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Farmer-Herder Conflicts and Food Security in Ghana: The Empirics from Sedentary Farmers in Northern Ghana

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Abstract
The perennial migration of nomadic herders from the drier zones in the Sahel region to the wetter regions in Africa is soaring. In northern Ghana, the nomadic herders have had numerous confrontations with the sedentary farmers, resulting in detrimental effects on household livelihoods and welfare. Particularly, the destruction of farm produce, burning of houses, and sometimes loss of human and animal lives threaten the already high incidence of food insecurity. This study examines the relationship between farmer-herder conflict and the food security of sedentary farmers. A mixed research design, integrating quantitative data from 167 respondents with qualitative data through in-depth interviews from 4 districts in Northern Ghana. With a correlation coefficient, the degree of linear relationship between the incidence of farmer-herder conflict and the extent of food insecurity was quantitatively determined. The hypothesis that communities with farmer-herder conflict are more food insecure was validated using a t-test. Results indicate a stark disparity in the food insecurity rate of conflict-affected versus non-affected communities; 49.5% of households in conflict zones faced moderate to severe food insecurity as opposed to a mere 3% in non-conflict zones. The incidence of farmer-herder conflict and food insecurity levels has a moderate positive relationship. Reduced farm productivity, crop destruction, changes in consumption patterns, and heightened psychological strain among farmers documented in qualitative accounts corroborate the quantitative data. The paper concludes that food insecurity is profoundly influenced by conflicts resulting from socio-spatial struggles and competition over land and water resources. The paper recommends the urgent need to formalise and clarify land tenure systems for cropping and grazing using participatory mapping techniques in farmer-herder conflict-prone districts. Meanwhile, further research is needed to explore the impact of farmer-herder conflicts on other welfare.

Keywords: Herdsmen, Nomadism, Farmers, Conflict, Food Insecurity, Livelihood

Introduction
There is an increasing incidence of migration of nomadic herdsmen from northern drier West African countries like Niger, Mali, Burkina Faso to southern wetter countries like Ghana, Nigeria, Cote D'Ivoire in search of pasture (Adeniyi et al., 2020). The herders have often had confrontations with local farmers due to the destruction of farm produce by the cattle. These conflicts often result in the killing of animals, the burning of houses and foodstuffs and sometimes loss of human lives, consequently affecting food security and sustainable food systems. At the core of these tensions is a struggle over natural resources such as land, water, and

pasture, which are becoming increasingly scarce largely due to climate variability, shift in land-use patterns, and growing population pressures (Kaila & Azad, 2023). The northern part of Ghana is well known for severe incidence of poverty and food insecurity (Salifu, 2024). The frequent outbreak of farmer-herder conflicts further intensifies these issues, undermining national efforts toward achieving the Sustainable Development Goals (SDGs), particularly those related to zero hunger, peace, and poverty reduction. Most of the studies on farmer-herder conflicts have focused on factors such as environmental stress, cultural differences, and land competition (Kuusaana & Bukari, 2015; Adams et al., 2019), without fully investigating how these conflicts affect the ability of affected households to secure food. This paper aims to analyse the relationship between farmer-herder conflicts and household food insecurity in Northern Ghana.

Material and Methods

The study adopted a mixed-research design. With the help of a semi-structured questionnaire, primary cross-sectional data were purposively collected from farmers in Gushegu, Bole, Talensi and Mamprugu Moadguri Districts, due to frequent reported cases of farmer-herder conflicts (Gyan, 2021). The study used 167 respondents for the analysis. Inferential statistics, such as the Pearson product-moment correlation coefficient and the Welch t-test, were used to test these two hypotheses.

> *H_1: There is a positive correlation between farmer-herder conflict and food insecurity*
> *H_1: Farmers in farmer-herder conflict-free communities are less food insecure than farmers in communities with a high incidence of farmer-herder conflicts.*

The Food Insecurity Experience Scale (FIES) built by the Food and Agriculture Organization (FAO), the International Fund for Agricultural Development (IFAD), and United Nations International Children's Emergency Fund (UNICEF), the World Food Programme (WFP) and the World Health Organization was used to estimate the extent to which farmers are food insecure. FIES is suitable for measuring food insecurity at the household, regional and global population levels (Brunellin & Viviani, 2014). This indicator uses a set of 9 questions that represent universal domains and subdomains of households experiencing food insecurity (Coates et al., 2007). The affirmative answer for each of the questions was scored 1, and 0 for otherwise. The summation of the scores for a household gives the FIES, ranging from 0 to 9. Whilst 0 represents food security, 9 represents the highest severity of food insecurity. Therefore, the higher the score, the more severe the household is food insecure.

In addition to the survey, qualitative insights capturing the impacts of farmer-herder conflict were obtained through interviews with 18 selected farmers in the various communities within the study area.

Results and Discussion

Extent of Food Insecurity

The results show that food insecurity is much more common and serious in communities with the incidence of farmer-herder (FH) conflicts than in communities without these conflicts. Only 23.2% of households in communities with FH conflict are food secure, compared to 45.6% in communities without FH conflict. Similarly, a much higher percentage of people (49.5%) in FH communities are moderately to severely food insecure compared to only 3% of households in communities without FH conflict.

Table 1: Frequency Distribution of Food Security Status in Communities

		Communities without FH conflict		Communities with FH conflict	
FIES	Interpretation	Frequency	Percentage	Frequency	Percentage
0	Food security	31	45.6	23	23.2
1-3	Mild food insecurity	35	51.5	27	27.3
4-6	Moderate food insecurity	1	1.5	33	33.3
7-9	Severe food insecurity	1	1.5	16	16.2
Total		68	100.0	99	100.0

Source: Analysis from Field Data (2024)

Relationship between Farmer-Herder Conflict and Food Insecurity

The results in Table 2 show a moderate positive correlation (r = 0.42) between the number of farmer-herder conflicts and food insecurity. This implies that food insecurity tends to get worse in places where there are more FH conflicts. The results align with Nnaji et al. (2022), who conclude that the severity of farmer-herder conflict significantly increases rural households' food insecurity.

Table 2: Correlation between the incidence of farmer-herder conflict and food insecurity

	Incidence of farmer-herder conflict	FIES
Incidence of farmer-herder conflict	1.00	
Food Insecurity Experience Scale	0.42	1.00

Source: Analysis from Field Data (2024)

Inferential Analysis of Food Insecurity between Conflict and Non-Conflict Communities

The Welch's t-test results in Table 3 show a statistically significant difference in food insecurity level between communities with FH conflict and communities without FH conflict (t = 8.11, ***p < 0.01). This suggests that households in communities with FH conflict are much more likely to be food insecure. The results FH conflict farmer-herder is a major cause of food insecurity among households, highlighting the need to implement food security interventions in the affected areas.

Table 3: Effects of farmer-herder conflict on food insecurity

Variables	Incidence of farmer-herder conflict (99)	No incidence of farmer-herder conflict (68)	t-test
Food Insecurity Experience Scale	3.75	0.84	8.11***

Source: Analysis from Field Data (2024)

Conclusions and Outlook

This paper critically fills the gap on the nexus between farmer-herder conflict and food insecurity in the savannah ecological zone of Ghana. The communities that experience FH conflict scored much higher on the Food Insecurity Experience Scale (FIES) than communities without any incidence of FH conflict, which highlights the negative consequences of agro-pastoral conflict towards food system equilibrium. The results also demonstrate there is a moderate positive relationship between the severity of the farmer-herder conflicts and the level of household food insecurity, indicating that such conflicts deepen the exposure of rural farming families. The paper calls for the prevention and resolution of FH conflict by the state by formalising and clarifying land tenure systems using participatory mapping techniques on farmlands and grazing routes.

References

Adams, E. A., Kuusaana, E. D., Ahmed, A., & Campion, B. B. (2019). Land dispossessions and water appropriations: Political ecology of land and water grabs in Ghana. *Land use policy*, *87*, 104068.

Adeniyi, T. O., Nnamchi, K. C & Oniyia, M.C. (2020). Herdsmen and Farmer Conflict, New Dimension of Violent Conflict in Nigeria. The Case of North Central Region 2014-2018. *Iconic Research and Engineering Journals*, 3(10): 2456- 8880.

Brunellin, C. & Viviani, S. (2014). Exploring gender-based disparities with the FAO Food Insecurity Experience Scale, Statistics Division, Food and Agriculture Organization of the United Nations (FAO), Italy.

Coates, J., Swindale, A., & Bilinsky, P. (2007). Household Food Insecurity Access Scale (HFIAS) for measurement of food access: indicator guide: version 3.

Kaila, H., & Azad, A. (2023). The effects of crime and violence on food insecurity and consumption in Nigeria. *Food Policy*, *115*, 102404.

Kuusaana, E. D., & Bukari, K. N. (2015). Land conflicts between smallholders and Fulani pastoralists in Ghana: Evidence from the Asante Akim North District (AAND). *Journal of rural studies*, *42*, 52-62.

Salifu, G. A. N. (2024). Does livelihood diversification improve food security among rural households? Evidence from Ghana. *African Geographical Review*, 1-16.

Nnaji, A., Ma, W., Ratna, N., & Renwick, A. (2022). Farmer-herder conflicts and food insecurity: Evidence from rural Nigeria. *Agricultural and Resource Economics Review*, *51*(2), 391–421.