Nigerian Journal of Rural Sociology Vol. 17, No. 1, 2017

# LIVELIHOOD DIVERSIFICATION AMONGST PASTORALISTS AND CONFLICT WITH ARABLE CROP FARMERS: EMPIRICAL EVIDENCE FROM KWARA STATE, NIGERIA

Yusuf, O. J., Ayanda, I. F., Olooto, F. M. and Salawu, O. L.
Department of Agricultural Economics and Extension Services, Kwara State University, Malete, Kwara State
Correspondence contact details: olayinkaj.yusuf@kwasu.edu.ng

## ABSTRACT

The study identified causes of conflicts, settlement pattern of pastoral farmers and analyzed the influence of livelihood diversification on conflicts between pastoralists and indigenous crop farmers. Using multistage sampling procedure to select 280 respondents, data were collected by means of structured interview schedule and analyzed by frequency distribution, Pearson Correlation and one-way ANOVA. Results show that high pressure on land (WMS = 4.87) and unfavourable land tenure system (4.56) mainly caused the conflicts. Crop and pastoral farmers had an average farm size of 2.9ha and 1.7ha, respectively. Majority (75.5%) of pastoralists were engaged in crop production, while only 12.1% of crop farmers were involved in livestock rearing. Also, 57.9% and 32.9% amongst crop farmers and 14.2% and 15.0% amongst pastoral farmers were involved in trading and commercial (vehicular) transport business, respectively. Furthermore, 16.4% and 7.9% of the pastoralists lived in mud and block- walled houses with corrugated iron sheets, respectively. Transformational approach was identified as most acceptable solution of conflict resolution by both crop and pastoral farmers. There was a significant difference between farm size (F=9.33) and educational level (F=8.93) of crop and pastoral farmers. There was also a significant relationship between cause of conflicts and pastoralists' livelihood diversification (r=0.74) and number of years' of pastoralists in settlement (r=0.29). The study concluded that increasing involvement of the pastoralists in crop production, involvement in other employment opportunities and erection of permanent building structure ignited unhealthy rivalry between the two groups.

**Keywords**: Permanent housing, crop production, farm size, livelihood diversification, educational attainment.

## INTRODUCTION

Nigerian agriculture remains a key driver of the economy despite the abundance of oil in the country. Agriculture employs about 70% of the active population and contributes 24.4% of the nation's Gross Domestic Product (GDP). Yet, large proportions of the farmers who mainly live in rural areas are poor people (Edache, 2006). Sanusi (2011) reported that about 70% (a proportion equivalent to almost 20% of Sub-Saharan Africa) of Nigerian total population lives below the poverty line. Although an average farmer in a rural set up in Nigeria engages in crop cultivation and livestock rearing, pastoral farmers are mainly known for livestock rearing. They engage in seasonal migration of herds and family in search of fertile pastures for their livestock.

However, transhumance nature of pastoral farmers characterized by seasonal movement of livestock from one region to another, in recent times, is now taking new dimension - pastoralists now more often assume sedentary lifestyle. They acquire land in their new locations, settle down, engage extensively in arable farming while tenaciously still keep tending their livestock herds. The consequences of livelihood diversification among pastoralists is threatening to local residents, who are mainly arable crop farmers, thereby re-igniting long-standing violent conflicts between these two groups in many rural communities in Nigeria.

Tamuno (1991) reported that these conflicts are due to internal boundary disputes, rival interest of nomads and sedentary farmers as well as agitation for improved prices for agricultural commodities and improved standard of living by groups of peasants in some Local Government Areas. Also, vying for land ownership could be another major cause of conflict. Land is not only a matter of power and wealth, but is loaded with meaning. It is *sine qua non* to life; it is a bridge between livelihood and beyond, as people spend useful parts of their living on land till transition to grave for external preservation inside the land (Yahaya, 2005). Hence, the way by which people perceive land culturally may be instrumental to how disputes between crop farmers and pastoralists as well as land resource explorers are handled. Arable and pastoral farmers tend to differ from each other both regarding principles and practices of land use. For instance, many disputes often occur around water courses where farmers grow vegetables in dry season and herders water their cattle. If crop damage occurs and this is frequently the case, conflict occurs. Vegetable farmers claim right to grow vegetables around the water courses and herdsmen should stop destroying their crops. The herders, on the other hand, perceive this act as sabotage, indicating that their cattle need to be watered anyhow. The phenomenon of climate change, inevitably altering local and regional weather conditions around the world and resulting in extreme climatic conditions, also exacerbate the conflict situation. The ever growing pressure on land in the past recent years has been described by many experts and onlookers as a clear manifestation of the impact of climate change across Nigeria (Heinrich Boll Foundation,

2000). The effect of climate change is evident in the incessant and prolonged drought in the drier regions of the world, flood, hurricanes, increased frequency of fire outbreak, poverty, malnutrition, increased water need and reduced supply, adverse effects on grazing land and pasture quality. Thus the cultivable land for crop and livestock (cattle, sheep and goat) production is consistently decreasing, thereby worsening conflict situation linked with decreasing land resources as a result of climate change.

There is increasing number of conflicts in many parts of Kwara State and the country at large. For instance, The Guardian (2012) reported that 11 Tiv farmers were killed in a clash between herdsmen and Tiv farmers while about 5,000 residents fled the area and left behind their belonings in Nasarawa State, North Central geo-political zone of the country. Furthermore, Nigerian Tribune (2012) reported that 13 farming communities located around the bank of River Benue in Gwer West Local Government Area of Benue State were dislodged with over 30 farmers feared dead. The same Newspaper, in another edition reported that a Fulani herdsman was found killed in Eggon, Doma Local Government Area of Nasarawa State by gunmen suspected to be Tiv farmers. The killing was said to be a reprisal attack against avenging the death of two Tiv farmers killed previously.

Several attempts made to resolve these conflicts by the governmental (an example of which is the enactment of the Grazing Amendment (2004) Law by Kwara State Government) have only temporarily succeeded in calming of frayed nerves of parties involved in the conflict; they do not provide sustainable resolutions, hence recurrence of the conflict situations often and often. Empirically investigating the changing settlement pattern amongst pastoral farmers and the influence of their changing livelihood strategies on conflict emergence with arable farmers is germane to proffering long-lasting, sustainable solutions to this perpetually recurring menace. This is apt at this material time because Nigerian agriculture is being challenged to contribute to sustainable growth, and provide quality and affordable food for her citizens. The foregoing thus necessitated this study.

The main of the objective of the study was to investigate the effect of livelihood diversification among pastoralists on the emergence of conflict with arable farmers. The specific objectives were to:

1. describe socioeconomic characteristics of both pastoralists and arable crop farmers;
2. identify the livelihood strategies of both pastoralists and arable crop farmers;
3. examine the influence of changing livelihood strategies amongst pastoral farmers on conflict between them and arable crop farmers;
4. examine the effect of changing settlement pattern amongst pastoral farmers on conflict between them and arable crop farmers;
5. identify sustainable prevention strategies to manage conflict situation between pastoralist and arable crop farmers.

Null hypotheses were formulated for the study as follows:

$H_0$1: There is no significant difference between selected socioeconomic characteristics of arable farmers and pastoralists

$H_0$2: There is no significant relationship between pastoralists' livelihood diversification and cause of conflict with arable crop farmers

$H_0$3: There is no significant relationship between pastoral farmers' number of years in settlement and cause of conflict with arable crop farmers

## METHODOLOGY

The study was carried out in Kwara state of Nigeria which is located within the North Latitude $11^0$ $2^1$ and $11^0$ $45^1$. It is sandwiched between longitudes $2^0$ $45^1$ and $6^0$ $40^1$ East of Greenish meridian. The state has a land area of 32,500 square kilometres (that is 3,250,000 hectares) with a temperature range of between $30^0$C and $35^0$C. The vegetation in the northern parts of the State is mainly savannah grass land while to the southern part is wooded Guinea Savannah. The rainfall pattern both in quantity (900-1500mm) and distribution (6-7months) and vegetation types favour production of cattle, goat, sheep and arable crops. The favourable climatic conditions are responsible for the exodus of Fulani from the northern parts of the country where adverse effects of climate change are mostly felt. The population of Kwara state is 2.3 million people (NPC, 2006). Kwara state is naturally endowed for livestock production. Livestock production is the major means of livelihood of many inhabitants of the State especially the Hausa/Fulani while crop production is the major farming enterprise of the major tribes (Yoruba, Nupe and Baruba) in the State.

The target population for the study consisted of the indigenous crop farmers and the pastoralists in the sixteen Local Government Areas (LGAs) of Kwara state. There is a preponderance of crop farmers and pastoralists in all the 16 LGAs in the state. The study used a multistage sampling procedure. Stage one involved a random selection of seven Local Government Areas (i.e. 43.75% of the LGAs in the state). These were Asa, Moro, Isin, Ifelodun, Kaiama, Edu, and Baruteen LGAs. The Second stage involved a random selection of five villages' and five pastoralists' settlements (*Gaa*) in

each LGA. The Extension Agents in each LGA have the lists of practicing farmers and also assisted in the compilation the lists of the pastoralists, to the extent possible, within their areas of jurisdiction. Twenty (20) farmers and 20 pastoralists were randomly selected from the selected villages and *Gaas* in each LGA. Thus, to select a total of 140 crop farmers and 140 pastoralists, giving a total of 280 respondents. Data collected by means of structured interview schedule were summarized using frequency counts, percentages and charts, while Pearson Product Moment Correlation analysis and one-way ANOVA were used to test the hypotheses.

**Measurement of variables**

Livelihood strategy was measured by requesting respondents to check which occupational activities they engaged in from a list provided and were scored one point for each activity. They were also asked to indicate specific crop enterprises they cultivated and also scored accordingly. Reasons for livelihood diversification and causes of conflict were operationalized by evaluating respondents' opinions about certain statements as appropriate for each case on a 5 point Likert scale. Weighted mean score was then obtained for each statement. Other variables, including frequency of out-migration amongst pastoralists and types of building in their settlement were measured at nominal level.

**RESULTS AND DISCUSSION**

**Socioeconomic characteristics**

Results in Table 1 show that mean age of crop farmers and the pastoralists were 55.5 and 49.5 years, respectively. This indicates that youth involvement in crop production was relatively low. The pastoralists who typically required covering long distances on daily basis to graze their cattle were equally growing old. Ageing has an adverse effect on agricultural productivity in general in Nigeria. The UN Economic Commission for Africa predicts that the size of the elderly population is expected to jump from 16.6 million to 28.6 million persons over the period from 1995 - 2015 (Ismailla, 2010). The average age of the farmers and the pastoralists confirmed this prediction and underscores the need to encourage youth to actively get involved in crop and livestock production.

Majority (94.3%) of the crop farmers and pastoralists (91.3%) were male, as shown in Table 1. Although males are predominantly involved in arable crop farming and livestock production as reflected in the obtained results, the roles of women are equally important especially in produce/product processing and marketing. The results also indicated that 86.43% of the crop farmers and 92.9% of the pastoralists were married. The large proportion of married individuals amongst both categories of respondents is not unexpected given their high mean age value. The respondents' wives may contribute to the labour requirements on the farms as most of the farm operations are labour intensive (Ismailla *et al.*, 2010). The implication of these findings is that the damage caused by conflict occurrence would be equally felt by both males and females, and their families.

Furthermore, results in Table 1 revealed that about half (47.9 %) of the crop farmers and majority (75.8 %) of the pastoralists had no formal education. Also, while 10.0% and 4.3% of the crop farmers had secondary and tertiary education, respectively, only very few (0.71%) of the pastoralists had secondary school education. The results indicate that arable crop farmers were far more educated than their pastoralist counterparts. This might have implication on conflict occurrence because education may tend to improve civility of an individual and enhance their resolve to settling disagreement without resorting to use of arms. More than half (55.7 %) of the crop farmers had 1-3 children attending primary school. Furthermore, majority (73.6 %) of the farmers had 1-3 children in tertiary institutions. Less than half (28.0%) and 10.0% of the pastoralists had between 1-3 children attending primary and tertiary educational institutions, respectively. The children will be in a better position by virtue of their level of educational attainment to assist their parents to access relevant information for agricultural and livestock production and decision making. This agreed with the findings of Nweke (1982) that education provides a favourable atmosphere for awareness of innovations.

The average farm size of the pastoralists and crop farmers were 1.7 ha and 2.9ha, respectively. Although, crop farmers had larger farm size, mean value obtained for pastoralists too is appreciably more over the national average farm size of 0.57 ha as reported by Ingawa (2005). It may not be out of place to assume that increasing involvement of the pastoralists in land cultivation for crop production invariably necessitating acquisition of more land could aggravate unhealthy rivalry between the two groups over land use. This agreed with Tamuno (1991) who reported that the incidence of conflict in Nigeria was due to rival interests of nomads and sedentary farmers. The crop farmers and the pastoralists had spent an average of 40.1 and 39.7 years in crop production respectively. Involvement of the Fulani pastoralists in crop production and the tendency to live a sedentary life could be worrisome to the native farmers who may be entertaining the fear that the Fulanis are taking over their land, a situation that may degenerate into crisis. The average herd size was 39 cattle. It could

be inferred that the necessity for the pastoralists to be on the move in search of pasture and water especially in the dry season might be the basis for keeping small herd sizes in order to avoid excessive overheads particularly on feeding animals during the dry period.

**Table 1: Socioeconomic characteristics of arable crop farmers and pastoralists**

| Variable | Farmers | | Pastoralist | |
|---|---|---|---|---|
| | F | % | F | % |
| **Age** | | | | |
| 20-40 | 33 | 23.6 | 35 | 25.0 |
| 41-60 | 43 | 30.7 | 72 | 51.4 |
| 61-80 | 51 | 36.4 | 31 | 22.1 |
| Above 81 | 13 | 9.3 | 2 | 1.4 |
| Mean | 55.45 | | 49.9 | |
| **Sex** | | | | |
| Male | 132 | 94.3 | 137 | 97.9 |
| Female | 8 | 5.7 | 3 | 2.11 |
| **Marital status** | | | | |
| Single | 11 | 7.9 | 10 | 7.1 |
| Divorced | 1 | 0.7 | 0 | 0.0 |
| Widowed | 7 | 5.0 | 0 | 0.0 |
| Married | 121 | 86.4 | 130 | 92.9 |
| **Educational level** | | | | |
| No formal education | 67 | 47.9 | 106 | 75.7 |
| Adult education | 21 | 15.0 | 3 | 2.3 |
| Quranic education | 13 | 9.3 | 24 | 17.1 |
| Primary Education | 19 | 13.5 | 6 | 4.3 |
| Secondary Education | 14 | 10 | 1 | 0.7 |
| Tertiary Education | 6 | 4.3 | 0 | 0.0 |
| **Farm size in Ha** | | | | |
| <1 | 28 | 20.0 | 44 | 31.4 |
| 1-3 | 60 | 42.9 | 91 | 65.0 |
| 4-6 | 52 | 37.1 | 5 | 3.57 |
| Average | 2.9 | | 1.7 | |
| **Years spent in crop production** | | | | |
| 1-20 | 19 | 13.6 | 18 | 12.9 |
| 21-40 | 46 | 32.9 | 55 | 39.3 |
| 41-60 | 60 | 42.9 | 48 | 34.3 |
| 61-80 | 15 | 10.7 | 19 | 13.6 |
| Average | 40.1 | | 39.8 | |

**Source: Field survey (2013)**

**Livelihood strategies of crop farmers and pastoralists**

Results in Table 2 summarize the enterprises undertaken by the respondents as their means of livelihood. The entire crop farmers (100%) were engaged in arable crop farming, while 12.1% amongst them were also engaged in livestock production. Also, while 57.9% and 32.9% amongst them were involved in trading and commercial transportation business, respectively; 12.9%, 22.9% and 23.6% were employed as farm labour, security guards and transportation business (Okada), respectively. In the same vein, while all pastoral farmers were engaged in livestock rearing, results also indicated that majority (75.5%) of them were as well involved in crop farming. Also, 14.2%, 15.0% and 9.2% of the pastoralists engaged in trading, commercial transportation and farm labour respectively. It could be inferred from the above that both pastoral and crop farmers engaged in various activities as a means of livelihood. This is in conformity with the findings of Yusuf and Adisa (2012) who reported that, in order to make ends meet, rural inhabitants often engage in a combination or mix of livelihood activities as strategy for survival, with agriculture as primary occupation. The results also reflect the preponderance of pastoralists engaging in crop farming, with over 70.0% of them in this category. This implies that pastoralists would need more land for their farming activities, thus explaining the rivalry likely to ensue between them and the

indigenous crop farmers due to competition for farmland. This, agreeing with Tamuno (1991), might as well have implication for occurrence of conflict if the lands are not properly acquired from crop farmers who are the original native land owners.

**Enterprises of the pastoralists and the crop farmers**

Results in Table 2 further show that 52.9% and 58.6% of crop farmers cultivated maize and Guinea corn, respectively. However, majority (77.1 %) of them grew cassava. A small proportion (10.0%) of this group planted cashew. However, 97.1% and 90.0% of the pastoralists planted Guinea corn and maize respectively. In addition, about half (45.7 %) of them planted yam while more than half (57.9 %) planted cassava. Furthermore 10.0% of the pastoralists also planted cashew, suggesting that the pastoralists' involvement in tree crop production is on the increase. The planting of tree crop (cashew) is an indication that the pastoralists were opting out of pastoralism for sedentary life. It is obvious that the pastoralists are venturing into arable and tree crop farming to feed their family and to generate income. It is not out of place to assume that crop farmers might foresee a future strong competition between them and pastoralists on the use of available land for farming, which may be advanced as part of constant disagreement between the two groups over use of land.

**Table 2: Livelihood strategies of crop and pastoral farmers**

| Variable | Farmers | | Pastoralist | |
|---|---|---|---|---|
| | F | % | F | % |
| **Livelihood strategies** | | | | |
| Crop production | 140 | 100.0 | 106 | 75.5 |
| Livestock production | 17 | 12.1 | 140 | 100.0 |
| Trading | 81 | 57.9 | 20 | 14.2 |
| Commercial transportation | 46 | 32.9 | 21 | 15.0 |
| Farm labour | 18 | 12.9 | 13 | 9.2 |
| Security guard | 32 | 22.2 | 11 | 7.9 |
| Okada riding | 33 | 23.6 | 19 | 13.6 |
| **Crop enterprise of respondents** | | | | |
| Rice | 52 | 37.1 | 0 | 0.0 |
| Maize | 74 | 52.9 | 126 | 90.0 |
| Yam | 67 | 47.9 | 64 | 45.7 |
| Guinea corn | 82 | 58.6 | 136 | 97.1 |
| Cassava | 108 | 77.1 | 81 | 57.9 |
| Melon | 55 | 39.3 | 110 | 78.6 |
| Cowpea | 4 | 2.9 | 27 | 10.3 |
| Cashew | 14 | 10.0 | 14 | 10.0 |

**Source: Field survey (2013)**

**Pastoral farmers' reasons for livelihood diversification**

Results in Table 3 show that the most prominent reason pastoralists diversified their livelihood activities by venturing into other enterprises was because of diminishing land for cattle grazing. This recorded maximum weighted mean score of 5. Followed this include 'poor quality of existing pasture' (WMS = 4.6), and 'insufficiency of income from cattle rearing to meet family requirements' (WMS = 4.39). These necessitated their venturing into arable and tree crop production for food and income. It could be inferred that the planting of tree crops by the pastoralists might be suggestive to their counterparts that the pastoralists intend to stay permanently on their land. This might be partly responsible for the constant hostilities between the two groups.

**Changing settlement pattern among pastoralists**

Results in Table 4 show that few (31.4%) of the pastoralists migrated on annual basis for the feeding and watering of their cattle while fewer proportions (12.1% and 7.8%) migrated bi-annually and every three years, respectively. However, larger proportion (40.7%) of the pastoralists lived permanently in their location within proximity to crop farmers' residential areas. Results further show that close to half (43.6 %) of the pastoralists were located or settled within 6-10 kilometers radius to the nearest town or village. It is not out of place to assume that crops of farmers whose farms are located nearby would be predisposed to consumption by herders' cattle, particularly when pasture is in scarce supply.

**Table 3: Pastoralists reasons for livelihood diversification**

| Variable | SA | A | U | D | SD | WMS |
|---|---|---|---|---|---|---|
| Land for cattle grazing diminishing | 140 (100.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 5 |
| Pasture quality becoming low | 115 (82.1) | 14 (10.0) | 4 (2.9) | 4 (2.9) | 3 (2.4) | 4.6 |
| Income from cattle herding not adequate to meet family's needs | 91 (65.0) | 33 (23.6) | 2 (1.4) | 8 (5.7) | 6 (4.3) | 4.3 |

**Source: Field survey (2013)**

The pastoralists ranked inadequate water (WMS = 3.9), inadequate pasture (3.6) and pressure on land for other use (3.6) as the three prominent reasons for migration. Communal dispute on land (3.5) and attack from thieves (3.3) ranked 4th and 5th, respectively, while unfriendliness of natives/local residents (2.83) ranked lowest. It is obvious that the continuous diminishing of land for farming and the pastoralists' decision to stay permanently in their location could be responsible for the frequent clash between the farmers and pastoralists over land use. This agreed with the findings of Brenjo (2007) and Al-Naim (2004) whose studies identified water availability as main causes of conflict between sedentary Arabs and nomads.

**Table 4a: Frequency of migration amongst pastoralists**

| Frequency of migration | Frequency | Percentage |
|---|---|---|
| Annually | 44 | 31.4 |
| Bi-annually | 17 | 12.1 |
| Every three years | 11 | 7.8 |
| Permanently migrated | 57 | 40.7 |
| No response | 11 | 7.8 |

**Table 4b: Reason of migration amongst pastoralists**

| Reasons for migration | SA | A | U | D | SD | WMS |
|---|---|---|---|---|---|---|
| Inadequate water for cattle | 65 (46.4) | 32 (22.9) | 17 (12.1) | 15 (10.7) | 11 (7.9) | 3.91 |
| Inadequate pasture availability | 33 (23.6) | 65 (46.4) | 10 (7.1) | 18 (12.1) | 14 (10.0) | 3.61 |
| Pressure on land for other purposes | 87 (62.2) | 43 (30.7) | 5 (3.6) | 2 (1.4) | 3 (2.1) | 3.60 |
| Attack from thieves | 33 (23.6) | 72 (51.4) | 11 (7.8) | 16 (11.4) | 10 (7.1) | 3.33 |
| Natives are friendly | 64 (45.7) | 3 (2.1) | 4 (2.9) | 25 (17.9) | 2 (1.4) | 2.83 |

**Source: Field survey (2013)**

**Types of building occupied by pastoralists' in their settlement**

Results show that about 49.3%, 26.4%, 16.4% and 7.9% of the pastoralists lived in a thatched building, mud walled with thatched houses, mud house and block house with corrugated iron sheets, respectively. The erection of permanent structure as reflected in construction of block houses by the pastoralists is suggestive that they have opted for a sedentary life. This also influenced their livelihood strategy and hence their participation in crop production and other enterprises. It may be inferred that pastoralists with tendency to live a sedentary life were those with permanent building structure (mud or block walled houses) and may be less disposed to conflict tendencies while those with thatched building have nothing at stake and could easily run away with their cattle whenever farms were destroyed by their animals.

These results reflect changing settlement pattern amongst pastoralists who now opt for sedentary life aiming for guaranteed access to social amenities and other requisite resources. In pursuance of this course, they diversified into arable and tree crop production, trading and transportation business, as earlier reported.

**Identification of sustainable prevention strategies to managing conflict amongst arable and pastoral farmers**

Transformational/mutual negotiation approach ranked most acceptable method (4.2) to managing conflict situation by pastoralists. Ranked 2nd and 3rd were use of police force (2.1), resolution by court (2.0). Ranked lowest was settling conflict through Kwara State Grazing Reserve

(Amendment) Act of 2004, which ranked 1.8. The inherent advantages of the transformation approach led to its preference by the pastoralists. Similarly, Transformation/mutual negotiation approach to conflict resolution was ranked highest (4.2) by crop farmers. However, the crop farmers seemed to have more confidence in Kwara State Grazing Reserve (Amendment) Act (2004) as it ranked second with WMS of 2.6. Use of Police Force (2.0) and settlement by court resolution (1.9) ranked 3rd and 4th, respectively. The results obviously imply both farmers and the pastoralists preferred and accepted transformational approach which involved mutual negotiation for conflict resolution. The approach must possess inherent characteristics which make it more acceptable to both groups.

**Results of hypotheses testing**

For hypothesis one, results of one-way ANOVA reveal significant difference between farm size ($F = 9.33$; $p < 0.01$) of crop and pastoral farmers and their educational level ($F = 8.93$; $p < 0.01$). With crop farmers having higher mean value, difference in farm size between the two groups indicates that they significantly cultivate large farm acreage than their pastoralist counterpart. This submission notwithstanding, mean value of 1.7 ha recorded by pastoral farmers was high and far above national minimum farm acreage of 0.57 ha reported by Ingawa (2005). This, as earlier posited, could ignite conflict between the two groups. As for difference in educational level, higher mean value in deference to crop farmers indicates they are the more educated of the two groups. This, as earlier posited, might have implication on conflict occurrence and resolution. Therefore, measures to enhance educational level of pastoral farmers would not only be sustainably helpful in conflict resolution, but could also avert conflict emergence altogether.

With respect to hypothesis two, results of Pearson Product Moment Correlation (PPMC) reveal a very strong significant relationship between pastoral farmers' livelihood diversification ($r = 0.74$; $p<0.00$) and causes of conflict, given high r-value. This indicates that the more pastoral farmers increasingly diversify their livelihood strategies from mainstream livestock herding, the higher the tendency for conflict to arise. This submission affirms our earlier proposition suggesting link between livelihood diversification among pastoralist and conflict occurrence with crop farmers.

**Table 5: Results of one-way ANOVA showing difference between mean of selected variable**

| Variable | Categories | Mean | F-value | p-value | Decision |
|---|---|---|---|---|---|
| Farm size | Pastoralist | 1.7 | 9.33 | 0.003 | Significant |
| | Crop farmer | 2.9 | | | |
| Educational Level | Pastoralist | 2.4 | 8.931 | 0.003 | Significant |
| | Crop farmer | 3.7 | | | |
| Years spent in farming | Pastoralist | 38.9 | 1.136 | 0.288 | Not significant |
| | Crop farmer | 36.1 | | | |

**Source: Field survey (2013)**

For hypothesis three, results of PPMC reveal significant relationship between pastoral farmers' number of years in settlement and cause of conflict ($r = 0.29$; $p < 0.01$), albeit weak, given the low r-value obtained. The result nonetheless, lends credence to the fact that continuous stay of pastoralist, therefore consequently assuming sedentary life style, could ignite conflict between the two groups.

**Table 6: Results of correlation analysis showing relation between selected variables and cause of conflict**

| Variable | r-value | p-value | Decision |
|---|---|---|---|
| Pastoralist Livelihood Diversification | 0.74 | 0.000 | Significant |
| Number of years in settlement | 0.278 | 0.000 | Significant |

**Source: Field survey (2013)**

**CONCLUSION AND RECOMMENDATIONS**

Based on major findings of the study, the following conclusions could be drawn:

1. Crop farmers and the pastoralists were old individuals, aged 50 years and above on the average, indicating low youth involvement in agriculture amongst both groups. Arable crop farmers and their children were more educated than their pastoralist counterparts. Crop farmers had larger farm size than their pastoralist counterpart; however, pastoralists' average farm size was appreciably high far more above national average.

2. Both pastoral and crop farmers engaged in various activities as a means of livelihood, with preponderance of pastoralists engaging in crop farming, cultivating both arable and tree crops. Conversely, far less indigenous crop farmers engaged in livestock herding.
3. Pastoralist livelihood diversifications were prominently due to diminishing land for cattle grazing, poor quality of existing pasture, and insufficiency of income from cattle rearing to meet family needs.
4. Pastoral farmers assumed more sedentary lifestyle as reflected in active engagement in arable and tree crop production, erection of permanent residential structure, infrequent out migration, and settling within closer proximity to indigenous crop farmers' residence.
5. Tendencies for conflict arising had correlation with increasing livelihood diversification among pastoralists. Long number of year of settlement of pastoralists around and within crop farmers' vicinity similarly had correlation with conflict occurring.
6. Both the indigenous farmers and the pastoralists preferred and accepted transformational approach which involved mutual negotiation for conflict resolution.

Sequel to the findings and conclusions drawn, the following recommendations were proffered:

1. Measures to enhance educational level of pastoral farmers should be pursued through universities adult literacy education programmes. Also, attendance in schools by the children of pastoralists should be monitored and pursued by the state and local governments.
2. Benefits of extension services should be extended to the pastoralists in the area of animal husbandry practices so that pastoralists can improve the range land and conserve forage for dry season. This will go a long way to eliminating long distance travelling to graze cattle and the destruction of crop farmers' farms.
3. Herders should be exposed to existing grazing routes and the punishment attached to violation of the routes. Also, the existing Grazing Reserves should be developed. This is to ensure that the pastoralists are confined within the reserves and that farmers should stop farming along grazing routes.
4. Mutual negotiation should be adopted for settling conflict when the need arises as the respondents have no confidence in the Court and police. Also, government should create awareness on the Kwara State Grazing Reserve (Amendement) Law, 2004. The content of the law will be supportive to mutual negotiation/Transformation approach if implemented.

**ACKNOWLEDGEMENT**

The researchers greatly acknowledged the management of Kwara State University and, specifically, her Centre for Community Development for providing funding support for undertaking the research project from which this article emanated.

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