



## CROP FARMERS' ADAPTATION STRATEGIES TO MITIGATE CONFLICTS WITH NOMADS IN OYO STATE

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### ABSTRACT

Conflicts on the use of resources are not uncommon in human systems. However, when they degenerate to violence, threatening progress, peace and development of the society; it would be necessary to address the problem. This study focused on adaptation strategies employed by crop farmers to manage conflicts with nomads in Oyo state. A multistage sampling procedure was used to select 120 respondents for the study. Data were collected with the use of interview schedule on crop farmers' socioeconomic characteristics, causes of conflicts, effect of conflicts and coping strategies. Data were analysed using descriptive and inferential (Chi-square and PPMC) statistics. Results show that most of the respondents were Yoruba (89.2%), male (86.7%), married (98.3%), had farming (87.5%) as their primary occupation with mean age of 55 years. Mostly identified causes of conflicts were crop damage (weighted mean=194.9), indiscriminate bush burning (188.3) and blockage of water (174.2). Effects of conflicts mostly experienced by farmers were reduction in output and income of farmers (197.4), destruction of crops (193.4), anger/anxiety/emotional exhaustion (180.0). Coping strategies mostly employed were prayer for peace (184.9), early harvesting (181.6) and appease of other party (166.6). More than half (55.8%) of the respondents used low level of coping strategies. Significant relationship existed between coping strategies employed and ethnicity ( $\chi^2=11.609$ ), other forms of education ( $\chi^2=19.164$ ;  $p=0.001$ ) as well as effect of conflicts ( $r=0.400$ ). Adaptation strategies employed by the respondents should be investigated, validated and adopted by appropriate authorities in order to mitigate the regular conflicts among farmers and nomads in Nigeria.

**Keywords:** Crop farmers, nomads, adaptation strategy, ecosystem, ethnicity.

### INTRODUCTION

Conflict in resources use is not uncommon and perhaps not unnatural in human ecosystems as it is a necessity in the evolution and development of human organisations. However, when it degenerates to violent, it leads to destructive clashes which are counterproductive and progress-threatening (Ofoku and Isife, 2009). According to Nyong and Fiki (2005) resource-related conflicts are responsible for over 12 percent declines in per capital food production in sub-Saharan Africa. In a newspaper study of crisis in Nigeria between 1991 and February 2005, Fasona and Omojola (2005) found that conflicts over agricultural land use between farmers and herdsmen accounted for 35 % of all reported crises. Hence, Conflict between arable crop farmers and cattle herdsmen over the use of agricultural land is still pervasive in Nigeria, and portends grave consequences for rural development (Adisa, 2012). The resultant increase in competition for arable land has often times led to serious manifestation of hostilities and social friction among the two user-groups in many parts of Nigeria, even in Oyo state.

The causes of conflicts between arable farmers and the nomads as examined by scholars in their various studies include; cattle stealing, inequitable access to land, diminishing land resources, policy contradictions, crop damage, ethnic rivalry, farm fragmentation and indiscriminate bush burning among others (Adelakun, Adurogbangba and Akinbile, 2015; Ofem and Inyang, 2014 and Adisa, 2011). However, nomads have identified the most severe

constraints to their enterprise to be conflicts from land use and cases of cattle theft (rustling) (Ofem and Inyang, 2014).

In a study carried out in Nigeria's Guinea savannah, Fiki and Lee (2004) indicated that the violent clashes equally resulted into the contamination of water bodies by the cattle and the destruction of arable farmer's stores, barns, residences and household items by the nomads. Consequentially, conflicts between the arable farmers and nomads directly affects food security as many able bodied men (pastoralist and farmers) engaged in food production were been displaced from their places of vocation and debilitates the farmer-pastoralist relationships (Ibrahim, Abdurrahman and Umar, 2015 and Sunday, 2013).

There seems to be insufficient empirical studies focusing on how arable farmers perceived and coped with conflict, though, Zarafshani, Zamani and Gorgievski (2005) examined the coping strategies employed by farmers with emphases on post-draught famine stresses. However, the coping strategies that could be employed by arable farmer during conflict as asserted by Adisa (2012) could be categorised into; problem-oriented, emotion-oriented and social support coping strategies.

Therefore, this paper examined the adaptation strategies employed by crop farmers for the incessant conflicts between them and Nomadic Fulani in the study area. To this end, the study ascertained the socioeconomic characteristics of the respondents, causes and effects of the conflict on crop farmers and their coping strategies during the



conflicts. It was hypothesised that no significant relationship existed between the socioeconomic characteristics of the respondents and level of use of coping strategies; and that there is no significant relationship existing between the effect of conflict on the respondents and the use of coping strategies.

## METHODOLOGY

The study was carried out in Saki and Oyo Agricultural zones of Oyo state, Nigeria. Multistage sampling procedure was used to select the respondents for the study. The first stage involved the random selection of 40% of the Local Governments Areas in Saki and Oyo Agricultural zones; giving 3 and 2 LGAs respectively. The second stage involved the random selection of 50% of the wards in the selected LGAs; giving 2 wards per local government amounting to 10 wards in all. The third stage, involved the random selection of 12 arable crop farmers in each of the selected wards. This gave a sample size of 120 respondents for the study. Data collected with the use of interview schedule were: coping or adaptation strategies employed; perceived causes of conflicts; perceived effects of conflicts and socioeconomic characteristics of the respondents. They were analysed using descriptive and inferential statistics such as Chi square and PPMC.

Coping or adaptation strategies employed by crop farmers during and after conflicts were measured by providing them with a set of coping strategy items and they were asked to indicate the extent to which they employed them during and after conflict. The response options were “to large extent”, “to a lesser extent” and “not at all”. They were scored 2, 1 and 0 respectively. The mean was then used to categorise the scores as high or low. Respondents’ perception on the effect of conflict was measured with a set of perception statements on the effect of conflict and they were asked to determine the extent to which they perceived the effect of the conflict. The response options were “to large extent”, “to a lesser extent” and “not at all”. They were scored 2, 1 and 0 respectively. The mean score was then used to categorise the scores as high or low. The respondents’ perceptions of the causes of the conflicts were measured with a set of perception statements on the cause of the conflict and were asked to indicate the extent to which they perceived the causes of the conflicts. The response options were “to large extent”, “to a lesser extent” and “not at all”. They were scored 2, 1 and 0 respectively. The mean score was then used to categorise the scores as high or low. An index of the perception of causes of conflicts, effects of conflicts and the coping strategies employed by the respondents was categorised into; less serious and very serious (causes), mild and severe (effect) and

high and low (coping) categories, using the ‘above and below the mean’ criterion.

## RESULTS AND DISCUSSIONS

### Socioeconomic characteristics of respondents

The findings in Table 1 show that the mean age and years of formal education of crop farmers were 55.3 and 4.7 years respectively. The mean age implies that majority of the crop farmers are getting old and may not be able to take another job than to just remain in farming business. This disagrees with the findings of Adelokun *et al* (2015) in a similar study where 52.6% of the farmers were between the ages of 30-50 years. The disparity in their findings might be due to the fact that the study area is close to the border, hence, tendencies for youth migration from farming to greener pasture in the neighbouring foreign towns is high. Meanwhile, the mean years of formal education implies that respondents were not substantially educated in the study area and they might likely have limited access to information on coping strategies that could be employed during and after conflicts. This finding disagrees with the results of Usman, Adeboye, Oluyole and Ajijola (2012) who found out that most crop farmers were literate.

The study further reveals that most (87.5%) of the respondents were primarily farmers and have secondary occupations like petty trading (14.2%), handcraft (5.8%) and transportation businesses (5.8%). This is an indication that the respondents depend on farming as their main source of living and that they diversify into other sources of livelihoods. This corroborates the finding of Fayinka (2004) that Nigerian agricultural production is dominated by rural-based small scale arable crop producers; and in tandem with the research findings of Adeniyi and Yekinni, (2015) that crop farmers diversify into other livelihood activities in order to cope with their financial obligations especially during the off season. The diversification might equally be a coping technique against risk that may be associated with crop farming in the study area.

More than two third (86.7%) of the farmers were male and married (98.3%); indicating that arable farming was dominated by married male farmers in the study area. This implies that men that cherish the marriage institution are more engaged in arable farming in the study area; the drudgery in crop farming and women’s reproductive roles might have been responsible for the reduced interest and participation of women in arable farming. Respondents’ marital status is in line with Oladeji and Oyesola’s (2011) assertion that being married is an important status in the rural society and in consonance with the findings of



Olaniyi, Adetumbi and Adereti (2013) that male dominates farming activities.

Furthermore, majority (61%) of the respondents were Muslims, while 45.0% were Christian. This implies that religion has a way of influencing people perception towards peaceful living and to resolve issues amicably rather than

generating it into conflicts. This further implies that the respondents could be identified through faith based organisation in case of conflict intervention programmes. This is in line with the research finding of Adeniyi (2014) that had a similar trend of religion data for the crop farmers in the state.

**Table 1: Distribution of respondents by socioeconomic characteristics (n= 120)**

Variables		Frequency	Percentage	Mean
<b>Age</b>	29-40	22	18.3	55.25
	41-50	23	19.2	
	51-60	27	22.5	
	61-70	36	30	
	71-80	11	9.3	
	Above 80	1	0.8	
<b>Sex</b>	Male	104	86.7	4.07
	Female	16	13.3	
<b>Years of formal education</b>	None	68	56.7	4.07
	1-6	20	16.6	
	7-12	23	19.2	
	13-15	6	5.0	
	16-18	3	2.5	
<b>Other education</b>	None	24	20.0	4.07
	Adult education	28	23.3	
	Literacy education	22	18.3	
	Numeracy	28	23.3	
	Quran/Arabic	18	15.0	
<b>Primary occupation</b>	Farming	105	87.5	4.07
	Trading	6	5.0	
	Civil service	7	5.8	
	Handcraft	2	1.7	
	None	11	9.2	
<b>Secondary occupation</b>	Farming	78	65.0	4.07
	Petty trader	17	14.2	
	Handcraft	7	5.8	
	Transport	7	5.8	
	None	11	9.2	
<b>Marital status</b>	Married	118	98.3	4.07
	Single	2	1.7	
<b>Religion</b>	None	1	0.8	4.07
	Islam	61	50.8	
	Christianity	54	45.0	
	Tradition	4	3.3	
<b>Ethnicity</b>	Yoruba	107	89.2	4.07
	Fulani	1	0.8	
	Cotonou [Benin Republic]	12	10.0	

**Perception of respondents on the causes of conflicts**

The results according to the weighted scores in Table 2 show that crop damage by animals when they stray into crop farms was ranked first (194.9) among other perceived causes of the conflict. This is followed by indiscriminate bush burning during dry season by herdsmen (188.3) while the least cause of conflicts identified was the harassment of nomads by host youth (45.9). This implies that damage of crops,

indiscriminate bush burning, blockage of water and a host of others are the main causes of conflicts among crop farmers and nomads. The result is in tandem with the research findings of Adelokun *et. al*, (2015) and Olaleye, Odutola, Ojo, Umar and Ndanitsa, (2010) that conflict occurred, when nomadic herdsmen's livestock tampered with crop farmers' sources of livelihood. However, the respondents' level of perception of causes of conflicts (Table 2a) shows that there is a tie between respondents' level of perceived causes of



conflict. Exactly half of the respondents (50%) perceived the causes of conflicts as being very serious. This could be as a result of the negative effects it has on their farming activities been their main source of livelihood. Whereas, those that perceived it as less serious may likely benefited in what their counterpart perceived as reason for conflicts for instance; indiscriminate defecation

which could be a source of organic manure to some arable farmer may be perceived as a mess to others. The result of this finding is in agreement with Ofem, and Inyang, (2014) who posited that viable land has been a very serious cause of conflict between herders and crop farmers' communities in Nigeria.

**Table 2: Distribution of respondents by their perception of causes of conflicts between crop farmers and nomadic herdsmen (n= 120)**

Causes of conflicts	To a large extent	To a lesser extent	Not at all	Weighted score	Rank
Crop damaged	95.8	3.3	0.8	194.9	1 <sup>st</sup>
Indiscriminate bush burning	90.8	8.3	0.8	188.3	2 <sup>nd</sup>
Blockage of water	74.2	25.8	0.0	174.2	3 <sup>rd</sup>
Indiscriminate defecations	80.0	12.5	7.5	172.5	4 <sup>th</sup>
Encroachment /Over grazing	75.0	16.7	8.3	166.7	5 <sup>th</sup>
Improper management of cattle	70.8	21.7	7.5	163.3	6 <sup>th</sup>
Disregard for traditional authority	68.3	25.0	6.7	161.6	7 <sup>th</sup>
Sexual harassment of women	20.8	45.0	34.2	86.6	8 <sup>th</sup>
Encroachment of cattle route by the crop farmers	13.3	21.7	65.0	48.3	9 <sup>th</sup>
Harassment of nomads by host youth	14.2	17.5	68.3	45.9	10 <sup>th</sup>

**Table 2a: Distribution of respondents by their level of perception of causes of conflicts (n=120)**

Perception level	Frequency	Percentage
Less serious	60	50.0
Very serious	60	50.0
Total	120	100.0

#### Perception of respondents to the effect of the conflict on their community

Information available in Table 3 reveals that the most perceived effects of conflicts based on the weighted score was the reduction in output and income of farmers (197.4). This is closely followed by destruction of crops (193.4), anger/anxiety/emotional exhaustion (180) and displacement of farmers (171.6). The least perceived effect was loss of house (106.7). This shows that the effects of conflicts on farmers ranged from physical, economic, to socio-psychological (Adisa, 2012). The finding is substantiated by Ofuoku and Isife (2009) who reported reduction in output and income as well as

loss of lives and properties among others as the effect of conflicts on the arable farmers. However, a larger proportion (65%) of the respondents had high severe level of conflict effects. This implies that the effect of the conflict was much on the respondents and the daunting effects on agricultural production was that many farmers have left farming business for another job as they were displaced, most especially the youths, with great setback on food security. This is in congruent with the assertion of Sunday (2013) on effect of conflicts that conflict is a threat to peace, livelihood, human security and national stability.

**Table 3a: Distribution of respondents according to the perceived effect of the conflict on the community (n= 120)**

Effect of conflicts	To a large extent	To a lesser extent	Not at all	Weighted score	Rank
Reduction in output and income of farmers	98.3	0.8	0.8	197.4	1 <sup>st</sup>
Destruction of crops	94.2	5.0	0.8	193.4	2 <sup>nd</sup>
Anger/Anxiety/Emotional exhaustion	82.5	15.0	2.5	180	3 <sup>rd</sup>



Effect of conflicts	To a large extent	To a lesser extent	Not at all	Weighted score	Rank
Displacement of farmers	73.3	25.0	1.7	171.6	4 <sup>th</sup>
Loss of properties	67.5	32.5	0.0	167.5	5 <sup>th</sup>
Arms proliferation	65.0	33.3	1.7	163.3	6 <sup>th</sup>
Sleepless night	73.3	15.8	10.8	162.4	7 <sup>th</sup>
Loss of produce in storage	65.8	19.2	15.0	150.8	8 <sup>th</sup>
Loss of lives	40.8	49.2	10.0	130.8	9 <sup>th</sup>
Loss of house	26.7	53.3	20.0	106.7	10 <sup>th</sup>

**Table 3b: Distribution of respondents by their perceived level of effect of conflict**

Level of effect	Frequency	Percentage
Mild	42	35.0
Severe	78	65.0
Total	120	100.0

**Coping strategies employed by the respondent**

The most employed highest coping strategies employed by the crop farmers as revealed by Table 5 were to pray for peace (184.9) followed by early harvesting (181.6), appeased the other party (166.6), borrowed money to survive after insurgence (165) and educate farmers on their interdependent (165). The respondents as well sought help from relations (164.2) and from local community farmers association (159.9). It could be deduced that the respondents employed spiritual, economic and mutual coping strategies during the occurrence of the conflict. This finding is in

tandem with that of Adisa (2012) who find out that farmer prayed for peace, indicating their level of religious attachment. The coping strategies employed by the respondents were for peace to reign in their communities.

However, the respondent's level of use of coping strategies was low (55.8%) as indicated by Table 4a. This implies that coping strategies that were employed by crop farmers was in a lesser extent effective. That is although they used most of these coping strategies when necessary but not as much as expected.

**Table 4a: Distribution of respondents on the basis of coping strategies employed (n=120)**

Coping strategies	To a large extent	To a lesser extent	Not at all	Weighted score	Rank
Prayed for peace	85.8	13.3	0.8	184.9	1 <sup>st</sup>
Early harvest	83.3	15.0	1.7	181.6	2 <sup>nd</sup>
Appeased the other party	73.3	20.0	6.7	166.6	3 <sup>rd</sup>
Borrowed money to survive after insurgence	70.0	25.0	5.0	165	4 <sup>th</sup>
Educating farmers on their interdependence with the herdsmen	67.5	30.0	2.5	165	5 <sup>th</sup>
Sought help from relations	71.7	20.8	7.5	164.2	6 <sup>th</sup>
Formation of local community farmers association	63.3	33.3	3.3	159.9	7 <sup>th</sup>
Bought food after insurgence	69.2	20.8	10.0	159.2	8 <sup>th</sup>
Staying late on the farm	66.7	16.7	16.7	150.1	9 <sup>th</sup>
Sowed less to minimize losses	67.5	15.0	17.5	150	10 <sup>th</sup>
Relocate farm either from cattle Route	65.8	16.7	17.5	148.3	11 <sup>th</sup>
Accept it as fate	53.3	30.0	16.7	136.6	12 <sup>th</sup>
Took another job	58.3	17.5	24.2	134.1	13 <sup>th</sup>
Sought help from local leaders	37.5	55.0	7.5	130	14 <sup>th</sup>
Sold farm	52.5	15.0	32.5	120	15 <sup>th</sup>
Work harder/cultivating large area of land	34.2	41.7	24.2	110.1	16 <sup>th</sup>
Tight farm/making fence round	29.2	46.7	24.2	105.1	17 <sup>th</sup>
Used my old experience	16.7	70.8	12.5	104.2	18 <sup>th</sup>
Prepared for the worst	23.3	43.3	33.3	89.9	19 <sup>th</sup>



Coping strategies	To a large extent	To a lesser extent	Not at all	Weighted score	Rank
Sought help from local government	32.5	14.2	53.3	79.2	20 <sup>th</sup>
Punishment of offender	31.7	8.3	60.0	71.7	21 <sup>st</sup>
Sought litigation	25.0	16.7	58.3	66.7	22 <sup>nd</sup>
Compensation of affected farmers by the farmers' association	30.0	6.7	63.3	66.7	23 <sup>rd</sup>
Take on others/vengeance	11.7	25.8	62.5	49.2	24 <sup>th</sup>
Pretended it was not bad	11.7	11.7	76.7	35.1	25 <sup>th</sup>
Used alcohol/drugs like Indian hemp etc.	5.0	14.2	80.8	24.2	26 <sup>th</sup>

**Table 4b: Distribution of respondents based on their level of use of coping strategies**

Level of use of coping strategies	Frequency	Percent
Low	67	55.8
High	53	44.2
Total	120	100.0

#### Test of relationship between socioeconomic characteristics and use of coping strategies

Results of chi-square and PPMC analyses (Table 5a and 5b) show that other form of education ( $\chi^2=19.164$ ;  $p=0.001$ ) and ethnicity ( $\chi^2=11.609$ ;  $p=0.003$ ) were significantly related to the use of coping strategies while other socioeconomic characteristics were not significant to the use of coping strategies. This implies that access to other forms of education by the farmers may have equipped them well enough to know the choice of strategy to manage the effects of the conflicts. Furthermore, the significance of ethnicity may be as a result of diverse ethnicity and hence cultural values, which may confer different abilities and strategies among farmers in the study areas.

However, the sex, primary occupation, marital status and religion do not have direct effect on the level of use of coping strategies by the crop farmers. The insignificant of primary occupation is expected as the effects of conflicts could go beyond enterprises of residents but were to be felt by all residents of the area.

It implies that neither the age nor education qualification is needed to cope during the insurgence of conflicts between the farmers and the herdsmen. This is in contrast with the finding of Adisa (2012) that age was significantly influenced by the use of the coping strategies among the arable farmers which may be as a result of disparity in the mean age of their respondents 44 and 55 years respectively.

**Table 5a: Chi-square for test of relationship between socioeconomic characteristics and use of coping strategies**

Characteristics	$\chi^2$	Df	p-value	Decision
Sex	0.001	1	0.971	Not significant
Other education	19.164	4	0.001	Significant
Primary occupation	1.685	3	0.640	Not significant
Marital status	1.608	1	0.205	Not significant
Religion	2.383	3	0.497	Not significant
Ethnicity	11.609	2	0.003	Significant

**Table 5b: PPMC for test of relationship between selected socioeconomic characteristics and use of coping strategies (n=120)**

Variables	r-value	p-value	Decision
Age	0.164	0.073	Not significant
Years of education	0.088	0.341	Not significant

#### Test of relationship between effect of conflict and the use of coping strategies

Data shown in Table 6 indicates a significant relationship ( $r=0.400$ ,  $p=0.000$ ) between the effect of conflict and the use of coping

strategies ( $p = 0.000$ ). This implies that there is direct relationship between the effect of conflict and the coping strategies employed by the respondents. This further indicates that the level at which the respondents perceived the effect of the



conflict determines the degree of the coping strategies employed, hence, effects of the conflict is a function of the coping strategies employed. This is in tandem with the assertion of Adisa (2012) that, farmers generally tended to use problem-oriented strategies, as they actively sought solutions to the

problems arising from the destructions they encountered. Hence, this is not expected since the respondents were aged and married with responsibilities towards the upkeep of their household.

**Table 6: PPMC Correlation analysis between the effect of conflicts and use of coping strategies (n=120)**

Variable	r-value	P value
Effects of conflicts vs. use of coping strategies	0.000	0.400

**CONCLUSION AND RECOMMENDATION**

Based on the findings of this study, it was concluded that the respondents were Yoruba, male, married, predominantly aged farmers. It was also concluded that conflicts occurred between crop farmers and nomadic herdsmen as a result of crop damaged and indiscriminate bush burning which interferes with the sources of livelihood of the respondents. However, the effect of conflicts has led to reduction in output and income of the arable farmers due to destruction of their crops. Also, the study concluded that the most frequently employed coping strategies employed by the respondents were; pray for peace and early harvesting, nevertheless, the respondents had low level of coping strategies. Significant relationship existed between the coping strategies employed by the respondents and ethnicity, other forms of education as well as the effect of conflicts. The study recommends that adaptation strategies employed by the respondents should be investigated, validated and adopted by appropriate authorities in order to mitigate the regular conflicts among farmers and nomads in Nigeria.

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