EFFECTS OF FARMERS-HERDERS CONFLICT ON THE TECHNICAL EFFICIENCY OF CASSAVA-BASED FARMERS IN YEWA NORTH, OGUN STATE, NIGERIA

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Abstract

This study, conducted in Yewa North, Ogun State, Nigeria, investigates the effects of conflict on the technical efficiency of 120 randomly selected cassava-based farmers. Results reveal that conflict episodes and their economic costs significantly increase the technical inefficiency of cassava-based farmers. Those unexposed to farmer-herder clashes exhibit lower inefficiency levels. The study highlights the intensity of conflicts, with encroachment of cattle on farmland being a major contributor, leading to forced displacement and economic burdens. Gender imbalances are evident, with a predominantly male farming population, and concerns arise from the relatively low average age of farmers, signaling fewer young individuals engaging in farming. Performed study confirms that the unceasing incidence of herdsmen-farmers conflicts have claimed lives and property, and displaced people, with attendant economic consequences on cassava-based farm household technical efficiency. It is recommended that the designation of grazing fields for nomadic herdsmen, tax imposition, and targeted policy interventions to enhance farmers' production efficiency. The study underscores the need for state governments' intervention, emphasizing policy measures to address farmers-herder's conflicts in promoting agricultural development.

Key words: Conflict, land, nomadic, pastures, crops.

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Introduction

In contemporary Nigeria, conflicts pose significant challenges, leading to unrest, panic, homelessness, and unemployment across diverse ethnic and religious communities. Persistent security issues include insurgency, election violence, kidnapping, and notably, clashes between herders and farmers. While Nigeria achieved a successful transition to democratic rule in 1999, political conflict-related violence persists (Wogu, 2004; Omotola, 2013). The prevalence of conflicts varies across regions, with the North East, North West, North Central, and South-South experiencing higher rates (Conroy, 2014). Violent conflicts impede economic development and contribute to enduring poverty levels. Historical conflicts stem from resource disputes, conquests, religious tensions, and ethnic rivalries. Farmer-herder conflicts, dating back to the 1900s, have intensified due to population growth, land competition, climate change, and other factors, notably in the North Central geopolitical zone (Buba, 2021). In 2018. farmer-herder conflicts surpassed the Boko Haram insurgency or banditry attacks in lethality, with distinctive characteristics. Boko Haram opposes western education, targeting the government and populace through various means, while farmer-herder conflicts directly impact rural households. The complexities of these conflicts contribute to ongoing challenges in Nigeria's social, economic, and political landscape (Babatunde, 2018; George et al., 2022).

In Nigeria, the historical interaction between farmers and herders, particularly the Fulani ethnic group in the north and farmers in the south, has traditionally been symbiotic. This ethnic group mainly involves shepherds, cattle herders, rural dwellers, pastoralist, while population are dominantly Muslims, speaking the Hausa or Fulfulde language (Moritz, 2016). Their movement is from place to place in search of green pastures and water with no fixed pattern of movement (Okoro, 2018). The mutually beneficial relationship involved cattle grazing near farms, with dung serving as manure and farmers receiving grains in return. Traditional tax systems before independence maintained a sense of communal responsibility, but a significant shift occurred in 1980 when taxes were dismissed, and land ownership ceded to state governments, disrupting the traditional dispute-settling mechanism. The loss of grazing routes and reserves intensified conflicts as herders were seen as external entities. Recent years have witnessed a rise in farmers-herder's conflicts nationwide, exacerbated by factors like drought, desertification, and terrorist attacks, forcing herders further south in search of pasture (Amusan et al., 2017).

So, Fulani herdsmen represents dominant threat, affecting the overall agricultural production in Nigeria, due to their ultra-violent behave toward local farmers,

especially in states as are Benue, Gombe and Taraba. Over four days in June 2017, 732 people was killed in Taraba as a result of their attacked-on farming communities (Audu, Audu, 2023). They were classified as a Terrorist group by the Institute for Economics and Peace because of their attendant attack. These herders not only invade and destroy farms and agricultural products, but also deliberately let cows to graze in crops at the previously cultivated plots at certain farm. Conflicts over resources between farmers and herders also lead to reduced access to available areas used for agri-food production. Recently, farmer members have been usually targeted in kidnapping by bandit groups, or armed herdsmen in different regions at the national level (Egbuta, 2018; Ajibefun, 2018).

Observed conflict could be considered as issue of access to land resources towards the economic survival, initiating the economic, political and environmental constraints and tension at the state level, mainly in the Middle Belt and South part of country (Udosen, 2021). This competition for scarce agricultural land has led to increased clashes between herders and farmers, with the conflict escalating notably in north-central states. The conflict is characterized by farmlands destruction by cattle herds (Adigun, 2019).

One of the main security challenges in Nigeria is the farmers-herders conflict. Nigeria accounted a significant rise in the episodes of natural resource conflicts (Tanko, 2021) which are commonly pervasive in Africa, West African sub-region, especially Nigeria (Gbanite, 2001).

The incidence of farmers-herders conflict is often considered as endemic, local, and low-intensity conflicts, but not wars. Meanwhile, observed incidences has been usually ignored in available literature sources covering violent conflicts in Africa (Lind, Sturman, 2002). According to Richards (2005), avoiding to discuss these conflicts leads to potential escalation of local conflicts into the larger conflicts, or even wars, initiating ethnic violence within the field of farming and herding. So, conflicts jeopardize not only the human lives, properties, and livelihoods, but they also threaten agricultural and pastoral production sustainability in wider regions.

In this study, farmers-herders conflict is defined as arguments and fights, over limited land resources, between nomadic herders and farming communities that are majorly agrarians. The majority of herders in Nigeria are known as Fulani who have usually own the large number of livestock heads within the country (Ojo, 2020). Herders traditionally live and graze their livestock in the country's north, while go to south in dry season, searching for greener pasture. With a startling increase in drought and desertification in the north (Adano et al., 2012; Buhaug et al., 2014), or terrorist assaults (George et al., 2021), herders go in deep south much longer, searching for enough pasture to feed their livestock.

Mentioned intensifies their rivalry for limited agricultural land with farmers in Nigeria's central belt and south (Eke, 2020). Typically, farmers-herders disputes occur when herders graze their cattle in crop-growing areas, causing the damage and decreasing the crops' yield. Contrary, farmers chase herders out of their communities, harming their animals, what results in herders fighting back, while farmers-herders conflict increase (CDD, 2021).

In Ogun State, the conflict between Fulani herdsmen and sedentary farmers has been a longstanding issue, intensifying since 2020. The conflict not only impacts local communities but also poses challenges at the national level. Despite the historical prevalence in the north-central states, the south-western state of Ogun is not immune to the farmers-herders conflict and its negative consequences.

The farmers-herders conflict in Yewa, which emerged in the early 2020s, involves complex dynamics with various actors and competing interests. This conflict, primarily between farmers and herdsmen, has profound social, economic, and political implications at local and national levels. Existing studies on crisis in Yewa are scarce creating a significant gap in understanding the causes and effects. This study aims to fill this void, employing a qualitative research strategy, including structured questionnaires and interviews, to explore the conflict's effect on the technical efficiency of farm households. The study considers that the unceasing crises between herders and farmers in rural Nigeria, has affected many lives and estates, while displacing many people, or their conflicts derives certain socio-economic consequences linked to further sustainable development of Nigeria.

The study focuses on defining farmers-herders conflict as disputes over limited land resources and explores the historical background, changing dynamics, and recent escalation of this conflict in the Ogun State. The findings contribute to understanding the multifaceted nature of this conflict, emphasizing its impact on local communities and broader implications for national governance. The study seeks to assess the effect of farmers-herders' conflict on the technical efficiency of cassava-based farmers in Yewa North local government area, Ogun state. Specific objectives were to:

1. Describe the socio-economic characteristics of cassava-based farm households;
2. Describe the various conflicts experienced by the cassava-based farm households;
3. Assess the economic costs associated with conflicts among the cassava-based farm households;
4. Assess the technical efficiency of cassava-based farmers; and
5. Determine the effects of farmers-herders conflict on the technical efficiency.

Materials and Methods

The observed area was Yewa North in Ogun State. Yewa North comprises settlements that act as stock routes for pastoralists transporting their livestock to and from the Republic of Benin. Yewa North lies between latitude 7° 13' 60" N and longitude 3° 01' 60" E, with a total land area of 2,087 km², making it the largest expanse of land among the twenty local governments in Ogun State, with a population of 181,826 recorded in the 2006 census (as certain limitation to the research is the fact that no census has been conducted in Nigeria since mentioned year). Ayetoro Ward I, Ayetoro Ward II, Idofi Ward, Sunwa Ward, Ijoun Ward, Eggua Ward, Ohunbe Ward, Igbogila/Ibese Ward, Joga-Orile/Ibooro Ward, and Imasai Ward are among the 11 wards in Yewa North. Yewa North's resident's primary occupation is agriculture, which includes growing a range of commodities like cocoa, cotton, and cassava.

The respondents comprise all the cassava-based farmers in Yewa North who operate in conflict-prone areas and have experienced conflicts at certain time. These are the people who are directly affected, at the forefront of the conflict and as such, are the main objects of study. The primary data was obtained through the interview schedule and structured questionnaires to account for the necessary factors that made up the influence of conflicts on technical efficiency of cassava-based farmers during the March, 2021 to October, 2022 farming season.

The sample size in the observed region is determined using the formula developed by Yamane (1967), implying 95% confidence, as well as maximal variability of 50%. This formula, widely used in previous studies, depends on the size of the population (all rural households) and the level of precision required.

$$n_i = \frac{N_i}{(1 + N_i \times e^2)} \qquad (1)$$

Where, n_i is the sample size, N_i represents the targeted population within the observed region (rural households), while e defines precision level. In line to similarity, i.e. high level of homogeneity of the rural households towards their general characteristics, the precision level (confidence interval) used in sample determining was equal to +/- 9%.

For predefined precision level, and the size of the total population estimated at 5,224 cassava-based households, calculation of the sample size (n - cassava-based households) gives:

$$n = \frac{5224}{(1+5224\times 0{,}09^2)} = 123 \qquad (2)$$

From the list of cassava farmers obtained from the Ogun State Development Programme, this study used the multi-stage sampling to select a cross-section of 120 out of the 123 cassava-based farm households. The first stage was a simple random sampling of three (3) blocks out of the six (6) blocks that make up the Yewa North in Ogun State. Two (2) cells were randomly selected from each of the three (3) blocks to give a total of six (6) cells in stage two. The third stage was a random sampling of 20 cassava-based farm households from each of the six selected cells to give a total sample size of 120 respondents which was used for this study.

Descriptive statistics was employed to analyze demographic characteristics such as age, gender, educational level, household size, and income distribution among the farm households in Yewa. Also, descriptive statistics was used to assess the different types, frequencies, and intensities of conflicts experienced by farm households in Yewa. Data was collected on the nature of conflicts, such as land disputes, resource competition, or cultural clashes, and analyzed using descriptive statistical measures. This study was not carried out during the period of the conflicts. Therefore, this study used memory recall of the incidence of conflict in the last (2021/2022) production season to assess impacts of the conflicts. The limitation of this study is the use of cassava farming households, instead of arable crop farming households.

The "cost of conflict" approach was used to provide a framework for systematically identifying, quantifying and analyzing the economic costs associated with the conflicts among farmers and herders in a Yewa. Data on different cost components associated with the conflicts was collected. These include direct costs on property damage, medical expenses, loss of livestock or crops and indirect costs on reduced productivity, market disruptions, increased transaction costs, etc.

$$\textit{Economic Cost ofConflict=Direct Cost+Indirect Cost} \qquad (3)$$

Farrell (1957), defined three (technical, allocative, and economic) forms of efficiency. This focus of this study is technical efficiency defined as the achieving the highest output with little effort (Hossain, 2012) using the stochastic production frontier. It's commonly applied when there's an assumption that observed production outcomes may not be solely due to technical efficiency but could also be influenced by factors beyond the control of farmers (Battese, Coelli, 1995).

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_4 X_4 + \varepsilon_i \qquad (4)$$

Where,

Y = Quantity of cassava output (t/ha), β_0, β_1, β_2, β_3, β_4 - the coefficients estimated for each variable, X_1 = Farm size, X_2 = Labor, X_3 = Fertilizer usage, X_4 = cassava stem cutting, ε - error term. Meanwhile, technical inefficiency effects are specified below:

$$U_i = \delta_0 + \delta_1 Z_1 + \delta_2 Z_2 + \cdots \ldots \ldots \ldots \ldots \ldots + \delta_{12} Z_{12} + \varepsilon_i \qquad (5)$$

Where,

U_i = Technical inefficiency, Z_1 = Age (years), Z_2 = Gender (1 = male, 0 = otherwise), Z_3 = Marital status (1 = married, 0 = others), Z_4 = Education (years of schooling), Z_5 = Household size (persons), Z_6 = Extension contacts, Z_7 = Farming experience (years), Z_8 = Livestock ownership (total livestock units), Z_9 = Farm income (NGN/year), Z_{10} = Access to credit (1 = yes, 0 = otherwise), Z_{11} = Number of conflict episodes, Z_{12} = Economic cost of conflict (NGN/year), δ_1 - δ_{12} = estimated parameters, ε = error term.

Results with Discussion

Socioeconomic Characteristics of Cassava-based Farmers

In (Table 1.) are presented socioeconomic data on cassava-based farm households, indicating a gender imbalance, with 96.67% of males contrary to 3.33% of females. Most of them were married (98.33%) and over 50 years old (70.83%). This suggests limited youth participation. The majority had household sizes of 4 to 6 persons (53.34%), potentially enabling cost-effective family labor.

About 18.33% had no formal education (Table 1.). The respondents' average farming experience was 9 years, with 45% having access to credit, facilitating efficiency and expansion. Additionally, 48.33% of them had extension contact, and 45% had less than 1 ha plots, indicating predominantly subsistence and small-scale cassava farming in the observed area. Ologbon et al. (2021) found that almost 70% of the smallholder farmers have been cultivated less than 2 ha (in average 1.1 ha), including land plots accessed usually (around 68%) through communal arrangement in Yewa North. This has negative influence on farmland expansion, as well as to likelihood of the cassava farmers to go into the commercial production.

Table 1. Socioeconomic characteristics of the respondents

Characteristic	Frequency	Percentage
Sex		
Male	114	96.67
Female	6	3.33
Age		
<30	22	18.33
31-50	54	45.00
51 and above	44	36.67
Mean age (years)	53	-

Characteristic	Frequency	Percentage
Level of education		
None	24	20.00
Primary	56	46.67
Secondary	33	27.50
Tertiary	7	5.83
Monthly income (NGN)		
<30,000	21	17.50
31,000-50,000	62	51.67
51,000 and above	37	30.83
Mean	46,000	-
Marital status		
Single	11	9.17
Married	108	90.00
Others	1	0.83
Household size (persons)		
1-3	16	13.33
4-6	64	53.34
7 and above	40	33.33
Mean	4	-
Farming experience (years)		
>10 years	79	65.83
11-20	22	18.34
21 and above	19	15.83
Farm size (hectares)		
<1.0	54	45.00
1.01-5.0	36	30.00
1.01 – 10.0	18	15.00
>10.0	12	10.00

Source: Akinde, Adekunle, 2023.

Intensities of Conflicts Experienced by the Cassava-based Farmers

In Table 2., it is evident that 81.67% of cassava-based farmers in Ogun State have experienced varying degrees of conflicts between farmers and herders, disrupting their daily lives and farm activities.

Encroachment of cattle into farmlands accounted for a significant share of these conflicts, forcing 73.33% of affected farmers to seek refuge in other rural communities (Table 2.). Women and girls bore a heavy burden as widows were often evicted from their husband's land after male family members were killed in the violence. These clashes resulted in significant losses in both production and increased poverty and food insecurity, impacting 71.67% of the farmers. Households were categorized as having no exposure (18.33%), moderate exposure (57.50%), or high exposure (24.17%) to farmer-herders and communal conflicts.

Table 2. Farmers/herder's conflicts of cassava-based farmers

Patterns	Frequency	Percentage
Conflict exposure	**98**	**81.67**
Incidence of conflict*		
Land disputes	22	18.33
Cattle grazing farmlands in agrarian communities (encroachment of cattle into the farms)	86	71.67
Others (Labor or employment issues)	12	10.00
Number of conflict episodes		
1-3	82	54.67
4-6	36	24.00
7 and above	2	1.3
Effects of conflict*		
Loss/decrease of crop outputs	88	73.33
Loss of livestock outputs	31	25.83
Loss of lives	3	2.50
Loss of land and assets	64	53.33
Disruption of planting/harvesting seasons	80	66.67
Decreased trade/market opportunities	55	45.83
Displacement of farmers	88	73.33
Women and girls' vulnerability to sexual and economic predation	62	51.67
Extents of conflict		
Low	22	18.33
Moderate	69	57.50
High	29	24.17

Source: Akinde, Adekunle, 2023.

Note: * implies multiple responses.

Cost of Conflict

Table 3. shows the result of the economic burden of farmers-herders conflict. It was found that the direct cost of farmers-herders conflict accounted for 42.86%, while 57.14% accounted for the indirect cost of mentioned conflict. The directed cost of conflict is attributed to the values of loss of properties, assets, crops, lands, livestock, and displacement of farmers. The indirect cost of farmers-herders conflict is attributed to the loss of productive days.

Table 3. Cost of Conflict

Element	Cost	Percentage
Direct cost	84,600.40	42.86
Indirect cost	112,785.25	57.14
Total cost of conflict	197,385.65	100

Source: Akinde, Adekunle, 2023.

Note: 785 NGN is equivalent to 1 USD.

Technical Efficiency Level of Cassava-based Farmers in the Study Area

In Table 4., the technical efficiency of sampled cassava farmers differs substantially among the cassava-based farmers, with predicted efficiencies ranging from 0.371 to 0.996, and a mean technical efficiency of 74.12%. Mentioned refers that cassava-based farmers are still out the frontier production level, i.e. there is still the room for advancement in their technical efficiency by around 26%. The result of the mean technical efficiency is lower than that gained by Akinola et al. (2020), who assessed the technical efficiency of small-scale cassava farming, while finding the mean technical efficiency of 89%. Conflict had a significant impact on the largely agriculture-based economy. During the conflict, there is disruption of farming activities, while the farm production, lives and properties are destroyed. Hence, many farmers were not able to obtain the quantity of inputs such as labor, land and fertilizer that they needed, which resulted in a reduced area of land under cultivation and lower yields. Farmers were cut off from their fields and thus unable to produce as a result of limited factors of production which lowers their efficiency.

Table 4. The distribution of the technical efficiency scores

Scores	Frequency	Percentage
<0.5	15	12.50
0.50–0.69	30	25.00
0.70–0.89	52	43.33
0.90–1.00	23	19.17
Mean	0.741	-
Minimum	0.336	-
Maximum	0.941	-
Number of observations	120	-

Source: Akinde, Adekunle, 2023.

This suggests a potential 25.88% increase in cassava output at current input levels (Table 4.). The range in efficiencies highlights room for improvement among cassava-based farmers. Efficiency scores vary from 33.6% to 94.1%, with an average technical efficiency of around 34%, indicating that 66% of potential cassava yield is

unrealized. Specifically, 12.5% of farmers scored below 0.5 in technical efficiency, 25% between 0.5 and 0.69, 43.33% between 0.7 and 0.89, while 19.17% scored above 0.9.

The Maximum Likelihood Estimates of the Stochastic Frontier Production Function

The Cobb-Douglas stochastic production model's is used to explain the methodological framework of production efficiency. The results are detailed in Table 5., showcasing a good fit with a sigma-square ($\sigma 2$) of 0.0183 for cassava farmers. The variance ratio gamma (γ) at 0.8089 suggests that 81.89% of the difference between observed and maximum production frontier outputs is due to variations in technical efficiency (Table 5.). Significantly different chi-square values at 1%, confirming the model's goodness of fit. Notably, farm size, labor, fertilizer, and cassava seed quantity significantly influenced the cassava production efficiency. Positive coefficients indicate that a 1% increase in these inputs leads to corresponding increase in cassava production, reinforcing the positive relationships observed between variables. This implies that if farm size, labor, fertilizer, and cassava seed quantity increase by 1%, there will come to marginal increase in cassava output. This result is in line with Akerele et al. (2019) study on smallholder cassava farmers also carried out in Ogun State. The findings of performed study are not in line with results gained by Akinbode et al. (2011), who found that increase in used labor level will not result to increase in output of cassava production in the study area.

The Effects of Farmers-herders Conflict on Cassava-based Farmer's Technical Efficiency

The inefficiency model analysis, as depicted in Table 5. unveils key insights into cassava farmers' technical efficiency. Coefficients' signs and significance in this model bear substantial implications. Negative coefficients for extension contact and education suggest increased technical efficiency, contrasting with the positive coefficient for gender, indicating female farmers' lower efficiency. Variables related to farmers and herders' clashes display positive coefficients, indicating a negative impact on efficiency with more conflicts. The significance of the household head's sex, age, and education levels is also observed.

Male-headed households exhibit higher efficiency, aligning with the male-dominated agricultural activities. Surprisingly, higher age correlates with increased inefficiency, implying a decline in technical efficiency with age. Education positively influences efficiency, aligning with increased exposure to agricultural technology. Livestock ownership, farm income, and access to credit also significantly impact efficiency, with increased livestock, higher income, and credit access correlating with reduced

inefficiency. These findings emphasize the multifaceted influences on cassava farmers' efficiency, incorporating social, demographic, and economic factors.

Table 5. The maximum likelihood estimates of the technical efficiency

Variables	Coefficients	t-values
Efficiency function		
Farm size (ha)	1.128***	6.369
Labor (man-days)	0.095***	4.376
Fertilizer (l)	1.023**	2.113
Quantity of cassava stem cuttings (kg)	0.143***	3.767
Constant	7.513***	3.142
Inefficiency function		
Age (Years)	-0.052*	-1.745
Gender (1 = male, 0 = otherwise)	-0.024**	-2.028
Marital status (1 = married, 0 = others)	0.3903	0.613
Education (years of schooling)	-2.114***	4.764
Household size (number of persons)	0.338	-1.081
Extension contact	-0.462	-2.382
Farming experience (years)	-4.047**	-2.022
Livestock ownership (total livestock units)	-0.066**	-2.561
Farm income (NGN/year)	-0.029**	-2.063
Access to credit (1 = yes, 0 = otherwise)	-0.004***	-4.652
Number of conflict episodes	1.185***	3.233
Economic cost of conflict (NGN/year)	0.124*	1.983
Constant	-0.239**	2.098
Diagnosis statistics		
Sigma-square ($\sigma 2$)	0.0183	2.353
Gamma (γ)	0.808	8.046
Number of observations	120	-
Wald chi2(3)	798.7	-
Log-likelihood	-19.937	-
Prob > chi2	0.000	-

Source: Akinde, Adekunle, 2023.

Note: Values in parentheses represent t-statistics. *** implies the 1%, ** implies the 5% and * implies the 10% significance level.

Confirming the findings of Ajibefun and Abdulkadri (2004), education is important for the adoption of technology innovation in cassava farming, while more persons at households generate more family labor for cassava production. Ogunniyi et al. (2012) posited that as the higher the man-days of labor used at the farm, as more the cassava output in terms yield will be attained. Oduntan et al. (2015) found that quantity of cassava stem cuttings, farm size, quantity of labor, and agrochemicals were the

major determinants of cassava output, while level of education, farming experience, household size, and age were the drivers of cassava production inefficiency.

Number of conflict episodes is significant at 1% level of significance. The results show that the coefficient for this variable is positive which is similar to the expected sign. Cassava-based farmers' exposure to violent conflict can decrease the farm yield per hectare. This implies that cassava-based farmers with high incidence of herders-farmers conflict are technically inefficiency when compared to their counterparts with low or no herders-farmers conflict incidence.

Economic cost of conflict is significant at 1% level of significance. The results show that the coefficient for this variable is positive which is similar to the expected sign. The cost associated with violent conflicts experienced by cassava-based farmers in the study area can increase their technical inefficiency.

Conclusion and Recommendations

The study evaluates the effects of farmers-herders conflict on technical efficiency among cassava farmers in Yewa North Local Government Area of Ogun State, Nigeria. Households were categorized based on their exposure to conflicts, revealing varying degrees of exposure. The economic burden of conflicts, including direct and indirect costs, further highlighted the challenges faced by farmers. Cassava stems cuttings, fertilizer quantity, and farm size significantly affected cassava production. Age and farming experience contributed to technical inefficiency. The mean technical efficiency of cassava was 0.741. The study underscores the complex interactions between conflicts, socio-demographic factors, and technical efficiency in cassava farming. It emphasizes the need for targeted interventions to mitigate conflict-related challenges, promote gender equity, and enhance farmers' technical efficiency. Understanding the multifaceted influences on agricultural productivity is crucial for devising effective policies and support systems in conflict-prone regions. It was concluded cassava-based farmers operated with maximum efficiency given the current technology, and herdsmen-farmers conflict is the main driver of technical efficiency of cassava-based farmers.

The study recommends that the state governments should designate field for cattle grazing for the nomads, and make them pay for it through taxes. Also, there is need for directional policy intervention targeted at female farmers to raise cassava production efficiency.

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