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Farmer–Herder Conflict and Agricultural Productivity in Mangu, Plateau State, Nigeria

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Abstract

Farmer–herder conflict threatens agricultural productivity by disrupting farming activities, restricting access to productive resources, and discouraging labour participation. This study examined its effects on farmers' access to agricultural labour and agricultural output in Mangu Local Government Area, Plateau State. Grounded in Resource Scarcity Theory, which links competition over limited resources such as land and water to conflict and disrupted production, the study adopted a descriptive survey design. The population comprised farmers in conflict-affected communities, and a sample size of 400 respondents was determined using Taro Yamane's formula. Data were collected through a structured questionnaire and analysed using frequencies, percentages, means, and standard deviations in SPSS, with a mean benchmark of 2.50 for decision-making. Respondents reported that conflict discouraged labour participation, reduced labour availability, increased the difficulty and cost of hiring workers, and heightened reliance on family labour. They also reported reduced agricultural output associated with crop destruction, fear of attacks, reduced cultivation, and disruptions to farming activities. The study concludes that farmer–herder conflict constrains agricultural productivity, with adverse implications for labour access and agricultural production. These findings highlight the need to strengthen security, improve community-based conflict-resolution mechanisms, and provide targeted agricultural support to conflict-affected farmers.

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Keywords: Farmer–Herder Conflict; Agricultural Productivity; Agricultural Labour; Agricultural Output; Resource Scarcity Theory

INTRODUCTION

Agriculture is central to the livelihoods, food security and economic wellbeing of rural populations, particularly in developing countries where many households depend directly on farming. However, agricultural productivity depends on farmers' secure access to land, labour, inputs, markets and other productive resources, all of which can be disrupted by violent conflict and insecurity. In sub-Saharan Africa, competition between farmers and herders over land and water has intensified due to population growth, environmental changes, expansion of cultivated areas, declining grazing spaces and weak resource-management systems. Consequently, farmer–herder conflicts have increasingly disrupted agricultural activities by restricting farmers' access to farmland and labour, damaging crops and discouraging investment in production, thereby threatening agricultural productivity and rural livelihoods (Arias et al., 2019; Kugbega & Aboagye, 2021).

The farmer-herder conflict has become the most important form of rural conflict in Nigeria owing to the importance of agriculture in the country and growing engagement between crop farmers and pastoralists. The conflict mainly emanates from competition over arable lands, grazing tracks, water sources, and other vital livelihood resources needed by farmers and herders. In rural areas, disagreements that would formerly be centred on crop damage, movement of livestock, and resource acquisition have now escalated into violent conflicts leading to loss of lives, displacement of farm families, destruction of agricultural resources, and economic instability. Conflicts have also hampered the ability of farm families to sustain production since insecurity has had an impact on decisions concerning land use, employment of laborers, agricultural investments, and agricultural output. Particularly, repeated involvement in farmer-herder conflict leads to insecurity of tenure, which may discourage farmers from participating in agriculture (Adelaja & George, 2019).

The impact of farmer-herder conflicts on agricultural productivity is also seen in the production behaviour of farmers and resource use patterns. Agricultural productivity depends on the ability of farmers to combine available resources such as land, labour, capital and inputs in an efficient way. However, in an environment characterised by insecurity, farmers may reduce the scale of cultivation, avoid some farmlands, cut costs of inputs or rely more on household resources. Such responses can affect the level of agricultural output

produced and the income earned from agricultural activities (Arias et al., 2019; Nnaji et al., 2023). In Nigeria, conflict-related risks have influenced farmers' decisions concerning agricultural inputs, cropland utilisation and allocation of labour to farming activities, demonstrating that insecurity affects agricultural productivity not only through direct destruction but also through changes in farmers' behaviour and production choices (Nnaji et al., 2023).

The North-Central zone of Nigeria is an important agricultural region and has experienced recurrent farmer–herder conflicts arising from competition over land and other productive resources. Changes in the availability and distribution of agricultural and grazing land have contributed to increasing tensions between farming and pastoralist communities in the region, with implications for agricultural activities and rural livelihoods (Flintan et al., 2022). The implications of farmer–herder conflict are particularly significant because persistent insecurity can disrupt farming activities, restrict access to productive resources, and undermine agricultural production and food security (Adimula & Idowu, 2022; Ma et al., 2022). Plateau State is among the states affected by these conflicts, where competition over resources and the management of land has contributed to tensions between farmers and herders (Babatunde & Ibnouf, 2024). Within Plateau State, Mangu Local Government Area (LGA) provides an important context for examining the relationship between farmer–herder conflict and agricultural productivity. Studies specifically conducted in Mangu LGA indicate that recurrent conflict has adversely affected agricultural production and socio-economic activities, with crop destruction identified as an important trigger of farmer–herder tensions (Cinjel & Kefas, 2024).

The farmer–herder conflict in Mangu Local Government Area has increasingly disrupted agricultural production through crop destruction, insecurity, restricted access to farmland, and interruptions to farming activities (Cinjel & Kefas, 2024). These conditions can make it difficult for farmers to obtain adequate labour, particularly during critical periods such as planting, weeding, and harvesting, while fear of attacks may discourage hired labourers from working in affected areas. Consequently, reduced labour availability, declining agricultural output and losses in farm income can also undermine household livelihoods and the sustainability of farming activities. It is against this backdrop that this study examines farmer–herder conflict and agricultural productivity in Mangu, Plateau State, with particular focus on its effects on farmers' agricultural income, access to agricultural labour and the quantity of agricultural output produced.

Statement of the Problem

Farmer–herder conflict has become a major threat to agricultural productivity in Nigeria, particularly in rural communities where farmers and herders compete over shared resources. In Mangu Local Government Area of Plateau State, recurrent conflicts have created insecurity through crop destruction, restricted access to farmland, reduced availability of agricultural labour, and uncertainty that discourages investment in farming, thereby limiting farmers' ability to sustain production and generate income. Although existing studies (Dimelu et al., 2017; Sadiq et al., 2021; Odozi & Oyelere, 2021; Nnaji et al., 2023; Cinjel & Kefas, 2024) have examined the causes and broader consequences of farmer–herder conflict, including resource competition, food insecurity, production decisions and socioeconomic disruptions, limited empirical attention has been given to its specific effects on key dimensions of agricultural productivity in Mangu LGA. In particular, inadequate evidence exists on how the conflict affects farmers' agricultural income, access to agricultural labour and the quantity of agricultural output produced, creating a gap in understanding how conflict-induced insecurity translates into reduced agricultural performance at the household level. Therefore, it is against this backdrop that this study examines Farmer–Herder Conflict and Agricultural Productivity in Mangu, Plateau State, with particular focus on its effects on farmers' agricultural income, access to agricultural labour and the quantity of agricultural output produced.

Objectives of the Study

The study is guided by the following objectives:

i. Examine the effect of farmer–herder conflict on farmers' access to agricultural labour
ii. Determine the effect of farmer–herder conflict on the quantity of agricultural output produced by farmers in Mangu, Plateau State.

Literature Review

Dimelu et al. (2017) analyse farmer-herder conflict as a major type of resource-based conflict in agrarian societies where agriculture and pastoralism rely on common or connected natural resources. As the authors state, these types of conflicts arise as a result of rivalries associated with access to vital resources, namely farmlands, pasturelands, water sources, and livestock movement routes necessary for agricultural and pastoral livelihoods. Moreover, Dimelu et al. assert that the farmer-herder conflict has been increasingly evolving beyond specific issues of crop damage or grazing activities owing to other factors. Population

increase, climatic variability, changes in land-use systems, and deficiencies of governance institutions for resources lead to increased competition between the farmers and pastoralists. As the authors noticed in the case of Nigeria, different groups view the cause of their conflict differently; while farmers see the reason in crop destruction, unrestricted grazing, and farmland invasion, herders focus on limited access to water sources and pasturelands. Hence, it becomes clear that farmer-herder conflict is strongly connected with conflicts over resources needed for the survival of the rural population.

Akov (2017) provides a broader explanation of farmer–herder conflict in Nigeria by examining the resource-conflict debate within the North-Central region. The author argues that the increasing frequency of farmer–herder clashes is closely associated with competition over scarce natural resources, particularly land and water. According to the study, demographic expansion, environmental degradation, and changes in traditional grazing systems have intensified pressure on agricultural land and increased encounters between farming and pastoral communities. The author further notes that the transformation of traditional conflict-management mechanisms has contributed to the escalation of disputes into violent confrontations. This indicates that farmer–herder conflict is not merely a disagreement between occupational groups but a complex resource-governance challenge with implications for agricultural stability and rural livelihoods.

Nnaji et al. (2023) demonstrated that farmer–herder conflict affects agricultural productivity not only through direct destruction of agricultural resources but also through changes in farmers' production decisions under conditions of insecurity. Using evidence from Nigeria, the authors found that increased perceptions of farmer–herder conflict reduced farmers' willingness to invest in agricultural inputs, particularly fertiliser use, cropland rental and other production-related decisions. They further explain that agricultural productivity depends on the effective interaction of land, labour, capital, technology and farmers' capacity to make rational production choices without excessive uncertainty. The study indicates that insecurity alters farmers' behaviour by encouraging risk-avoidance strategies, reducing investment and limiting the extent to which available agricultural resources are fully utilised. Therefore, farmer–herder conflict can reduce agricultural productivity even where farmland remains physically available because farmers may become less willing or able to commit resources to production.

Kugbega and Aboagye (2021) examine the relationship between farmer–herder conflict, tenure insecurity and agricultural investment decisions among farmers in Agogo, Ghana. The authors found that persistent conflict created uncertainty regarding land ownership and future access to farmland, thereby discouraging farmers from making long-term investments in agricultural activities. They further observed that insecurity affected farmers' confidence in existing conflict-resolution institutions, which contributed to reduced willingness to expand or improve agricultural production. The study demonstrates that farmer–herder conflict affects productivity not only through immediate physical destruction but also through psychological and institutional uncertainty that influences farmers' decisions concerning agricultural investment.

Odozi and Oyelere (2021) established that violent conflict significantly affects agricultural labour supply among farming households in Nigeria. The authors, using nationally representative panel data, found that exposure to conflict reduced the amount of labour supplied to agricultural activities, particularly the number of hours contributed by household heads. They further explain that farming requires adequate and timely labour during critical stages such as land preparation, planting, weeding and harvesting. Consequently, insecurity can disrupt agricultural labour systems by making farming locations unsafe, discouraging hired workers from entering affected communities and causing household members to redirect their efforts towards security-related activities or alternative livelihoods. Similarly, Bloem et al. (2025) found that herder-related violence influences labour allocation decisions among agricultural households and that the effects of conflict may persist beyond immediate violent incidents. These findings indicate that access to agricultural labour represents an important pathway through which farmer–herder conflict translates insecurity into reduced agricultural productivity.

Okpara et al. (2016) examine the relationship between climate variability, resource scarcity and farmer–herder conflicts in Nigeria. The authors argue that environmental changes, particularly declining availability of water and grazing resources, have altered pastoral mobility patterns and increased competition between pastoralists and agricultural communities. They further explain that increased competition over natural resources can disrupt farming activities by creating uncertainty over land access and increasing the likelihood of violent encounters. The study highlights the importance of environmental and ecological factors in shaping conflict patterns and demonstrates how resource pressures can threaten agricultural sustainability in rural communities.

Sadiq et al. (2021) examine the implications of farmer–herder conflict for the livelihoods of farming households in Nigeria's Middle Belt region and found that conflict significantly reduced farmers' income. The authors explain that agricultural income depends not only on land ownership but also on farmers' ability to cultivate, harvest, and market agricultural produce effectively. They further observed that farmland invasion, destruction of crops, and reduced marketable agricultural surplus contributed significantly to income losses among affected households. The study indicates that farmer–herder conflict creates a chain of economic consequences whereby insecurity disrupts production activities, reduced production decreases marketable output, and declining output subsequently lowers farmers' earnings. Therefore, agricultural income represents an important dimension through which the consequences of farmer–herder conflict can be assessed.

Moritz (2016) examines farmer–herder conflicts from the perspective of changing pastoral systems and governance arrangements in West Africa. The author argues that the expansion of agricultural land into traditional grazing areas and the weakening of pastoral institutions have contributed to increased disputes between farmers and herders. The study further explains that inadequate mechanisms for managing access to shared resources often transform ordinary disagreements into violent conflicts. This finding is relevant to agricultural productivity because unstable resource arrangements create uncertainty that affects farmers' ability to plan and sustain agricultural production.

Babatunde and Ibnouf (2024) highlight the importance of institutional and governance factors in understanding farmer–herder conflicts in Plateau State and Central Darfur. The authors found that state institutions, traditional authorities and security actors play significant roles in either managing or intensifying resource-based conflicts. They further argue that farmer–herder conflict cannot be explained solely by competition over natural resources because institutional arrangements, conflict-resolution mechanisms and governance structures influence how disputes emerge and persist. This perspective is important for understanding agricultural productivity because unresolved resource conflicts create uncertainty regarding access to farmland, security of agricultural investments and continuity of farming activities. Therefore, effective institutional responses remain critical for reducing the agricultural consequences of farmer–herder conflict.

Cinjel and Kefas (2024) provide local evidence on the socioeconomic implications of farmer–herder conflict in Mangu Local Government Area of Plateau State. The authors

found that conflict between Mwaghavul arable farmers and Fulani herders, particularly through livestock-related crop damage, has affected agricultural activities and broader socioeconomic development within the area. They further demonstrate that recurring conflict disrupts farming practices and creates conditions that limit the ability of farmers to sustain productive agricultural activities. However, while existing studies have examined general socioeconomic effects of farmer–herder conflict, limited attention has been given to specific agricultural productivity outcomes such as farmers' agricultural income, access to agricultural labour and quantity of agricultural output in Mangu Local Government Area.

Overall, existing literature demonstrates that farmer–herder conflict undermines agricultural productivity through interconnected processes involving resource insecurity, disruption of farming activities, reduced labour availability, declining agricultural investment, crop destruction and reduced marketable output. However, previous Nigerian studies have largely focused on broader issues such as food insecurity, livelihoods, land-use decisions and general socioeconomic consequences of conflict. There remains limited empirical evidence on how farmer–herder conflict specifically affects agricultural productivity indicators among farmers in Mangu Local Government Area. Therefore, this study contributes to existing knowledge by examining the effect of farmer–herder conflict on farmers' agricultural income, access to agricultural labour and quantity of agricultural output in Mangu, Plateau State.

METHODOLOGY

This study employed a descriptive survey research design to investigate the effect of farmer–herder conflict on agricultural productivity among farmers in Mangu Local Government Area of Plateau State. The LGA has a projected population of 442,100 persons in 2022 (City Population, 2022). A sample size of 400 respondents was determined using Taro Yamane's statistical formula to ensure adequate representation of the study population. The study population consisted of farmers in conflict-affected communities who had engaged in agricultural activities and had experienced or been exposed to farmer–herder conflict.

Primary data were collected using a structured questionnaire administered to selected farmers across sampled communities in Mangu Local Government Area (LGA). Of the 400 questionnaires administered, 395 were completed, retrieved and found suitable for analysis,

representing a response rate of 98.8%. Participation in the study was voluntary, and the confidentiality of respondents' information was strictly maintained.

The data collected were coded and analysed using descriptive statistical techniques, including frequencies, percentages, mean scores and standard deviations, with the aid of the Statistical Package for the Social Sciences (SPSS). A decision benchmark of 2.50 was adopted for interpreting the mean scores, where mean values of 2.50 and above indicated agreement with the questionnaire items, while mean values below 2.50 indicated disagreement. The findings were presented in tables and interpreted in accordance with the objectives of the study.

Theoretical Framework: Resource Scarcity Theory

Resource Scarcity Theory is principally associated with the works of Thomas Homer-Dixon, who developed the theory to explain how competition over scarce environmental resources can contribute to social tension and violent conflict. Homer-Dixon (1994) argued that population pressure, environmental degradation and unequal distribution of renewable resources such as land, water and forests can create scarcity, which increases competition among groups whose livelihoods depend on those resources. The theory assumes that scarcity does not automatically produce violence; rather, conflict becomes more likely when competing groups have incompatible interests and existing institutions are unable to effectively regulate access to scarce resources (Homer-Dixon, 1999). In this sense, environmental scarcity can contribute to migration, competition, social tensions and violent conflict, particularly in societies where livelihoods are strongly dependent on natural resources. The theory has subsequently been applied to farmer–herder conflicts in Nigeria, where competition over land and other productive resources has been identified as an important component of rural conflict (Akov, 2017).

Resource Scarcity Theory is relevant to Farmer–Herder Conflict and Agricultural Productivity in Mangu, Plateau State because farmers and herders depend on overlapping resources, particularly land and water, for their livelihoods. Increasing pressure on farmland, grazing areas and water resources can intensify competition, resulting in crop destruction, restricted access to farmland and violent confrontations. Such insecurity can make it difficult for farmers to obtain agricultural labour and may reduce the quantity of agricultural output. Odozi and Oyelere (2021) similarly found that farmer–herder conflict risk influenced farmers' production decisions, including cropland use, farm labour and agricultural input

investment. The major strength of the theory is therefore its ability to connect resource competition with conflict and agricultural disruption. However, its weakness is that it may overemphasise material scarcity while giving insufficient attention to political, ethnic, institutional and historical factors that can also intensify farmer–herder conflict (Akov, 2017). Despite this limitation, the theory provides an appropriate framework for explaining how competition over scarce agricultural resources can generate conflict and subsequently undermine agricultural productivity in Mangu.

RESULTS

This section presents the findings on the effect of farmer–herder conflict on agricultural productivity among farmers in Mangu Local Government Area of Plateau State. The data are presented based on respondents' ratings of how farmer–herder conflict influences access to agricultural labour and the quantity of agricultural output. Responses were measured using a five-point Likert scale of Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D), and Strongly Disagree (SD). A mean benchmark of 2.50 was adopted for decision-making, where mean scores of 2.50 and above indicate agreement with the statements, while scores below 2.50 indicate disagreement.

Table 1: Respondents' Rating of the Effect of Farmer–Herder Conflict on Farmers' Access to Agricultural Labour

Farmer–Herder Conflict and Access to Agricultural Labour	SA	A	U	D	SD	Mean	Std. Dev.
Farmer–herder conflict has made it difficult for me to obtain sufficient labour for farming activities.	178	140	30	19	28	4.06	1.10
Fear of farmer–herder attacks has discouraged farm labourers from working on farms in my community.	163	145	31	24	32	3.95	1.18
Farmer–herder conflict has reduced the number of workers available for farm activities during planting and harvesting seasons.	168	138	34	24	31	3.97	1.17
Farmer–herder conflict has increased the difficulty and cost of hiring agricultural labour in my community.	148	155	39	21	32	3.91	1.18
Farmer–herder conflict has caused farmers to rely more heavily on family labour because hired workers are unwilling to work in affected areas.	173	142	32	19	29	4.02	1.11

Source: Field Survey, 2026.

In Table 1, respondents assessed the effect of farmer–herder conflict on their access to agricultural labour. All five statements recorded mean scores above the 2.50 decision benchmark, indicating that respondents agreed that farmer–herder conflict negatively affected access to agricultural labour in Mangu Local Government Area. The highest mean score was recorded for the statement that farmer–herder conflict had made it difficult for

farmers to obtain sufficient labour for farming activities (Mean = 4.06, Std. Dev. = 1.10). This was followed by the statement that the conflict had caused farmers to rely more heavily on family labour because hired workers were unwilling to work in affected areas (Mean = 4.02, Std. Dev. = 1.11). Respondents also agreed that farmer–herder conflict reduced the number of workers available during planting and harvesting seasons (Mean = 3.97, Std. Dev. = 1.17) and that fear of attacks discouraged farm labourers from working in affected communities (Mean = 3.95, Std. Dev. = 1.18). The statement concerning the increased difficulty and cost of hiring agricultural labour recorded the lowest mean score (Mean = 3.91, Std. Dev. = 1.18), although it remained above the acceptance benchmark. Overall, the findings indicate that farmer–herder conflict considerably constrained farmers' access to agricultural labour in Mangu Local Government Area.

Table 2: Respondents' Rating of the Effect of Farmer–Herder Conflict on the Quantity of Agricultural Output

Farmer–Herder Conflict and Quantity of Agricultural Output	SA	A	U	D	SD	Mean	Std. Dev.
The conflict has reduced the quantity of crops produced by farmers in my community.	173	150	30	21	21	4.08	1.02
Destruction of crops by livestock during farmer–herder conflicts has reduced agricultural output.	166	145	39	24	21	4.02	1.06
Fear of attacks has caused farmers to cultivate less farmland, resulting in lower agricultural output.	180	138	34	19	24	4.07	1.07
Farmer–herder conflict has disrupted farming activities such as land preparation, planting, weeding and harvesting, thereby reducing output.	158	155	41	22	19	4.02	1.03
Continued farmer–herder conflict has made it difficult for farmers in Mangu to maintain or increase their agricultural production.	168	143	36	24	24	4.01	1.08

Source: Field Survey, 2026.

In Table 2, respondents rated the effect of farmer–herder conflict on the quantity of agricultural output produced by farmers in Mangu Local Government Area. All five statements recorded mean scores above the 2.50 decision benchmark, demonstrating strong agreement that farmer–herder conflict negatively affected agricultural output. The highest mean score was recorded for the statement that the conflict had reduced the quantity of crops produced by farmers in the community (Mean = 4.08, Std. Dev. = 1.02). This was closely followed by the assertion that fear of attacks had caused farmers to cultivate less farmland, resulting in lower agricultural output (Mean = 4.07, Std. Dev. = 1.07). Respondents further agreed that destruction of crops by livestock during farmer–herder conflicts reduced agricultural output (Mean = 4.02, Std. Dev. = 1.06) and that disruption of farming activities, including land preparation, planting, weeding and harvesting, contributed to reduced

production (Mean = 4.02, Std. Dev. = 1.03). The statement that continued farmer–herder conflict made it difficult for farmers in Mangu to maintain or increase agricultural production recorded the lowest mean score (Mean = 4.01, Std. Dev. = 1.08). The relatively low standard deviation values indicate a considerable level of consistency in respondents' opinions. Overall, the findings demonstrate that farmer–herder conflict had a substantial negative effect on the quantity of agricultural output produced by farmers in Mangu Local Government Area.

DISCUSSION

The findings revealed that farmer–herder conflict had a considerable negative effect on farmers' access to agricultural labour in Mangu Local Government Area (LGA). Respondents strongly agreed that the conflict made it difficult to obtain sufficient labour, discouraged farm labourers from working in affected communities, reduced the availability of workers during planting and harvesting seasons, increased the difficulty and cost of hiring labour, and encouraged greater dependence on family labour. This finding is consistent with Odozi and Oyelere (2021), who found that violent conflict in Nigeria significantly affected the labour supply of farming households. Similarly, Nnaji et al. (2023) reported that farmer–herder conflict risk influenced household decisions concerning farm-work allocation and other agricultural activities. The finding also supports Bloem et al. (2025), who established that herder-related violence affects labour allocation among agricultural households. These studies suggest that insecurity affects agricultural labour not only through the physical displacement of workers but also through fear, restricted movement and unwillingness of labourers to work in conflict-prone locations.

The finding is further explained by Resource Scarcity Theory, which holds that competition over scarce productive resources can generate conflict and disrupt the livelihoods of groups dependent on those resources (Homer-Dixon, 1994, 1999). In Mangu LGA, competition over land and other resources between farmers and herders can create insecurity that interferes with the availability and movement of agricultural workers. The implication is that the effect of farmer–herder conflict extends beyond physical confrontation to the organisation of agricultural production. When farmers cannot obtain adequate labour at critical stages of production, farming operations such as land preparation, planting, weeding and harvesting may be delayed or inadequately performed. This can

increase farmers' dependence on household labour, raise production costs and reduce their ability to cultivate their available farmland. Therefore, improving security and ensuring safe access to farming communities are important for maintaining an adequate agricultural labour supply in Mangu LGA.

The findings also established that farmer–herder conflict had a substantial negative effect on the quantity of agricultural output produced by farmers in Mangu LGA. Respondents agreed that the conflict reduced the quantity of crops produced, that livestock destruction of crops reduced agricultural output, that fear of attacks caused farmers to cultivate less farmland, and that disruption of farming activities reduced production. This finding agrees with Adelaja and George (2019) who found that conflict exposure reduced agricultural production and influenced farmers' land-use decisions. Similarly, Ayantoye et al. (2024) found that internal conflicts, including farmer–herder crises, negatively affected the productivity of arable crop farmers through factors such as herder encroachment, land disputes and disruption of farming activities.

The finding is consistent with Resource Scarcity Theory because competition over agricultural land and other natural resources can generate conflict, which subsequently interferes with farmers' ability to utilise productive resources effectively (Homer-Dixon, 1994). In Mangu LGA, when farmers fear attacks or experience crop destruction, they may reduce the size of land cultivated or abandon some farming activities altogether. This creates a direct link between conflict, restricted resource access and reduced agricultural output. The implication is that persistent farmer–herder conflict can undermine not only individual farmers' production but also the agricultural capacity of the wider community. If the conflict continues unchecked, reduced cultivation, crop destruction and disruption of farming operations may threaten local food availability and household livelihoods. Consequently, effective conflict-management mechanisms, protection of agricultural land and improved regulation of competing land uses are necessary to protect agricultural production in Mangu LGA.

CONCLUSION

The study concluded that farmer–herder conflict had a significant negative effect on agricultural productivity in Mangu Local Government Area (LGA), Plateau State. The findings showed that conflict considerably affected farmers' access to agricultural labour, as

fear of attacks discouraged farm labourers from working in affected communities, reduced the availability of workers during critical farming periods, increased the difficulty of hiring labour and encouraged greater reliance on family labour. This situation disrupted key farming activities and increased the challenges farmers faced in maintaining regular agricultural production.

The study further concluded that farmer–herder conflict negatively affected the quantity of agricultural output produced by farmers in Mangu LGA. Crop destruction, fear of attacks, reduced cultivation of farmland and disruption of farming activities were identified as important ways through which conflict reduced agricultural production. The study therefore established that persistent farmer–herder conflict poses a serious constraint to agricultural productivity and rural livelihoods in Mangu LGA. Addressing the conflict is consequently essential for creating a secure environment in which farmers can access adequate labour, cultivate their farmland and sustain agricultural production.

Recommendations

Based on the findings and objectives of the study, the following recommendations were made:

i. The Plateau State Government, Mangu Local Government Council and relevant security agencies should strengthen security in conflict-prone farming communities. Regular patrols, early-warning mechanisms and rapid responses to farmer–herder tensions should be provided, particularly during planting and harvesting seasons. This would reduce fear among farm labourers, improve farmers' access to agricultural labour and enable farming activities to take place without major security disruptions.

ii. The Mangu Local Government Council, traditional institutions, farmers' associations and herders' associations should strengthen community-based conflict-resolution mechanisms. Regular dialogue and mediation should be organised to resolve disputes over farmland, grazing areas and water resources before they escalate into violence. This would reduce disruptions to farming activities, minimise crop destruction and improve farmers' ability to cultivate their land and obtain the labour required for agricultural production.

iii. The Plateau State Ministry of Agriculture, in collaboration with Mangu LGA and agricultural extension agencies, should provide targeted support to farmers affected by conflict. Such support should include agricultural inputs, extension services and assistance for restoring damaged farms and productive activities. This would help farmers recover from conflict-

related losses, increase the area cultivated and ultimately improve the quantity of agricultural output produced in Mangu LGA.

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