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Effects of Farmer-Herder Conflict on Food Security in Benue State, Nigeria

Amaa Becky Kpadoo[1], Nengak Danjuma Marcus[2], Ismail Zakari Ismail[3] & Abdullahi Yusuf Agwai[4]

[1,2&3]Department of Geography, Nasarawa State University, Keffi, Nasarawa State, Nigeria
[4]Department of Geography Federal University of Lafia Nasarawa State

***Corresponding Author**: Amaa Becky Kpadoo
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Abstract

This study assessed the effects of farmer-herder conflict on food security in Benue State, Nigeria, with emphasis on two objectives: examining the causes of farmer-herder conflict and assessing the effects of the conflict on food security. A cross-sectional survey design was adopted. Primary data were obtained mainly through questionnaires administered to farmers, herders and key personalities, and were complemented by focus group discussions and interviews. A multistage sampling procedure was used. Agatu, Gwer-West and Logo Local Government Areas were purposively selected because of their proneness to farmer-herder attacks, after which respondents were selected from relevant stakeholder lists using simple random sampling. The planned sample comprised 348 respondents (236 farmers, 60 herders and 52 key personalities), while 309 valid responses were used in the reported analysis. Questionnaires were administered in English and local languages where necessary. Data were analysed using descriptive statistics, including frequencies and percentages, and inferential statistics using a paired-sample t-test at the 0.05 significance level. The findings show that crop destruction by herders (91.6%), assumption of grazing rights without farmers' consent (91.8%), sedentarisation on farmland without permission (88.0%), hostility of herders to host communities (87.7%), cattle rustling (77.1%) and hostility of host communities to herders (73.5%) were prominent perceived causes of conflict. The conflict substantially undermined food security through reduced agricultural output (96.4%), disruption of the labour force (93.9%), uncertainty about the next meal or involuntary reduction in food intake (88.0%), relocation of farmland (87.1%) and farm-labour migration (79.3%). Mean crop-output indicators declined from 251.5 before the conflict to 145.9 during the conflict, and the paired-sample t-test ($t = 13.88$; critical value = 2.26; $p < .05$) indicated a statistically significant decline. The study concludes that recurrent farmer-herder conflict has weakened agricultural production and household food access in Benue State and recommends stronger land-use regulation, context-appropriate livestock production systems, and sustained peace-building mechanisms involving farmers, herders and government institutions.

Keywords: *farmer-herder conflict; food security; agricultural productivity; Benue State; Nigeria.*

1 Introduction

Food security remains a fundamental development concern because it links agricultural production, household welfare, nutrition, livelihoods and social stability. The World Food Summit conceptualised food security as a condition in which all people, at all times, have access to sufficient, safe and nutritious food required for an active and healthy life (Food and Agricultural Organization [FAO], 2002). This conception extends beyond the mere presence of food in a locality. It includes the availability of adequate supplies, economic and physical access to food, appropriate utilisation for nutritional well-being and the capacity of households and food systems to withstand shocks. The World Bank (2010) similarly emphasised availability, accessibility and utilisation as central dimensions of food

security. In rural Nigeria, these dimensions are particularly important because household food consumption and income are closely tied to agricultural production. Akinyele (2009) observed that rural populations are especially vulnerable to chronic food shortages, malnutrition, unstable food supply and high food costs.

Benue State occupies an important position in Nigeria's agricultural economy. Its favourable agricultural environment supports the production of yam, rice, cassava, maize, soybean, sorghum, millet, sesame and several other crops, while fishing and small-scale livestock production also contribute to rural livelihoods. The Benue State Agricultural and Rural Development Authority (BNARDA, 2007) reported extensive participation of farm families in crop production and noted the considerable agricultural potential associated with the state's arable land and river systems. This productive role has earned Benue the popular description of Nigeria's "Food Basket." Consequently, disturbances that reduce agricultural activity in the state may have implications not only for affected households but also for food supply beyond the state.

One major disturbance is the recurrent conflict between crop farmers and pastoral herders. Historically, pastoralists and cultivators have interacted around shared natural resources, but increasing pressure on land, changes in land-use patterns, expansion of cultivation and competition over grazing resources have made such interactions more contentious. Blench (2010) associated farmer-pastoralist conflict with changing resource-use systems and increasing pressure on land, while Fiki and Lee (2004) linked rural conflict to resource scarcity, institutional weaknesses and the capacity of communities to manage competing claims. Sandford (2010) likewise emphasised the complexity of pastoral resource management where access to pasture, water and mobility is essential to livestock-based livelihoods.

The ecological dimension of farmer-herder conflict is also important. Pastoral mobility is traditionally influenced by the search for pasture and water (Iro, 1994). Environmental pressures, population growth and the expansion of cultivated land can narrow the spaces available for both crop farming and livestock production. The eco-violence perspective, applied to farmer-herder relations by Okoli and Atelhe (2014), suggests that declining resource quality and quantity, demographic pressure and unequal access to renewable resources can intensify competition, reduce productivity and trigger migration and conflict. In this context, disputes over farmland, grazing areas and access routes are not isolated interpersonal disagreements; they reflect broader struggles over livelihood resources.

Empirical studies in Nigeria demonstrate the consequences of these conflicts for agricultural livelihoods. Tersoo (2016), in a study of Benue State, reported losses of lives, destruction of farms and residences and declining farm output, with negative implications for food security. In Kogi State, Dimelu et al. (2017) found that farmer-herder conflict disrupted the socioeconomic life, production outcomes and livelihood assets of farming communities. Olobatoke and Omowumi (2017) similarly reported that intrusion of cattle into crop farms significantly affected farmers' output and income. These studies reinforce the argument that conflict can undermine food availability through reduced production while simultaneously weakening food access by reducing household income and displacing producers.

The relationship between conflict and food insecurity operates through several pathways. Communal violence may prevent farmers from reaching their fields, reduce the availability of labour, interrupt planting and harvesting, destroy standing crops and stored produce, and displace households from productive land. It can also raise production costs and food prices and compel households to alter occupations or reduce consumption. The FAO (2004) noted the broader economic costs of communal violence to agricultural production, while Abughdyer (2016) documented substantial destruction of farmland associated with farmer-herder crises in parts of Benue State. These effects are particularly serious in communities where farming is the principal source of food and income.

Despite the growing literature, the persistence and spatial concentration of farmer-herder conflict in Benue State require continuing empirical assessment, particularly in highly affected Local Government Areas. The original manuscript identifies Agatu, Gwer-West and Logo as areas that have experienced recurrent attacks and livelihood disruption. Understanding both the perceived causes of conflict and its direct consequences for agricultural production and household food security is necessary for designing appropriate land-use, livestock-management and peace-building interventions.

Accordingly, this study assesses the effect of farmer-herder conflict on food productivity and food security in Benue State. It is organised around two specific objectives: first, to examine the causes of farmer-herder conflict in Benue State; and second, to assess the effects of farmer-herder conflict on food security in the study area. The analysis is anchored on eco-violence theory, which provides a useful framework for understanding how pressure on renewable resources, competition over land and livelihood insecurity can translate into conflict and, in turn, weaken agricultural productivity and food access.

2 Materials and Methods

Study area and research design.

The study was conducted in Benue State, located in Nigeria's Middle Belt and named after the River Benue. The state was created in 1976 and has Makurdi as its capital. It comprises 23 Local Government Areas distributed across three senatorial districts and is inhabited predominantly by Tiv, Idoma and Igede peoples, alongside several other ethnic groups. Agriculture is the dominant livelihood in much of the state. The study adopted a cross-sectional survey design because the research required the collection of information from different categories of stakeholders on their experiences and perceptions of farmer-herder conflict and food security at a defined period.

Sources and instruments of data collection.

Primary data constituted the principal source of evidence. The questionnaire titled "Effects of Farmer-Herders Conflict on Food Security in Benue State, Nigeria" was the major instrument. It contained items on respondents' personal and socioeconomic characteristics as well as questions addressing the causes of conflict and its consequences for farming and food security. The survey was complemented by focus group discussions and interviews with selected participants and key personalities. These qualitative components were used to provide contextual explanations for patterns observed in the questionnaire data. During fieldwork, questionnaires were administered orally where necessary, in English or relevant local languages, to improve respondents' understanding and participation.

Population, sampling and sample size.

A multistage sampling procedure was employed. At the first stage, Agatu, Gwer-West and Logo Local Government Areas were purposively selected from the 23 LGAs in Benue State because the manuscript identifies them as areas particularly prone to herder attacks. At the second stage, arable farmers were selected by simple random sampling from lists provided through the Benue State Agricultural Development Programme database. Contact and meeting arrangements were facilitated by agricultural development officials. For herders, lists associated with herders' organisations in the study area were used to draw respondents, including administration of questionnaires during association meetings. Key personalities, including traditional rulers, clergy, security personnel and emergency-management actors, were also approached for questionnaire administration and interviews.

The sampling frame reported in the manuscript consisted of an estimated 90,917 stakeholders: 87,751 farmers, 1,845 herders and 1,321 key personalities. The planned sample size was 348 respondents, comprising 236 farmers, 60 herders and 52 key personalities. However, 309 valid responses were used in the analysis.

Measurement of key variables.

The first objective was measured using respondents' experience of conflict and their perceptions of major causes, including crop destruction, unauthorised grazing, settlement on farmland without permission, hostility between groups and cattle rustling. The second objective was assessed through changes in crop-production indicators before and during the conflict, cultivated farm size, labour conditions, access to farmland, occupational changes and household food-access indicators. Crop production was compared for yam, maize, rice, cassava, sorghum, groundnut, millet, cowpea, sesame and soybean.

Data analysis.

Quantitative data were analysed using descriptive and inferential statistics. Frequencies and percentages were used to summarise respondents' characteristics, perceived causes of conflict and perceived effects on food security. Before-and-during-conflict crop-production indicators were compared descriptively. A paired-sample t-test was used to test whether the difference in crop-output indicators before and during the conflict was statistically significant at the 0.05 level. Qualitative evidence from focus group discussions and interviews was integrated into the interpretation of quantitative findings to explain how displacement, reduced access to farmland and livelihood adjustments affected food production and household welfare.

3 Results and Discussion

The results are presented in accordance with the two objectives of the study. Although socioeconomic characteristics were collected to describe the survey population, the substantive discussion focuses on the causes of farmer-herder conflict and the effects of the conflict on food security.

Causes of farmer-herder conflict in Benue State.

The findings indicate that farmer-herder conflict had become a sustained feature of the sampled communities. More than half of the respondents (53.7%) reported experiencing the conflict for 10–15 years, while 33.0% reported an experience of less than 10 years. A further 10.0% reported 16–20 years of experience, whereas only 3.2% indicated more than 20 years. This distribution suggests that, although farmer-herder interactions have a longer history, the intensity and visibility of conflict had become more pronounced in the period preceding the survey.

Table 1. Perceived causes of farmer-herder conflict

Perceived cause	Frequency	Percentage
Destruction of crops by herders	284	91.8
Herders assuming grazing rights without farmers' consent	283	91.6
Sedentarisation on farmland without permission	272	88.0
Hostility of herders to host community	271	87.7
Cattle rustling	238	77.1
Hostility of host community to herders	227	73.5

Crop destruction by herders emerged as the most frequently identified cause of conflict, reported by 91.8% of respondents. The qualitative evidence in the manuscript supports this pattern, with participants describing incidents in which cattle entered cultivated fields and damaged crops. This finding is consistent with the broader literature that identifies damage to standing crops as an immediate trigger of farmer-pastoralist disputes. Because crop production represents both household food supply and a major source of income, crop damage can quickly become a livelihood dispute rather than a minor disagreement.

The assumption of grazing rights without farmers' consent was also reported by 91.6% of respondents. This finding points to competing claims over land and the absence, erosion or contestation of mutually accepted rules governing access. As cultivation expands and formerly uncultivated or fallow areas become incorporated into farms, the land available for dry-season grazing and livestock movement becomes more restricted. This interpretation accords with Blench (2010), who linked changing land-use systems and increasing pressure on land to growing tension between cultivators and pastoralists.

Sedentarisation of herders on farmland without permission ranked third, at 88.0%. Respondents perceived the establishment of settlements or prolonged occupation of land without the consent of landholders or recognised authorities as a source of tension. From the perspective of eco-violence theory, this reflects competition over increasingly scarce livelihood resources. When both crop farmers and herders depend on the same land base but operate under different systems of access and mobility, unregulated settlement and grazing can intensify perceptions of dispossession and insecurity.

Hostility of herders toward host communities was identified by 87.7% of respondents, while cattle rustling accounted for 77.1% and hostility of host communities toward herders for 73.5%. These findings demonstrate that the conflict is multidirectional. Although respondents attributed substantial responsibility to herders, retaliatory actions, cattle theft, assault and mutual suspicion were also reported. This is consistent with the observation by Fiki and Lee (2004) that conflict in resource-dependent rural communities is shaped not only by scarcity but also by institutional capacity, social relations and the mechanisms available for managing competing claims.

When respondents were asked who was responsible for causing the conflict, 51.5% identified Fulani actors, 32.0% identified government livestock guards, 12.9% identified farmers and 3.6% identified militia groups. These figures should be interpreted as respondents' perceptions rather than independent attribution of culpability. They nevertheless reveal the highly contested nature of the conflict and the way enforcement of the anti-open-grazing regime, farmer retaliation and herder activities were perceived within affected communities. Similarly, 68.3% of respondents identified farmers as the group most affected by the conflict, while 17.5% believed both farmers and herders were affected and 14.2% identified herders. The prominence of farmers in this response is understandable in a study area where crop farming is a dominant livelihood and where damage to crops, displacement and loss of access to farmland directly affect household food supply.

Overall, the result demonstrates that the conflict cannot be reduced to a single cause. Crop destruction and unauthorised grazing were the most immediate triggers, but they operated within a wider setting of land pressure, disputed access rights, sedentarisation, cattle rustling, mutual hostility and contested enforcement. The findings support the eco-violence perspective that resource pressure can interact with social and institutional factors to intensify conflict (Okoli & Atelhe, 2014).

Effects of farmer-herder conflict on food security.

The second objective examined how conflict affected agricultural production, cultivated farm size, labour and household food access. Across the ten crops considered, respondents reported higher production indicators before the crisis than during it. For yam, 90.6% indicated high production before the crisis compared with 48.5% during the crisis. Rice followed a similar pattern, declining from 90.6% to 46.6%. Sorghum declined from 89.6% to 54.0%, maize from 86.4% to 57.3%, groundnut from 86.4% to 47.6%, cassava from 84.8% to 48.9%, soybean from 81.2% to 55.0%, millet from 75.4% to 34.3%, cowpea from 66.3%

to 37.9%, and sesame from 62.5% to 42.1%. Although these percentages represent respondents' reported production conditions rather than physical yield measurements, the direction of change is consistent across all crops and indicates a broad contraction in crop production during the conflict.

Table 2. Perceived effects of conflict on food security

Effects on Food Security	**Frequencies**		**Percentages (%)**	
	Yes	No	Yes	No
Decreased in agricultural output	298	11	96.4	3.6
Not knowing where your next meal is coming from, or involuntarily eating less than needed	272	37	88.0	12.0
Affected labour force	290	19	93.9	6.1
Increase in cost of hiring labour	209	100	67.6	32.4
Farm labour migration	245	64	79.3	20.7
Change/relocation of farm land	269	40	87.1	12.9
Change in occupation	189	120	61.2	38.8
It affected number of farm hours	221	88	71.5	28.5

The inferential analysis reinforces this result. The mean crop-output indicator before the conflict was 251.5, compared with 145.9 during the conflict. The calculated paired-sample t-statistic was 13.88, exceeding the critical value of 2.26 at the 0.05 significance level. The study therefore found a statistically significant difference between crop-output indicators before and during the conflict. In practical terms, the conflict period was associated with substantially lower agricultural productivity. This result is consistent with Tersoo (2016), who reported that farmer-herder conflict in Benue State contributed to declining farm output, and with Abughdyer (2016), who linked the crisis to the destruction of farmland and threats to food production.

Cultivated farm size also contracted. Before the crisis, 19.4% of respondents cultivated 1–5 hectares, whereas the reported proportion in this category increased to 57.3% during the crisis. Conversely, the proportion associated with 6–10 hectares fell from 63.4% before the crisis to 32.4% during the crisis, while the proportion cultivating above 10 hectares declined from 16.8% to 5.5%. The qualitative accounts explain this shift in terms of displacement, insecurity and inability to access former farmland. Some farmers reportedly moved toward subsistence production on smaller plots close to their residences or borrowed land in receiving communities. The reduction in cultivated area provides a direct mechanism through which conflict can reduce food availability: less land under cultivation limits the quantity of food produced for both household consumption and the market.

Respondents also identified multiple effects on the agricultural labour system and household food access. A very high proportion, 96.4%, reported decreased agricultural output, while 93.9% stated that the conflict affected the labour force. Farm-labour migration was reported by 79.3%, and 67.6% indicated an increase in the cost of hiring labour. In addition, 71.5% reported that the conflict reduced the number of hours devoted to farming. These outcomes are mutually reinforcing. Insecurity can discourage labourers from travelling to distant farms, displacement can remove workers from producing communities, and labour scarcity can raise production costs. Delayed or inadequate land preparation, weeding and harvesting may then further depress output.

The food-access dimension was equally important. Eighty-eight percent of respondents reported uncertainty about where their next meal would come from or involuntarily eating less than needed. A further 87.1% reported changing or relocating farmland, while 61.2% reported changing occupation. The manuscript's qualitative accounts describe movement into petty trading, motorcycle transport, hairdressing and mining after displacement or loss of access to agricultural land. Such diversification may provide short-term coping income, but when it occurs because farmers are forced out of food production, it also signals erosion of the agricultural livelihood base.

The combined evidence shows that the conflict affected food security through both availability and accessibility pathways. Food availability declined as cultivated area and crop production fell. Food access weakened because agricultural incomes, labour opportunities and household production were disrupted, while some households faced displacement and uncertainty about meals. This pattern is consistent with the multidimensional conception of food security advanced by FAO (2002) and the World Bank (2010). It also aligns with the empirical findings of Dimelu et al. (2017) and Olobatoke and Omowumi (2017), who found that farmer-herder conflict damaged production

outcomes, incomes and livelihood assets in agrarian communities.

The results therefore indicate that farmer-herder conflict in Benue State is not only a security problem but also an agricultural and food-security problem. Its effects extend from the immediate destruction of crops to longer-term reductions in farm size, labour availability, production capacity and household food access. In a state with a major role in Nigeria's food production, sustained disruption of this kind has implications for local livelihoods and the wider food system.

5 Conclusion

This study examined the causes of farmer-herder conflict and assessed its effects on food security in Benue State, Nigeria. The findings show that the conflict is rooted primarily in crop destruction, unauthorised grazing, settlement on farmland without permission, mutual hostility and cattle rustling, all of which are intensified by pressure on land and contested access to livelihood resources. The evidence also demonstrates that the conflict has serious food-security consequences. Crop-production indicators declined across all ten crops examined, cultivated farm sizes contracted, labour availability was disrupted, production costs increased and many households experienced uncertainty about their next meal or were compelled to reduce food intake. The paired-sample t-test confirmed a statistically significant decline in crop-output indicators during the conflict period.

The study concludes that recurrent farmer-herder conflict directly undermines food availability by reducing agricultural production and indirectly weakens food access by disrupting livelihoods, labour and income. Addressing the problem therefore requires interventions that combine security, agricultural policy, land-use management and conflict prevention. Government should strengthen transparent regulation of land and livestock activities, develop workable livestock-production arrangements that reduce uncontrolled movement into cultivated farms, and support affordable alternatives for herders in line with applicable law. Peace-building mechanisms involving farmer organisations, herder representatives, traditional institutions, security agencies and government should be institutionalised to improve communication, early warning, dispute resolution and accountability. Measures that restore displaced farmers' access to safe agricultural land and productive inputs are also necessary if food production and household food security are to recover in the most affected communities.

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