which insecurity translates into reduced agricultural output.

Food Availability

The study found that insecurity significantly compromises food availability. Descriptive data showed that households face increased food

prices, reduced dietary diversity, and often consume fewer meals per day. Interviews with community leaders revealed that rural markets have collapsed because traders avoid unsafe roads, making local produce scarce and expensive. WFP (2021) highlights that conflict-induced supply chain disruptions are a primary driver of food shortages in Northern Nigeria, a finding reflected in the experiences of respondents in Giwa, Birnin Gwari, and Igabi. The disruptions affect both local and imported food, limiting access and affordability.

From a theoretical standpoint, insecurity undermines not only the physiological need for adequate nutrition but also the safety need for stable access to food. Households cannot plan or rely on markets when violence and road closures are common, leaving populations vulnerable to malnutrition and hunger. This aligns with previous empirical studies by Olaniyi et al. (2023), which reported that food availability in conflict-prone communities is reduced by up to 50%, resulting in increased household food insecurity.

Livestock Production

The livestock sector is similarly affected by insecurity. Descriptive and qualitative findings indicated widespread livestock losses through rustling, forced distress sales, and restricted grazing. Pastoralists reported losing entire herds or being forced to sell animals at below-market prices to avoid theft, while agricultural officers noted the near absence of veterinary services in high-risk areas. Ibrahim (2020) estimated that annual livestock losses in northwestern Nigeria due to insecurity exceed ₦20 billion, a situation mirrored in the study areas. These losses compromise not only the physiological need for meat and milk but also the safety need, as livestock represent a critical store of wealth and insurance against shocks.

The human dimension of these findings was evident in thematic analyses. Farmers described cultivating land as a "risk to life," pastoralists lamented the loss of generational herds, and community leaders emphasized the collapse of weekly markets, illustrating how insecurity disrupts traditional livelihood systems. The narratives echo Burton's (1990) argument within Human Needs Theory that unmet basic needs, particularly food and security, create persistent instability and social disruption.

Findings

The findings of this study indicate that insecurity is a central driver of the observed decline in food production in Giwa, Birnin Gwari, and Igabi Local Government Areas of Kaduna State. The

quantitative analysis demonstrated that insecurity alone accounts for 47.6% of the variation in food production, highlighting its dominant role amidst other socio-economic and environmental factors. This statistical significance was reinforced by qualitative evidence, which captured the lived realities of farmers, pastoralists, and community leaders.

In terms of food availability, insecurity has disrupted both the supply and accessibility of food in affected communities. Respondents noted that households face soaring prices, diminished dietary diversity, and fewer daily meals. Rural markets, once vibrant, have become irregular or ceased functioning altogether, as traders avoid traveling through high-risk areas. This has resulted in chronic shortages of both locally produced and imported food items, confirming findings from the World Food Programme (2021) that insecurity-driven disruptions in supply chains are a major cause of food shortages in Northern Nigeria. The reduction in food availability not only undermines physiological needs but also erodes the sense of safety and stability that families rely upon to secure adequate nutrition. As such, insecurity not only diminishes the quantity of food accessible but also destabilizes households' capacity to maintain consistent food access over time.

Livestock production, a critical component of both nutrition and economic security, has also been profoundly affected. The study revealed that livestock theft, forced distress sales, and restricted grazing movements have led to substantial losses in animal numbers. Pastoralists reported losing significant portions of their herds, while the near absence of veterinary services in insecure areas further weakened productivity. These results mirror findings by Ibrahim (2020), who estimated billions of naira in annual livestock losses due to insecurity in northwestern Nigeria. Livestock, which provide meat, milk, and serve as financial assets, are essential not only for meeting physiological needs but also for providing a buffer against economic shocks. The destruction or loss of these assets through insecurity therefore simultaneously threatens food security and household livelihoods.

Qualitative insights from interviews and focus group discussions added depth to these quantitative findings. Farmers described cultivating land as increasingly dangerous, pastoralists lamented the loss of generational herds, and community leaders noted the collapse of market systems, revealing how insecurity disrupts the very social and economic fabric of rural communities. Collectively,

these narratives demonstrate the human dimension of agricultural disruption, underscoring the erosion of hope, dignity, and resilience in affected populations.

Taken together, the study confirms that insecurity has multidimensional effects on the three key components of food production: crop yields, food availability, and livestock systems. The findings align closely with Human Needs Theory, showing that persistent insecurity directly frustrates fundamental physiological and safety needs, creating a cycle of hunger, poverty, and social instability. Consequently, any effort to improve food production in Kaduna State must be coupled with comprehensive measures to restore security, as agricultural interventions alone are insufficient in the absence of a safe and stable environment.

Summary

This study examined the effects of insecurity on crop production, food availability, and livestock production in Giwa, Birnin Gwari, and Igabi Local Government Areas of Kaduna State. The study was motivated by the increasing prevalence of banditry, kidnapping, cattle rustling, farmer–herder conflicts, and rural violence, which have significantly disrupted agricultural activities and threatened food security in the region. Anchored on the Human Needs Theory, the study emphasized that security and access to food are fundamental human needs necessary for survival, livelihood sustainability, and social stability.

The study adopted a mixed-methods research design involving both quantitative and qualitative approaches. Quantitative data were collected through structured questionnaires administered to 451 respondents, while qualitative data were obtained through focus group discussions and in-depth interviews with 15 stakeholders, including farmers, pastoralists, community leaders, and agricultural officers. Data were analyzed using descriptive statistics, simple linear regression analysis, and thematic qualitative analysis.

The findings revealed that insecurity has a statistically significant negative effect on crop production, food availability, and livestock production in the study areas. Regression analysis showed that insecurity accounted for 47.6% of the variation in food production. The study further revealed that insecurity has resulted in abandonment of farmlands, destruction of crops and livestock, restricted access to markets and grazing routes, rising food prices, and declining household incomes. Farmers reported fear of

attacks and reduced farming activities, while pastoralists experienced severe livestock losses due to cattle rustling and movement restrictions. The study established that insecurity disrupts agricultural production systems, weakens food supply chains, and increases rural poverty and hunger.

Conclusion

The study concludes that insecurity constitutes a major threat to agricultural productivity, food availability, and rural livelihoods in Giwa, Birnin Gwari, and Igabi Local Government Areas of Kaduna State. Persistent incidents of banditry, kidnapping, and violent conflicts have created unsafe conditions for farming and livestock production, thereby reducing crop yields, disrupting market systems, and weakening household food security.

The findings further demonstrate that insecurity affects not only agricultural output but also the socioeconomic well-being of rural households. Farmers and pastoralists are increasingly unable to meet their livelihood needs due to displacement, destruction of productive assets, restricted movement, and declining access to agricultural resources and services. Food shortages, rising food prices, and reduced dietary diversity have intensified poverty and vulnerability among affected communities.

From the perspective of the Human Needs Theory, the study establishes that the inability of rural households to achieve both physical safety and food security undermines sustainable development and social stability. The study therefore concludes that sustainable agricultural development and food security in Kaduna State cannot be achieved without addressing the root causes of rural insecurity and restoring peace and stability within farming communities.

Recommendations

Based on the findings of the study, the following recommendations are proposed:

1. Strengthening Rural Security Architecture

Government and security agencies should strengthen rural security arrangements through increased deployment of security personnel, establishment of community policing systems, and improved intelligence gathering mechanisms in conflict-prone communities. This will help protect farmers, pastoralists, farmlands, and agricultural infrastructure from violent attacks.

2. Restoration of Food Availability Systems

Efforts should be made to improve food availability through the establishment of secured transportation corridors for movement of agricultural produce and traders. Community grain reserves and local food banks should also be established to stabilize food supply during periods of insecurity and food shortages.

3. Provision of Agricultural Support Programmes

Government and development agencies should provide targeted support to affected farmers and pastoralists through the distribution of improved seeds, fertilizers, farm equipment, livestock inputs, and financial assistance. Agricultural extension services should also be strengthened to support productivity recovery in affected communities.

4. Rehabilitation of Rural Infrastructure

Damaged rural roads, markets, storage facilities, and veterinary clinics should be rehabilitated to facilitate agricultural production, food distribution, and livestock management. Improved infrastructure will enhance market access and reduce post-harvest losses.

5. Livestock Protection and Grazing Management

Livestock protection mechanisms such as community-led grazing patrols, cattle tracking systems, and secured grazing routes should be introduced to reduce cattle rustling and farmer–herder conflicts. Pasture development programmes should also be expanded to support sustainable livestock production.

6. Community-Based Conflict Resolution Mechanisms

Traditional rulers, community leaders, religious organizations, and local governments should promote dialogue, mediation, and peacebuilding initiatives aimed at reducing conflicts between farmers and pastoralists. Strengthening community conflict resolution systems will enhance peaceful coexistence and rural stability.

7. Food Price Stabilization and Household Support

Government should introduce food subsidy programmes and emergency relief interventions for vulnerable households affected by insecurity. This will help reduce hunger, improve household

nutrition, and strengthen resilience among rural populations.

8. Integrated Security and Agricultural Policies

The study recommends that agricultural development policies in Kaduna State should integrate security considerations into rural development planning. Sustainable food production and food security can only be achieved where peace, safety, and stability are guaranteed for farming communities.

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APPENDIX I



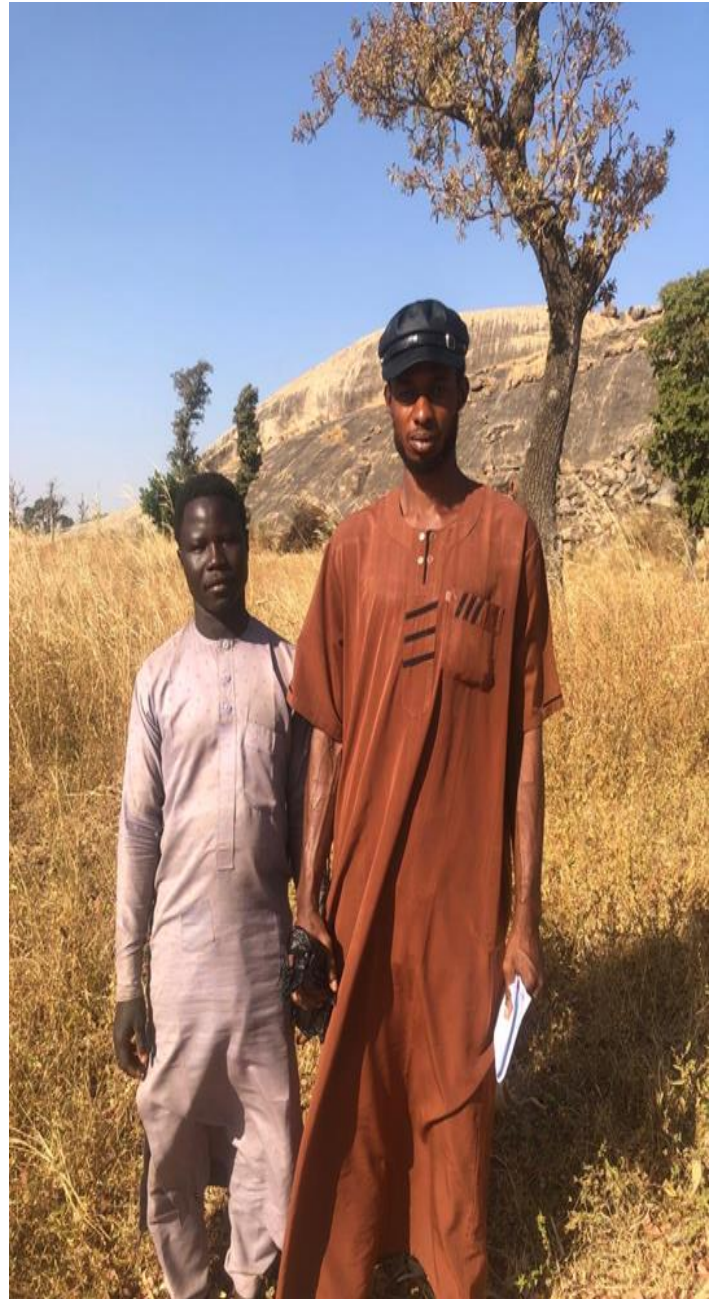
Giwa Grain Market



Some members of the focus group discussion in Giwa



Some Cattle rearrests from in Giwa



With Sarkin Turumkum (Alhaji Ibrahim Usman) Community Head