



## **ANALYSIS OF SOCIO-ECONOMIC CAUSES OF FARMERS/PASTORALISTS CONFLICT IN IBADAN/IBARAPA AGRICULTURAL ZONE OF OYO STATE, NIGERIA**

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### **ABSTRACT**

The study examined the socio-economic causes of farmers/pastoralist conflict in Ibadan/Ibarapa Agricultural Zone of Oyo State, Nigeria. A multistage sampling technique was used in selecting 145 farmers and 87 pastoralists from the study area. Data were collected using questionnaire and analysed using descriptive and inferential statistics. The result revealed that the mean age of farmers was 49 years while that of the pastoralists was 54 years. Majority (83.4% and 98.9%) of the respondents were males for both farmers and pastoralists respectively. Also, 95.7% and 97.7% of the farmers and pastoralists respectively were married, with 56.6% of the farmers obtaining primary school education while 47.1% of pastoralists obtained Arabic education. The mean household size was 7 and 10 persons for farmers and pastoralists respectively. Furthermore, the average years of experience in farming and pastoralism were 23 and 32 years respectively, while the average farm size of the farmers was 3 hectares, and the average herd size of the pastoralists was 31 cattle. The average monthly income was ₦58,850 and ₦329,800 for farmers and pastoralists respectively. The result further revealed that the major causes of farmer/pastoralist conflict were inadequate accessibility to grazing reserve (100%), revenge (98.9%) and indiscriminate bush burning (96.6%). The result of the linear regression revealed that marital status ( $P < 0.01$ ), average monthly income ( $P < 0.01$ ) and age ( $P < 0.05$ ) were the major socio-economic characteristics influencing the incidence of conflict. Furthermore, the result revealed that the most effective coping strategy used in the study area were dialogue and education. The study concluded that the major causes of conflict in the study area were inadequate accessibility to grazing reserve, indiscriminate bush burning and ethnic rivalry. The study recommended that Governments at all levels in collaboration with community members should create a sustainable grazing reserve that will enable pastoralist to have grazing fields.

**Keywords:** Conflicts, Causes, Farmers, Pastoralists

### **INTRODUCTION**

Struggle over grazing land and scarce resources have over the years resulted in perennial and growing violent conflicts in terms of frequency, intensity, and geographic scope. Underpinning the escalation in frequency of conflicts in Nigeria is a confluence of environmental and demographic forces, especially desertification caused by climate change and population explosion. Expectedly, with the depletion of arable land for subsistence farming largely because of increasing urbanisation and the adverse effect of climate change, especially along the Lake Chad basin, there is increased struggle between herdsman and farmers leading to violent confrontations and conflicts, deaths and forced displacement, as well as the destruction of agriculture and livestock (Ugwumba, 2018). In West Africa, herders have had a



long history of migrating and establishing relationships with various sedentary farming populations with which they coexist, cooperate, and compete for shared renewable resources (Cabot, 2017). The interactions between settled farmers and herders are inevitable because the social interaction between them is regarded as fundamental. This however has birthed clashes between herders and their hosts and entangled them in a tussle for land, water, and natural resources. Notwithstanding the increased conflict between them in recent times, both parties have enjoyed a history of harmonious and symbiotic relationship characterized by exchange of goods and services (International Crises Group, 2017). The conflicts between both groups in recent time is worsened by urbanization, increasing need for farmlands and grazing lands, increased desperation for pasture and water, migration and sedentarization of herders at new, unfamiliar, socio-cultural communities, proliferation of arms, the collapse of the Ruga system and so on. Different from these anthropogenic factors are the natural factors such as climate change. The present era is marred by endless reports of bitter resentment and violent conflict between pastoralist and sedentary farming groups (Chukwudi, 2021).

The worsening violence between Farmers and Nomadic herdsman in Nigeria has remained an issue of concern on the laundry list of the Nigerian State, policy makers, security agencies, international bodies as well as social science scholars. While conflict is considered a normal and inevitable outcome of human relationships, the concern here is the devastating socio-economic, political, and environmental implications of the conflict between these two livelihood groups as well as its impact on national development. Whereas, a number of factors have been adduced for this growing violence, ranging from climatic transformations, deteriorating environmental conditions, desertification, soil degradation, political and ethnic strife, breakdown in traditional conflict resolution mechanisms; proliferation of arms in the country and a dysfunctional legal regime that neglects justice (Nwakanma and Boroh, 2019). The relationship between the Fulani herders and their host communities in Oyo always tilt towards a crisis. While the herders herd the cattle, some stray into farmlands to graze and in the process destroy crops thereby wasting the farmers' efforts. The farmers some-times retaliate by poisoning farm produce or water sources to kill the cows. This leads to disconnection and division as the patriotism to the common good of the community, state or nation begins to erode the idea of national integration (Janet and Feyisitan, 2021). It is against this backdrop; that this research seeks to examine socio-economic causes of farmers/pastoralists conflict in Ibadan/Ibarapa Agricultural Zone of Oyo State. The objectives of the study were to; describe the socioeconomic characteristics of farmers-pastoralists in the study area; identify causes of farmers-pastoralist conflicts in the study area; determine the factors influencing farmers-pastoralist conflicts; and examine the coping strategies used in managing and resolving farmers-pastoralist conflicts in the study area.

## **MATERIALS AND METHODS**

### **The Study Area**

The study was carried out in Ibadan/Ibarapa agricultural zone of Oyo State. The area is situated at 7°0.15'N to 7°05.55'N latitude and 3°0' E to 3°30' E longitude. It has a land area of about 2,496 km<sup>2</sup>. It is located approximately 100 km North of the coast of Lagos, and about 95 km west of the Oyo state capital and neighbouring city of Ibadan. The major ethnic groups are Yoruba. The zone has population of a projected figure of 2,270,791 at 3.2% growth rate per annum (NPC 2021). The weather for most parts of the zone follows a tropical rain forest type with an annual rainfall ranging from 1,000mm to 1,400mm and fairly high temperature (Sanusi *et al.*, 2016). The main occupation of the inhabitants is farming.



### Sampling Techniques

A multi-staged sampling procedure was adopted in selecting the respondents for this study. The first stage involved the purposive selection of Ibadan/Ibarapa agricultural zone of Oyo State. The second stage involved the purposive selection of Ibarapa Central and Ibarapa East local governments areas due to the high occurrence of conflict between farmers and pastoralists in the areas. The third stage involved a purposive selection of two villages or farming communities with fresh incidence of farmers-pastoralists conflict. A feasibility study of the two local government areas (Ibarapa Central and Ibarapa East) revealed a total number of 337 crop farmers registered to the state agricultural development board and a total of 202 pastoralist registered to one form of organization or another. In the fourth stage a random sampling technique was used to select 43% of respondents in each selected village. This percentage was chosen using sample size formula given by Yamane (1967).

The sample size formula is given as:

$$n = \frac{N}{1+N(e)^2} \dots\dots\dots (1)$$

n= sample size.

N= population size.

e= margin of error.

The sampling procedure is presented in table 1.

**Table 1:** Sample size selection plan of the study

L.G. A	Villages	Farmers Sample frame	Sample size (43%)	L.G. A	Pastoralists Settlements	Sample frame	Sample size (43%)
Ibarapa Central	Sango	92	40	Ibarapa Central	Gaa Imeleke	41	18
	Sango odo	73	31		Gaa Jogode	67	28
Ibarapa East	Oke- Oba	103	44	Ibarapa East	Gaa Kondo	48	21
	Oke- Otun	69	30		Gaa Sekere	46	20
<b>Total</b>		337	145	<b>Total</b>		202	87

### Method of Data Collection

Primary data were collected in the study through the administration of structured questionnaires to respondents with the assistant of trained enumerators.

### Analytical Techniques

The tools to be used for data analysis are descriptive and inferential statistics. Descriptive statistics such as frequency distribution, percentage and mean was used to achieve objectives i and ii while inferential statistics such as linear regression and factor analysis was used to achieve objectives iii and iv respectively.

Model specification for objective 3 is given as:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10} + \beta_{11}X_{11} \dots e \dots (2)$$

Y= Incident of conflict (actual number)

Where;



$\beta_0$  = Intercept,  
 $\beta_1 - \beta_2$  = Regression coefficients,  
 $X_1$  = Age of respondents, (years),  
 $X_2$  = Sex of respondents (male=1, female=2),  
 $X_3$  = Marital status (single=1, married=2, widowed=3),  
 $X_4$  = Educational level (0=None, 1=primary, 2=secondary, 3=tertiary and 4=Arabic),  
 $X_5$  = Household size (Actual number),  
 $X_6$  = Farming experience (years),  
 $X_7$  = Average monthly income (₦)  
 $X_8$  = Number of Contacts with Extension agent (Number of times),  
 $X_9$  = Awareness of grazing reserve (Aware=1, not aware=0).  
 $X_{10}$  = Occupation (Farming=1, livestock farming=2, trading=3, civil servant=4, technician=5).  
 $X_{11}$  = Type of cooperative (Production cooperative=1, marketing cooperative=2, processing cooperative=3, multipurpose cooperative=4).

Model specification for objective 3 is given as for Pastoralists:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} \dots e \dots (3)$$

Y= Incident of conflict (actual number)

Where;

$\beta_0$  = Intercept,  
 $\beta_1 - \beta_2$  = Regression coefficients,  
 $X_1$  = Age of respondents, (years),  
 $X_2$  = Marital status (single=1, married=2, widowed=3),  
 $X_3$  = Educational level (years),  
 $X_4$  = Herd size (Number of cattle)  
 $X_5$  = Household size (Actual number),  
 $X_6$  = Rearing experience (years),  
 $X_7$  = Average monthly income (₦)  
 $X_8$  = Number of Contacts with Extension agent (Number of times),  
 $X_9$  = Awareness of grazing reserve (Aware=1, not aware=0).  
 $X_{10}$  = Occupation (Farming=1, livestock farming=2, trading=3, civil servant=4, technician=5).  
 $X_{11}$  = Type of cooperative (Production cooperative=1, marketing cooperative=2, processing cooperative=3, multipurpose cooperative=4).

## **RESULT AND DISCUSSION**

### **Socio-economic Characteristics of the Respondents**

The result in Table 2 depicts that 36.6% of farmers were within the age bracket of 41-50 years with a mean age of 49.3 years, while 29%, 17.9%, 13.7% and 2.8% fell within the age bracket of 51-60, 31-40, 61-70 and 21-30 years respectively. This implies that majority of the farmers are in their active age to participate in farming. Similarly, the result indicates that 35.6% of the pastoralist were within the age bracket of 61-70 years with a mean age of 54.3 years. While 28.7%, 26.5% and 9.2% fell within the age bracket of 41-50, 61-70 and 31-40 years respectively. This implies that majority of the pastoralist in the study area are in their old age and only few youths are involved in pastoral farming. This finding agreed with that of Okunlola (2016) which stated regarding restiveness, youth are also known to be those restive than older population. The result also reveals that the mean age of pastoralists was 54.3 years, which implies that the pastoralists were still in the active years. This result corroborates with





that of Adeoye (2017) who reported that majority of the herders in the study were between the ages of 15-60 years, which is regarded as the active years among nomads. The result presented in Table 2 shows that majority (83.4%) of the farmers were males. Also, majority (98.9%) of the pastoralists were males. This implies that males were majority in the study area and this could be as a result of the physical energy requires for both activities. This agrees with that of Adelakun *et al.* (2015) which reported that males are more involved in both farming and pastoral activities. Furthermore, Table 2 reveals that most (95.9%) of farmers in the study were married. Also, most (97.7%) of pastoralists in the study area were married. Furthermore, 2.8% and 2.3% were widowed farmers and herders respectively. This implies that most of the respondents have some responsibilities. This is in line with the findings of Garba *et al.* (2015) which reported that conflict incidence is expected to be low among married households, as married people are clan and can therefore withstand and resist violent situations.

The result in Table 2 reveals that majority (56.6%) of the farmers had primary school education while, less than half (47.1%) of the pastoralist had Arabic education. The result reveals that 43.7% of the pastoralist had primary education while 24.1% of the farmers had secondary school education. This implies that most of the pastoralist have a low standard of education as compares to the farmers. This result is in line with the findings of Mwalimu and Matimbura (2019), stated that the ability of an individual to highly analyse a situation lessens clashes which could result into loss of lives and properties, considering the assumption that the higher the level of education, the higher the ability of addressing issues confronting the farmers and pastoralists. Also, the result in Table 2 reveals that majority (66.9%) and less than half (48.3%) of farmers and pastoralists had a family size of 6-10 persons. The result also depicts that, 25.5% of farmers had a household size of 1-5 while 34.5% of the herders had a household size of 11-15 persons. The farmers and pastoralist had an average household size of 7 and 10 persons respectively. This implies that both farmers and herders have a relatively large farm size which will be of advantage in the areas of family labour. This corroborates with the findings of Solagberu (2012) who reported that relatively large family size of herders and farmers may translate to more people to carter for and perhaps also more hands to work on the farm and help with cattle herding. The result in table 8 reveals that most (49.0%) of the farmers had a farm size of 3-4 hectares with a mean farm size of 3 hectares. Also, 37.9% of the farmers had a farm size of 1-2 hectares, while 8.3% of the farmers had a farm size of 5-6 hectares. This implies that majority of the farmers in the study area are small holder farmers. This result is in line with the findings of Tokede *et al.* (2012) which reported that the mean farm size in the study area was 3.1 hectares. However this findings is contrary to the findings of Okunlola, (2016) who reported that the mean farm size was 18 hectares in the study area. Furthermore, the result in Table 2 reveals that most (33.3%) of the herders had a herd size of 5-36 cattle with a mean herd size of 31 cattle. Also, 24.1% of the pastoralists had a herd size of 37-58 cattle while 9.2% of the pastoralists had a herd size of 59-80 cattle. This implies that most of the herders in the study area are small holder's herders this could be as a result of incidence of conflict which had made the area not suitable for a larger herd size. This result is in line with the findings of Adekola *et al.* (2021) who reported that majority of herders in the study area kept less than 50 cattle.

Also, the result in Table 2 reveals that most (33.8%) of the farmers had a farming experience of 11-20 with a mean year of farming experience of 23 years. While (34.5%) of the pastoralists had a herding experience of 21-30 with a mean year of herding of 32 years. The result also shows that 26.2%, 18.6%, 14.5% and 6.9% of the farmers had a farming experience of 21-30, 1-10, 31-40 and 41-50 years respectively. While 27.6%, 17.2% 16.1% and 4.6% of the pastoralists had a herding experience of 31-40, 41-50, 11-20 and 1-10 years respectively.



This implies that majority of the respondents in the study area were experienced in the areas of farming and pastoralism which could translate into a long history of conflict clash between the two groups. This finding corroborates with that of Ofuoku and Isife (2010) who reported that the mean age of farmers and pastoralist were 20 and 30 years respectively in the study area. Furthermore, the results in Table 2 reveals that all most all (97.3%) of farmers earned within ₦5000 - ₦ 200,000 with a mean monthly income of ₦ 58,850.00. Similarly, 40.2% of the pastoralists earned within ₦ 200,001.00- ₦ 395,001.00 with a mean monthly income of ₦ 329,800.00. The result also depicts that 2.8% of the farmers earned a monthly income of within ₦ 200,001 - ₦ 395,001 while 32.2% of the pastoralists earned within ₦ 5,000 – ₦ 200,000. This implies that majority of the farmers are low-income earners while most of the pastoralists are average –high income earners this could be because of the disparity between the prices of grains for food stuff and beef. This result is in line with the findings of Nathaniel (2017) who reported most herders in the study area earned within ₦ 50,000- ₦ 300,000 and Adamu *et al.* (2022) which reported that the average monthly income of farmers in the study area was ₦ 40,194.



**Table 2:** Socio-economic Characteristics of respondents

	<b>Farmers</b>		<b>Pastoralists</b>	
<b>Age (yrs)</b>	<b>Freq</b>	<b>%</b>	<b>Freq</b>	<b>%</b>
21-30	4	2.8	-	-
31-40	26	17.9	8	9.2
41-50	53	36.6	25	28.7
51-60	42	29.0	31	35.6
61-70	20	13.7	23	26.5
<b>Total</b>	<b>145</b>	<b>100</b>	<b>87</b>	<b>100</b>
<b>Mean</b>	<b>49.3</b>		<b>54.3</b>	
<b>Sex</b>				
Male	121	83.4	86	98.9
Female	24	16.6	1	1.1
<b>Total</b>	<b>145</b>	<b>100</b>	<b>87</b>	<b>100</b>
<b>Marital status</b>				
Single	2	1.4	-	-
Married	139	95.9	85	97.7
Widowed	4	2.8	2	2.3
<b>Total</b>	<b>145</b>	<b>100</b>	<b>87</b>	<b>100</b>
<b>Educational Background</b>				
None	14	9.7	5	5.7
Primary	82	56.6	38	43.7
Secondary	35	24.1	3	3.4
Tertiary	4	2.8	-	-
Arabic	10	6.9	41	47.1
<b>Total</b>	<b>145</b>	<b>100</b>	<b>87</b>	<b>100</b>
<b>Household size</b>				
1-5	37	25.5	11	12.6
6-10	97	66.9	42	48.3
11-15	9	6.2	30	34.5
16-20	2	1.4	4	4.6
<b>Total</b>	<b>145</b>	<b>100</b>	<b>87</b>	<b>100</b>
<b>Mean</b>	<b>7</b>		<b>10</b>	
<b>Farm size (ha)</b>				
1-2	55	37.9	-	-
3-4	71	49.0	-	-
5-6	12	8.3	-	-
7-8	6	4.1	-	-
9-10	1	0.7	-	-
<b>Total</b>	<b>145</b>	<b>100</b>	<b>-</b>	<b>-</b>
<b>Mean</b>	<b>3</b>		<b>-</b>	
<b>Herd size</b>				
5-20	-	-	29	33.3
21-36	-	-	29	33.3
37-58	-	-	21	24.1
59-80	-	-	8	9.2
<b>Total</b>	<b>-</b>	<b>-</b>	<b>87</b>	<b>100</b>
<b>Mean</b>	<b>-</b>		<b>31</b>	



<b>Years of Experience</b>				
1-10	27	18.6	4	4.6
11-20	49	33.8	14	16.1
21-30	38	26.2	30	34.5
31-40	21	14.5	24	27.6
41-50	10	6.9	15	17.2
<b>Total</b>	<b>145</b>	<b>100</b>	<b>87</b>	<b>100</b>
<b>Mean</b>	<b>23</b>		<b>32</b>	
<b>Level of income (₦)</b>				
5000-200,000	141	97.2	28	32.2
200,001-395,001	4	2.8	35	40.2
395,002-590,002	-	-	9	10.3
590,003-785,003	-	-	10	11.5
785,004-980,004	-	-	5	5.7
<b>Total</b>	<b>145</b>	<b>100</b>	<b>87</b>	<b>100</b>
<b>Mean</b>	<b>58,850</b>		<b>329,800</b>	

Source: Field Survey, 2022

### Causes of Conflicts

The result in Table 3 reveals that the major causes of conflict in the study area based on the perception of pastoralists were; inadequate access to grazing reserve (100%), Revenge (98.9%), ethnic rivalry (96.6%), harassment by farmers (92.0%), cattle route encroachment (89.7%) and low level of compliance to cattle route (88.5%) which were valued at 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup>. Inadequate access to grazing reserve will definitely lead to encroachment of farmlands by pastoralists, issues on revenge is prominent in the study has both farmers and pastoralist are highly experienced in their endeavours so, the bad blood between the two groups will be passed down and revenge will be sought after by either of the group. Also, cattle rustling (82.8%), low awareness of grazing route (80.5%) and decline influence of traditional rulers (57.5) valued at 10<sup>th</sup>, 11<sup>th</sup> and 12<sup>th</sup> respectively were other major causes of conflict perceived by pastoralists in the study area. Stealing of pastoralist cattle grossly affects their livelihoods and will generally lead to conflict. Similarly, the influence of traditional leaders who are responsible to keep the peace in the community is not as strong as before or they are not being respected any more. This implies that the root cause of conflict in the study area is linked to their source of livelihood and as a result has led to the incident of conflict. This finding is in line with that of Nathaniel (2017) that farmer's encroachment on cattle's paths and deliberate grazing of cattle on crops were some of the major causes of conflicts between herds men and farmers.



**Table 3:** Pastoralists Perception towards causes of conflict.

Causes	Freq	Percentage	Rank
Inadequate accessibility to grazing reserve	87	100.0	1 <sup>st</sup>
Revenge	86	98.9	2 <sup>nd</sup>
Ethnic rivalry	84	96.6	3 <sup>rd</sup>
Harassment by farmers	80	92.0	4 <sup>th</sup>
Cattle Route encroachment	78	89.7	5 <sup>th</sup>
Low level of compliance to cattle Route	77	88.5	6 <sup>th</sup>
Crop damage by pastoralists	77	88.5	6 <sup>th</sup>
Long history of violence	76	87.4	8 <sup>th</sup>
Competition for land	75	86.5	9 <sup>th</sup>
Cattle rustling	72	82.8	10 <sup>th</sup>
Low awareness of grazing route	70	80.5	11 <sup>th</sup>
Decline influence of traditional rulers	50	57.5	12 <sup>th</sup>
Inadequate awareness of grazing reserve	46	52.9	13 <sup>th</sup>
Sexual Harassment	29	33.3	14 <sup>th</sup>

Source: Field Survey, 2022

The result in Table 4 reveals that the major causes of conflict in the study area based on the perception of the herders were crop damage by herds men (100.0%), indiscriminate bush burning (96.6%), stealing of crops (91.7%) and farm encroachment (76.6%) valued at 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> respectively. The damage of farmer crops will greatly affect their livelihood and in a bid to protect their livelihood such situation may result in conflict. Furthermore, sexual harassment (71.0%), ethnic rivalry (70.3%) and decline influence of traditional rulers (62.8%) valued at 5<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup> respectively were other major causes of conflict perceived by farmers in the study area. Ethnic rivalry that spans multiple years will cause serious conflict between farmers and pastoralists. Furthermore, competition for land (71.0%) and low compliance to cattle routes (57.9%) valued at 5<sup>th</sup> and 9<sup>th</sup> were other major causes of conflict in the study area. This implies that there is a competition for crops both for humans and animals that has led to the incident of conflict. This is in line with the findings of Tokede *et al.* (2021) which reported that crop damage, ethnic rivalry, indiscriminate bush burning and little or no respect for traditional rulers were the major causes of conflict in the study area.

**Table 4:** Famers Perception towards Causes of Conflict

Causes	Freq	Percentage	Rank
Crop damage by pastoralists	145	100.0	1 <sup>st</sup>
Indiscriminate bush burning	140	96.6	2 <sup>nd</sup>
Stealing of crops	133	91.7	3 <sup>rd</sup>
Farm encroachment	111	76.6	4 <sup>th</sup>
Sexual Harassment	103	71.0	5 <sup>th</sup>
Competition for land	103	71.0	5 <sup>th</sup>
Ethnic rivalry	102	70.3	7 <sup>th</sup>
Decline influence of traditional rulers	91	62.8	8 <sup>th</sup>
Low level of compliance to cattle Route	84	57.9	9 <sup>th</sup>

Source: Field Survey, 2022



### Relationship Between Socio-economic Characteristics of the Pastoralists and Conflicts

The result in Table 5 reveals that marital status (8.575) had a positive coefficient (8.575) and significant ( $P < 0.01$ ) which implies that being married favours the incidence of conflict. However, this is contrary to *a priori* expectation as married households are expected to be more responsible due to the fact that they have dependents to cater for, as reported by Sangolegbe *et al.* (2014). Also, number of contacts with extension agent had a negative coefficient (-0.297) and significant ( $P < 0.10$ ) which implies that the more the times or number of contacts with extension agent the less the incident of conflict. This could be due to the fact that education and orientation being provided by extension agents to the herders serves as an effective tool for conflict mitigation. This is in line with the findings of Sulaiman *et al.* (2011) who reported that education reduces the incidence of conflict. Furthermore, type of cooperative had a positive coefficient (1.326) and significant ( $P < 0.05$ ), which implies that belonging to a type of cooperative tends to promote the incidence of conflict. This however is contrary to *a priori* expectation as cooperatives are supposed to provide its members with awareness and orientation that will reduce incidence of conflict. Household size (0.970) and educational background (0.037) were positive and not significant. This result is not in line with Sani *et al.* (2021) who reported that both household and educational background were significant in influencing the incidence of conflict.

**Table 5:** Pastoralists Socio-economic characteristics influencing incidence of conflicts

Variables	Coefficients	Standard error	T-value
Age ( $X_1$ )	0.138	1.505	0.092
Marital status ( $X_2$ )	8.575	1.658	5.170***
Educational background ( $X_3$ )	0.037	0.387	0.095
Household size ( $X_4$ )	0.970	1.546	0.627
Herd size ( $X_5$ )	-0.544	0.699	-0.779
Herding experience ( $X_6$ )	-0.297	1.078	-0.275
Average monthly income ( $X_7$ )	0.348	0.000	1.689
Number of contacts with extension agent ( $X_8$ )	-0.297	0.157	-1.898*
Awareness of grazing reserve ( $X_9$ )	1.021	1.531	0.667
Other occupation ( $X_{10}$ )	0.206	1.556	0.132
Type of cooperative ( $X_{11}$ )	1.326	0.516	2.569**
$R^2 = 0.821$			
Adj $R^2 = 0.655$			
F-value = 4.951			

\*\*\*=  $P > 0.01$ , \*\*=  $P > 0.05$ , \*=  $P > 0.1$

Source: Field Survey, 2022

### Relationship Between Socio-economic Characteristics of the Farmers and Conflicts

The result in Table 6 reveals that age had a negative coefficient (-0.255) and significant ( $P < 0.05$ ) which implies that the older the farmers the less likely for the farmers to participate in any form of action that will promote the incidence of conflict, this could be due to the fact that as the farmer get older, they become wiser and understand the adverse effect of conflict. This result is in line with the findings of Amaka *et al.* (2022) which revealed that age was negatively significant in influencing the incidence of conflict due to the fact that younger farmers have a higher probability of confronting pastoralists, and they lack experience in peaceful coexistence and restitution of grievances. Also, sex had a negative coefficient (-



0.136) and significant ( $P < 0.10$ ) which implies that females are less prone to conflict than males. This result is in agreement with the findings of Amaka *et al.* (2022) who reported that gender was negatively significant to the incidence of conflict. The result further reveals that marital status had a positive coefficient (0.276) and significant ( $P < 0.01$ ) implying that married households are more prone to conflict. This is contrary to *a priori* expectation as married households are expected to have low affinity to conflict due to the responsibilities they have for their dependents. This result does not agree with that of Sangotegbe *et al.* (2014) who reported that married households have low affinity to conflicts. Also, educational background had a positive coefficient (0.169) and significant ( $P < 0.05$ ) implying that the more educated farmers are prone to incite conflict. This is however contrary to *a priori* expectation as education is meant to provide proper awareness and orientation to farmers about the adverse effect of conflict and how to manage it. This result does not agree with the findings of Sani *et al.* (2021) who reported that education was negatively significant to the incidence of conflict as educated people will be more open to dialogue during conflict.

Furthermore, farm size had a positive coefficient (0.198) and significant ( $P < 0.05$ ) implying farmers with larger farm sizes are much more prone to conflict. This could be because farmers with larger farm size are into agricultural business and will want to protect their assets. This result however does not agree with that of Sani *et al.* (2021) who reported that farm size was negatively significant to incidence of conflict in the study area. Also, average monthly income had a positive coefficient (0.290) and significant ( $P < 0.01$ ) implying that farmers with higher income were more susceptible to conflict. This could be because since farming provides their family with a good livelihood in relation to high monthly income, they will willingly do all they can to protect their crops even though it means resorting to violence.

**Table 6:** Farmers Socio-economic characteristics influencing incidence of conflicts

Variables	Coefficients	Standard error	T-value
Age ( $X_1$ )	-0.255	0.003	-2.167**
Sex ( $X_2$ )	-0.156	0.053	-1.918*
Marital status ( $X_3$ )	0.276	0.060	3.203***
Educational background ( $X_4$ )	0.169	0.016	2.033**
Household size ( $X_5$ )	0.113	0.009	1.079
Farm size ( $X_6$ )	0.198	0.005	2.266**
Farming experience ( $X_7$ )	0.150	0.003	1.181
Average monthly income ( $X_8$ )	0.290	0.000	3.197***
Number of contacts with extension agent ( $X_9$ )	0.131	0.144	1.353
Awareness of grazing reserve ( $X_{10}$ )	-0.099	0.045	-1.147
Other occupation ( $X_{11}$ )	0.126	0.019	1.583
Type of cooperative ( $X_{12}$ )	-0.043	0.020	-0.493
$R^2 = 0.358$			
Adj $R^2 = 0.283$			
F-value = 4.731			

\*\*\*=  $P > 0.01$ , \*\*=  $P > 0.05$ , \*=  $P > 0.1$

Source: Field Survey, 2022

### **Coping Strategies Used by Farmers and Pastoralists to Avoid Conflict**

The result in Table 7 reveals that three factors were extracted based on the responses of the respondent; namely factor 1 (community intervention related factor), factor 2 (knowledge



related factor) and factor 3 (defence mechanism related factor). Factor 1 includes Local community interventions (0.763), Payments of compensation to victims (0.750), Early harvesting/disposal of stocks (0.714), Intervention by traditional rulers (0.696) and Vengeance (0.672). While knowledge related factor (factor 2) includes Dialogue (0.903) and Education (0.841). Furthermore, factor 3 includes use of charms (0.791) and intervention by law enforcement agents (0.736). This implies that an array of coping strategies like intervention from community and the use of defence mechanisms were used to mitigate the effects of conflicts in the study area. The result of this findings is in line with Ndubusi (2018) and Mbah *et al.* (2020) who state that law enforcement intervention was effective in curbing farmers / pastoralist conflict. Also, Obasanmi and Jude (2022) reported that Education and the use of police were effective measures used to mitigate the effects of herders/pastoralists conflict in Nigeria.

**Table 7:** Coping Strategies Used by Farmers and Pastoralists

Strategies	Factor 1	Factor 2	Factor 3
Local community interventions	0.763		
Payments of compensation to victims	0.750		
Early harvesting/disposal of stocks	0.714		
Intervention by traditional rulers	0.696		
Vengeance	0.672		
Dialogue		0.903	
Education		0.841	
Use of charms			0.791
Intervention by law enforcement agents			0.736

Source: Field Survey, 2022

## CONCLUSION AND RECOMMENDATIONS

Based on the findings it can be concluded that the major causes of conflict in the study area were inadequate access to grazing reserve, indiscriminate bush burning, ethnic rivalry, harassment by farmers and stealing of crops. Also, the major socio-economic factors influencing the incidence of conflicts were marital status, average monthly income, age, and educational background. While the most effective coping strategy used were dialogue and education in the study area. The study recommends that;

- Government at all levels (Federal, State and Local) in collaboration with community members should create sustainable grazing reserves that will enable pastoralist to have grazing fields.
- Farmers/pastoralists cooperative and law enforcement should strengthen their efforts towards mitigating and managing conflicts as they are perceived to be very effective in doing so.

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