

**Perceived Impact of Farmers and Herdsmen Conflict on Arable Crop Productivity in Selected Agricultural Zone of Oyo State, Nigeria**

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**Abstract**

The study examined the perception of farmers' and herdsmen's conflict impact on arable crop productivity in a selected agricultural zone of Ogbomosho, Oyo state, Nigeria. Multistage and proportionate sampling techniques were used to select 270 farmers. Data collected was analyzed using descriptive statistics such as frequency, percentage, and mean ranking analysis. The result revealed that factors such as water scarcity, inequitable access to land, diminishing land resources, burning of rangelands and fadama settlement, decline in internal discipline and social cohesion, antagonistic perceptions and beliefs among farmers and herdsmen, policy contradictions, and non-recognition of rights of indigenes are major causes of conflict in farmer-herdsmen conflict in the sampled agricultural zone in Oyo state. It was revealed that the invasion of herdsmen had seriously affected the yield of an arable crop. Hence, the study concluded that arable crop productivity is greatly affected by the conflicts and consequentially debilitates the once mutually existing farmer-pastoralist relationships. The study therefore recommended that the agricultural association should embrace a resilience strategy that can enhance peaceful coexistence between the farmers and herders.

**Keywords:** Farmers, Herdsmen, Arable Crop Productivity, Conflict, Loss of yield of Crop

## 1. Introduction

Agriculture occupies a prominent place in the economy of Nigeria by providing the means of livelihood and economic sustenance for majority of the population. As at 2019, agricultural sector accounts for about 22% of the Gross Domestic Product (GDP) in Nigeria. (National Bureau of Statistics, 2019). The sector is divided into crop production, livestock, forestry, and fishery subsectors. Out of these subsectors, the crop production subsector which is driven by the farmers and livestock subsector which is mostly owned by the Fulanis are of great importance to the economic potential of the country. (Mesike et al.,2009; Fabiyi and Otunuga, 2016). The necessity to provide food of crop and animal origin, as well as raw materials for industry and export in order to meet ever growing demands, has led to both “intensification and extensification” of land use (Nyong and Fiki, 2005). It is probably unarguable that resource ownership and utilization have directly and indirectly defined the dimensions of most conflicts involving man since time immemorial. Of all resources, however, land has remained an overwhelming source of conflicts among various user groups as well as individuals at varying thresholds. In particular, conflicts between farmers and herdsmen in the use of agricultural land are becoming fiercer and increasingly widespread in Nigeria, largely due to ‘intensification and extensification’ of production activities that are necessitated by increasing human population ( Eastwood *et al.*, 2007).

Farmers need land for crop production and Fulani herdsmen also need land and resources from land to feed their animals, however the need for this limited resource by both groups of actors is contradictory and have often led to competition. This is due to the fact that land which is probably the most important resource used by these two groups for their day to day activities is needed at varying thresholds and for different purposes (Rashid 2012). Currently, there have been a number of conflicts between farmers and herdsmen throughout Nigeria which have culminated into violent conflicts and the loss of lives and properties. This came to a serious head in the North Central (Benue State) and South western Nigeria (Oyo State, Ogun State), where farmers alleged that herders have been destroying their farms with their cattle, raped women in the area and have attacked and killed farmers in the area resulting in the killing of numerous farmers since 2000-2010 (REGSEC report, 2010). 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. It has demonstrated great potential to affect various aspects of rural life. The conflicts had far reaching economic, production and socio-psychological effects on the households of most respondents. The conflict has led to several disasters in the country, such as disruption of socioeconomic, religious, and educational activities; political instability; and threats to national unity (Kasarachi, 2016; Okoli and Addo, 2018). It is in line with this that the study set out to examine the perception of farmers' and herdsmen's conflict impacts on arable crop productivity in a selected agricultural zone of Oyo state, Nigeria.

## **2. Literature Review and Conceptual Explanation**

### **2.1 An Overview of Conflicts**

There is clear demarcation between different types of conflict in farmer-nomadic herder relations. He differentiates between disputes among individuals and groups, conflict of interest and violent conflicts. While dispute refers to disagreement between two or more persons or groups, a violent conflict involves mayhem, the destruction and killing of persons and livestock, arising from a dispute (Tonah, 2006). A conflict of interest, on the other hand, is seen as the adoption of opposing views and concerns by different actors, which usually takes the form of non-violent competition, for control of resources in a given area. Farmer herder differences are not only seen as resources conflict but are also sometimes represented as ethnic conflict involving the two groups. Since herder and farmer groups have very different values, customs, physical and cultural characteristics, disputes between them are frequently characterized as ethnic conflict (Tonah, 2006).

### **2.2 Conflicts over land**

Conflicts over land occur where autochthonous groups feel their right to land has been denied them in favour of migrants. The opening up of the cocoa frontiers in the late nineteenth century led to the rise in the value and commercialization of land. This development led to the shortage of land which made it difficult for local youth to access land. As a result, they resented migrants for usurping their birth right (Amanor, 2008, Berry, 2001). For instance, in Sefwi Wiawso in the Western Region in the 1980s, the youth of the area who had difficulty in accessing land accused migrants in the area for acquiring large tracts of virgin forests which they have not utilized and had the audacity of subletting such lands to other migrants (Boni, 2005). Using the work of Blench (2005) in Nigeria as a reference point, they argued that the population of Nigeria which stood at 140 million as of 2006 if projected back to the pre-colonial era would be as low as 10 million in the 19th century which would not result in competing interest in land use. However, the increase in the population of Nigeria as of 2006 has led to a considerable demand in land use limiting the area of land available to both pastoralists and farmers resulting in conflicts between the two groups. Moreover, David Heiser and Luna (2008) contends that conflicts over land especially between farmers and pastoralists have been occasioned by changes in land tenure regime and the deliberate attempt of intervention and legislation that were based on western models to increase production output and market integration. In addition, conflicts over land may also be motivated by political and economic reasons. This occurs when rival claimants to a land try to establish their control over a particular territory by imposing taxes and levies on the inhabitants of an area. Establishing one's claim over a territory gives him or her access to natural resources which he or she can use to his or her advantage. Politically, it also legitimizes one's authority to govern an area.

### 2.3 Empirical review

Ofem and Inyang (2014) examined the negative approach of Nomads to crop farmers in the Yakurr region of Cross River State Nigeria, through the overgrazing of farmlands, contamination of streams and the harassment of female farmers which resulted to rape causing conflict in the study area. The work observes the inevitability of conflict and the inestimable values placed on economic resource which value have directly and indirectly defined the dimensions of most conflicts involving man since immemorial. Of all resources however, land has remained an over whelming source of conflict among user and individuals at varying level of thresholds. In Nigeria, conflict between farmers and Fulani herdsmen over the use of land and agricultural produce has become a threat to peace in most part of the country, particularly in the Guinea and Savanah regions of the country due to the intensity of production activities that are propelled by increasing demand for land for various purposes. The production potential of grassland and livelihood in the arid and semi-arid region is constrained by low and variable rainfall. Therefore, there is a need for grazing cattle to access pasture resources across regions in order to ensure food security for the herds. In view of this, the paper recommends that, nomadic education and the mechanism tagged local development plans be adopted by extension agencies to minimize conflict in rural areas where grazing of cattle is inevitable.

Sulaiman and Ja'afar-Furo (2010) examined the economic effects of farmer-grazier conflicts in the fadama areas of Bauchi State in Nigeria. Bauchi State occupies total land area of 492,359 km<sup>2</sup> and has human population of 4,696,465. Using multistage random sampling technique a total of 60 fadama farmers were randomly selected from 60 Fadama Users Associations (FUA) and a corresponding 60 pastoralists randomly selected from 60 fadama communities where the selected FUAs resided. Primary data were collected using structured questionnaire administered through individual personal interviews. The data were analysed using the descriptive statistics, t-test and alternative cost technique. Results revealed that about N3, 193, 100.00 was incurred from both totally damaged and partially destroyed tube well/washbore equipment with water pumps recording N176, 415.00. Motorcycles and bicycles accounted for N565, 254.00 in terms of losses experienced. Comparatively, the arable farmers incurred higher (N80, 075,172.00) losses in monetary term than the pastoralists (N7, 047, 013.00). While reduction in farm production, increased poverty within and among the communities and social insecurity and inadequate food supply for the family were the major setbacks encountered in the area, interruption of education of children and reduction in healthcare provision of the family represented relatively lower proportions. Further, the income (N358, 000.00) of farmers in the conflict area was significantly ( $p < 0.05$ ) lower than those in non-conflict areas (N437, 313.00). Conclusively, the farmer-grazier conflicts have had negative economic effects on both the families involved and the nation in terms of the huge resources lost. It is therefore, strongly recommended that the government should put appropriate measures towards curbing the occurrence of such conflicts for the benefit of all. Rashid (2011) assessed Land use conflict between farmers and

herdsmen – Implications for Agricultural and Rural Development in Nigeria. The main thrust of this chapter is to analyze conflict actors' coping strategies and the implications for rural development in Nigeria. Specifically, this study investigated the personal and occupational characteristics of conflict actors, effects of conflict on rural household welfare, types of coping strategies used by conflict actors, factors influencing the use the coping strategies and theoretical considerations. The study was conducted in Kwara State, Nigeria. Four-stage cluster random sampling procedure was used to select 360 respondents (300 farmers and 60 herdsmen) for the research. In all, 360 respondents were selected for the quantitative data collection. Relevant data were collected with the aid structured questionnaire. The Test-retest method was used to determine the reliability of the instrument. This was carried out among 20 respondents that would not be included in the research sample. The value of coefficient of correlation "r" was found to be 0.89, which implied that the instrument was reliable. Coping strategies of respondents were measured with 20 items on a 4 point Likert-type scale. Findings revealed that the conflicts had far reaching economic, production and socio-psychological effects on the households of most respondents, and farmers generally tended to use problem-oriented strategies, herdsmen basically used emotion-oriented strategies. The use of emotion-oriented strategies among herdsmen, however, decreased with increasing educational status. Thus, the tendency to be emotionally 'attached to the cattle' diminished with increasing years of education among herdsmen.

Ibrahim *et al.*, (2015) examined the argument of land use conflict as the major cause of farmer-pastoralist conflict in Nigeria. Pastoralism in Nigeria faces challenges and these hampers the productivity that consequentially affect the Nation's economy. Available grazing lands are diminishing at an alarming rate and livestock pathways are blocked through land use, urbanisation and frontiers. The old grazing routes that existed for centuries are almost gone. Only 2.82% of the grazing reserves have been acquired and these are poorly managed. The increase in population, drying of waterholes, shifting in rainfall pattern leading to drought as a result of the changing climate affects both pastoralists and farmers. Hence, they compete over land leading to conflict, and embedded within these are growing form of capitalists land tenure and delay in the justice system that exacerbates the situation. The Nigerian Forestry Management Evaluation and Coordinating Unit (FORMECU) land use and land cover (LULC) dataset and published articles of previous farmer-pastoralist conflicts in the country are used. Results show that between 1976 and 1995, all land uses gain, attesting to the increase in population and competition over dwindling resources. However, overlap maps show intensive crop farming has expanded into grazing lands in many areas over these years. These areas of encroachment agree with most of the conflict points recorded. For a lasting solution, the study propose a possible revisit of symbiotic engagements between farmers and pastoralists.

### **3. Methodology**

The population of the study included all the arable crop farmers in the Ogbomosho Agricultural Zone, Oyo State, Nigeria. Two hundred and seventy (270) copies of a questionnaire were administered to arable crop farmers in selected agricultural zone using multistage and proportionate sampling. Data collected was analysed using descriptive statistics like tables, percentages, and mean ranking analysis to examine the perception of farmers' and herdsman's conflict impacts on arable crop productivity in a selected ogbomosho agricultural zone of Oyo state, Nigeria.

### **4. Results and Discussions**

#### **4.1 Descriptive analysis of Respondents Socioeconomic characteristics**

##### **Age of the respondents**

Table 1 presents the distribution of respondents by age. It was revealed that 42.2 percent of the respondents were between 41 and 50 years of age, 22.2 percent of the respondents were between 31-40 years, 19.3 percent of the respondents were between ages of 51-60 years, 11.5 percent of the respondents were not more than 30 years of age while only 4.8 percent were above 60 years of age. The mean age of the respondents was found to be 45 years which implies that most of the respondents were youth and therefore active enough to participate in agricultural production. This finding agreed with Gbadegesin (2008) in the work titled "the use of environmentally sustainable agriculture practices by farmers in Ogbomosho Agricultural Zone of Oyo State" where the mean age was 45 years. Younger farmers are typically less risk-averse and are more willing to try new technologies. For instance, Alexander and Van Mellor (2005) found that adoption of genetically modified maize increased with age for younger farmers as they gain experience and increase their stock of human capital but declines with age for those farmers closer to retirement.

##### **Educational level**

In respect to analysis in table 1, 39.3% of the respondents had secondary school education, 27.0% had tertiary school education, 16.7% had primary school education while only 1.1% had nomadic education. However, 15.9% of the respondents had no formal education. The level of education will go a long way in the understanding conflict resolution strategies. This agrees with the findings of Mugisha and Aloba (2012) that education improves individual ability to understand and assimilate information.

## **Marital Status**

As presented in table 1, it was revealed that 83.3% of the respondents were married, 14.5% were single, 1.5% were widowed while only 0.7% were separated. The finding therefore indicated that majority of the respondents were married which is an a priori expectation of most rural households. They are usually married with number of children which often participate in their livelihood activities and form their immediate labour force. The finding agreed with Karangwa (2010) in the work titled “Analysis the determinants of the productivity and technical efficiency of smallholder maize farms in Gisagara district” where the 67.7% of the respondents were married.

## **Religion affiliation**

The distribution of respondents by religion affiliation was presented in the Table 1. It was revealed that 66.6 percent of the respondents were Christians, 33.0 percent of the respondents were Muslims while only 0.4 percent were traditional worshippers. The existence of the religion in the study area might have favourably fostered the peaceful coexistence which will go a long way in enhancing conflict resolution in the study area. 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.

## **Membership of social group**

Result in table 1, shows the distribution of respondents by membership of social group. It was revealed that about 76.7 percent of the respondents were members of social group while only 23.3 percent of the respondents were non-members. This finding therefore indicated that over 50.0 percent of the respondents were members of social group which will increase their access to several other opportunities outside their domains. Belonging to a social group enhances social capital allowing trust, idea and information exchange (Mignouna *et al.*, 2011). Farmers within a social group learn from each other the benefits and usage of a new technology. Uaiene *et al.* (2009) suggests that social network effects are important for individual decisions, and that, in the particular context of agricultural innovations, farmers share information and learn from each other. Studying the effect of community based organization in adoption of corm-paired banana technology in Uganda, Katungi and Akankwasa (2010) found that farmers who participated more in community-based organizations were likely to engage in social learning about the technology hence raising their likelihood to adopt the technologies.

### **Membership ethnic group**

Analysis in table 1 revealed that 90.3 percent of the respondents were from Yoruba Ethnic group, 6.7 percent were from Hausa-fulani ethnic group, 2.6 percent were from Igbo ethnic group while only 0.4 percent were from ethnic group. It must be mentioned that most of the respondents in the study area were majorly from Yoruba ethnic group. This may be due to the fact that the study was conducted in Yoruba speaking area.

### **Household size**

Result in table 1, also revealed that 59.6percent of the respondents had not more than 5 members in their households while 40.4 percent of the respondents had between 6 - 10 members in their households. Based on the findings, most of the respondents had an average of 5 members of their households. The average number of the households' members in this study indicates that they had large household size which is in a prior expectation of the rural farming households. It must be mentioned that most farmers had large household size for labour supply in due to poor knowledge of family control measures. This finding is in line with Gbadegesin (2008) in the work titled "the use of environmentally sustainable agriculture practices by farmers in Ogbomoso Agricultural Zone of Oyo State" where the household size of the respondents stood at 4 members.

### **Primary occupation**

Based on the distribution in the table1, the primary occupations identified include; farming (61.1%), trading (16.3%), civil service (11.1%), artisan activities (9.6%) and herding (1.9%). The finding therefore indicates that majority of the respondents engaged in farming activities as their primary occupation. This development is an a priori expectation in the rural areas in which majority of the population derive their livelihoods from farming / agriculture because of abundance of large expanse of fertile land for agricultural purposes. Agriculture is a way of life to most rural dwellers. The study corroborates the World Bank (2006) in the work titled "Where is the wealth of nations? Measuring capital for the 21st century" where more than 60% of their respondents engaged in farming (agriculture-dependent).



### **Years of experience in farming**

Looking at the analysis in table 1, it was revealed that 54.8% of the respondents had between 6 – 15 years of experience in farming, 24.8% of the respondents had between 16 – 25 years of farming experience, 15.2% of the respondents had not more than 5 years of farming experience, 3.7% of the respondents had between 26 – 35 years of farming experience while only 1.5% of the respondents had above 35 years. The finding further revealed that most of the respondents had an average of 13.28 years of farming experience which implies long years of experience which could be useful in boosting agricultural productivity and better returns to investment especially arable crop farming. Years of experience in farming is also assumed to be a determinant of adoption of new technology. Older farmers are assumed to have gained knowledge and experience over time and are better able to evaluate technology information than younger farmers (Mignouna *et al.*, 2011; Kariyasa and Dewi, 2011).

### **Farm size**

According to result in table 1, it was observed that 71.1% of the respondents had farm size of about 5 ha, 21.5% of the respondents had between 6 to 10 ha of farm land while only 7.4% of the respondents had more than 10 ha farm land. The mean farm size was found to be 5.36ha. The finding indicates that most farmers are medium scale producers of arable crop. The result of this study indicates that majority of the interviewed farmers are medium scale holder farmers. Asiabaka (2000) noted that larger farm sizes encourage adoption of innovation and mechanization.

**Table 1: Descriptive analysis of Respondents Socioeconomic characteristics**

<b>Age (Years)</b>	<b>Frequency</b>	<b>Percentage</b>
≤30	31	11.5
31-40	60	22.2
41-50	114	42.2
51-60	52	19.3
Above 60	13	4.8
Total	270	100.0

  

<b>Distribution of respondents by educational level</b>		
<b>Educational level</b>	<b>Frequency</b>	<b>Percentage</b>
No formal education	43	15.9
Primary education	45	16.7
Secondary education	106	39.3
Tertiary education	73	27.0
Nomadic education	3	1.1
Total	270	100.0

  

<b>Distribution of respondents by marital status</b>		
<b>Marital Status</b>	<b>Frequency</b>	<b>Percentage</b>
Single	39	14.5
Widowed	4	1.5
Separated	2	0.7
Married	225	83.3
Total	270	100.0

  

<b>Distribution of respondents by religion</b>		
<b>Religion</b>	<b>Frequency</b>	<b>Percentage</b>
Christianity	142	66.6
Islam	38	33.0
Traditional worshipers	1	0.4
Total	270	100.0

  

<b>Distribution of respondents by membership of social group</b>		
<b>Social Group</b>	<b>Frequency</b>	<b>Percentage</b>
Yes	207	76.67
No	63	23.33
Total	270	100.0

  

<b>Distribution of respondents by ethnic groups</b>		
<b>Ethnic Group</b>	<b>Frequency</b>	<b>Percentage</b>
Yoruba	244	90.3
Hausa	18	6.7
Igbo	7	2.6
Tiv	1	0.4
Total	270	100.0

**Distribution of respondents by household size**

<b>Household Size</b>	<b>Frequency</b>	<b>Percentage</b>
<=5	161	59.6
6-10	109	40.4
Total	270	100.0

**Distribution of respondents by primary occupation**

<b>Primary occupation</b>	<b>Frequency</b>	<b>Percentage</b>
Farming	165	61.1
Herding	5	1.9
Trading	44	16.3
Civil service	30	11.1
Artisan activities	26	9.6
Total	270	100.0

**Distribution of respondents by farming experience**

<b>Farming experience</b>	<b>Frequency</b>	<b>Percentage</b>
≤5	41	15.2
6-15	148	54.8
16-25	67	24.8
26-35	10	3.7
Above 35	4	1.5
Total	270	100.0

**Distribution of respondents by farm size**

<b>Farm size (ha)</b>	<b>Frequency</b>	<b>Percentage</b>
<=5	192	71.1
6 – 10	58	21.5
Above 10	20	7.4
Total	270	100.0

**Source: Field Survey, 2021**

#### 4.2 Descriptive Analysis of Causes of conflicts between farmers and herdsmen in the study area

Analysis presented in Table 1 reveal the distribution of respondents on causes of conflicts between farmers and herdsmen. Based on the finding, 85.2% of the respondents claimed that burning of rangelands and fadama settlement was the major cause of conflict in the study area. About 84.1% of the respondents identified decline in internal discipline and social cohesion as the cause of conflict. Moreover, 81.1% of the respondents implicated diminishing land resources as the cause of conflict in their areas while 80.9% of the respondents indicated water scarcity as the cause of conflict between herdsmen and farmers. In the same vein, 75.2% of the respondents reiterated that inequitable access to land had been the cause of conflict while only few (9.6%) of the respondent's adduced antagonistic perceptions and beliefs among farmers and herdsmen, policy contradictions, and non-recognition of rights of indigenes as the cause of conflict in the study area. The findings therefore indicate that majority of the farmers identified several causes of conflicts but burning of rangelands and fadama settlement was the major causes of conflicts between farmers and herdsmen in the study area. This issue of burning of rangelands and fadama settlement almost common during dry season when the herdsmen set their grazing land on fire in order for the grasses to bring new shoot in the cause of doing this the fire will enter into the land cultivated by farmers thereby causes conflicts between farmers and herdsmen. Also diminishing land resources causes between farmers and herdsmen. Frequent passing or walking of cattles on the land will reduce growth of grasses and weeds thereby leading to diminishing of the resources on the land. Decline in internal discipline and social cohesion, diminishing land resources and water scarcity were the major causes of conflicts between farmers and herdsmen. Water had always been the major resource for day to day activities especially for the survival of human and livestock. Similarly, other researchers (Odoh and Chigozie, 2012; Abbass, 2012) relate the causes of conflict to the global climate change and the contending desertification and aridity that has reduced arable and grazing lands, forcing pastoralist to move southwards in search of pasture for their livestock.

**Table 2: Distribution of respondents according to causes of conflicts between farmers and herdsmen in the study area**

<b>Causes of conflict</b>	<b>Frequency*</b>	<b>Percentage</b>
Water scarcity	217	80.9
Inequitable access to land	203	75.2
Diminishing land resources	219	81.1
Burning of rangelands and Fadama settlement	230	85.2
Decline in internal discipline and social cohesion	227	84.1
Antagonistic perceptions and beliefs among farmers and herdsmen, policy contradictions, and non-recognition of rights of indigenes	26	9.6

**Source: Field Survey, 2021**

### 4.3 Effects of conflict between farmers and herdsmen in the study area

Table 3 presents the distribution of respondents by effects of the conflicts on the farmers. Based on the result of the finding, loss of yield of crop with a weighted mean score (WMS) of 2.57 was ranked first among the effects of conflict between farmers and herdsmen. Other effects of conflict between farmers and herdsmen include crop destruction (WMS = 2.54), loss of household resources (WMS = 2.47), loss of stored products (WMS = 2.46), Addition of nutrients to soil (WMS = 2.43), increased prices of goods/agricultural products (WMS = 2.40), emotional exhaustion (WMS = 2.33), theft of crop produce in barn (WMS = 2.33), environmental pollution (WMS = 2.30), reduction in food quality/quantity (WMS = 2.27), job dissatisfaction (WMS = 2.19), loss of soil fertility (WMS = 2.04), destruction of houses, property and farm stead (WMS = 1.93), displacement/migration of labour (WMS = 2.17), loss of self-esteem (WMS = 1.66) and loss of land (WMS = 0.97).

The findings therefore indicate that loss of yield of crop was the most common effect of the conflicts between farmers and herdsmen in the study area, which could reduce their income level thereby leading to poverty. Decrease in the size of the land in which farmer cultivated. This happen when the farmers are not able to go to the farm with the fear of herdsmen not to destroy their farm and this had lead to loss of yield of crop. Follow by Crop destruction, during the period of grazing cattle is moving up and down to graze on the grassland in the cause of doing this cattle enter into the cultivated land eat up the leaves of the crops and destroy them. Thereafter, loss of household resources was also one of the effect of conflicts between farmers and herdsmen. When the conflicts occur between farmers and herdsmen, the herdsmen enter their household to destroy their resources. Basically, these conflicts have direct impact on the lives and livelihoods of those involved. They also disrupts and threatens the sustainability of pastoral production and agriculture in West Africa (Moritz, 2010). These conflicts reinforce circles of extreme poverty and hunger, and destroy social status, food security and affect mostly the most marginalised groups that include women and children. This affects education of children leading to obstacles in their development and mass displacement. Consequentially, this debilitates the once mutually existing farmer-pastoralist relationships.

**Table 3: Distribution of respondents by effects of the conflicts in the study area**

Effects of the conflicts between farmers and herdsmen	Always	Occasionally	Rarely	Not at all	WMS	Rank
Loss of household resources	151(55.9)	97(35.9)	19(7.0)	3(3.1)	2.47	3 <sup>rd</sup>
Displacement/migration of labour	98(36.3)	133(49.3)	25(9.3)	14(5.2)	2.17	14 <sup>th</sup>
Increased prices of goods/agricultural products	148(54.8)	91(33.7)	22(8.2)	9(3.3)	2.40	6 <sup>th</sup>
Loss of stored products	152(56.3)	93(34.4)	21(7.8)	4(1.5)	2.46	4 <sup>th</sup>
Loss of yield of crop	179(66.3)	68(25.2)	21(7.8)	2(0.7)	2.57	1 <sup>st</sup>
Theft of crop produce in barn	141(52.2)	80(29.6)	47(17.4)	2(0.7)	2.33	7 <sup>th</sup>
Loss of soil fertility	120(44.4)	63(23.3)	65(24.1)	22(8.2)	2.04	12 <sup>th</sup>
Loss of land	23(8.5)	64(23.7)	66(24.4)	117(43.3)	0.97	16 <sup>th</sup>
Destruction of houses, property and farm stead	125(46.3)	35(13.0)	76(28.2)	34(12.6)	1.93	13 <sup>th</sup>
Loss of self-esteem	89(33.0)	72(26.7)	38(14.1)	71(26.3)	1.66	15 <sup>th</sup>
Addition of nutrients to soil	82(30.37)	44(16.3)	52(19.3)	92(34.1)	1.43	5 <sup>th</sup>
Environmental pollution	149(55.2)	74(27.4)	25(9.3)	22(8.2)	2.30	9 <sup>th</sup>
Job dissatisfaction	116(43.0)	96(35.6)	51(18.9)	7(2.6)	2.19	11 <sup>th</sup>
Reduction in food quality\quantity	115(42.6)	114(42.2)	39(14.4)	2(0.7)	2.27	10 <sup>th</sup>
Emotional exhaustion	137(50.7)	90(33.3)	38(14.1)	2(0.7)	2.33	7 <sup>th</sup>
Crop destruction	179(66.3)	63(23.3)	23(8.5)	5(1.9)	2.54	2 <sup>nd</sup>

**Source: Field Survey, 2021**

**WMS = Weighted Mean Score**

#### **4.3.1 Estimate of the revenue Associated with arable crop production before and after herdsmen invasion in the study area**

Table 4, presents the estimates of the returns associated with arable crop production before and after herdsmen invasion in the study area. An average of 5854.481kg of arable crop was harvesting before while 5179.344kg of the harvested arable crop production was observed after invasion. Moreover, an average of 5391.148kg of arable crop was sold before invasion at an average price of ₦1287.037 while 5430.926kg was sold after invasion at an average price of ₦1293.852. An average of 1009.46kg was sold at an average price of ₦678.75. The finding therefore indicated that an average of ₦690037.50 was generated from the sales of arable crops in the study area. The finding therefore indicates that more quantity of arable crops was harvested before invasion compared to after invasion of herdsmen in the study area which implies that invasion of herdsmen had seriously affected the yield of arable crop.

**Table 4: Distribution of the returns Associated with arable crop production**

<b>Items</b>	<b>Before invasion</b>	<b>After invasion</b>
Quantity of crops harvested(kg)	5854.481	5179.344
Quantity of crops consumed(kg)	640.2926	569.14
Quantity of crops sold(kg)	5214.188	4610.204
Price of 1 kg of crop sold (N)	128.037	129.852
<b>Total revenue from arable crops farming (N)</b>	<b>667608.989</b>	<b>598644.210</b>

**Source: Field Survey, 2021**

### **Discussion of Findings**

Findings from the study show that factors such as water scarcity, inequitable access to land, diminishing land resources, burning of rangelands and Fadama settlement, decline in internal discipline and social cohesion, antagonistic perceptions and beliefs among farmers and herdsmen, policy contradictions, and non-recognition of rights of indigenes are major causes of conflict in farmer-herdsmen conflict in sampled agricultural zone of Oyo state. This outcome is supported by (Odoh and Chigozie, 2012; Abbass, 2012). It was further revealed that the conflict affects the education of children, leading to obstacles in their development and debilitating the once mutually existing farmer-pastoralist relationships. It was revealed that the invasion of herdsmen had seriously affected the yield of an arable crop. The outcome buttresses the opinion of Ogunwande and Akinrinola (2017).

### **5. Conclusion and Recommendation**

Based on findings, specific factors such as water scarcity, unequal access to land, diminishing land resources, burning of rangelands and Fadama settlements, decline in internal discipline and social cohesion, antagonistic perceptions and beliefs among farmers and herdsmen, policy contradictions, and non-recognition of indigenes' rights are major causes of conflict in farmer-herdsmen conflict in the sampled agricultural zone of Oyo and grea The study therefore recommended that the agricultural association should embrace a resilience strategy that can enhance peaceful coexistence between the farmers and herders.

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