



Original Research Article

Effect of Fulani herders' intrusion on the economic livelihood of crop farmers in Yagba East Local Government Area of Kogi State, Nigeria

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The study investigated the effect of Fulani cattle herders' intrusion on the economic livelihood of crop farmers in Yagba East Local Government Area of Kogi State. Both purposive and random sampling techniques were used to select the villages and 120 respondents from the Local Government Area. The primary data were generated through the administration of structured questionnaires and was analyzed with the use of descriptive statistics and Ordinary Least Square regression. Results showed that majority of the crop farmers are males (91.00%), married (89.90%) and in their productive age of between 41-60 years (46.84%). Majority (51.90%) of the farmers had more than 20 years of farming experience but are still predominantly small-scale farmers engaged in growing cash crops (51.90%) and arable crops (48.10%). All the crop farmers (100%) in the studied area agreed that there were intrusions of Fulani cattle herders into crop farms particularly during the dry season periods of the year. Majority (97.4%) of the Fulani cattle herders reported that there are no designated cattle grazing routes in the study area. Furthermore, the intrusion of cattle herders into crop farms have a significant effect on the crop farmer's output/income. It is recommended that proper identification of cattle grazing routes, provision of adequate stock grazing reserves and water reservoirs along stock routes be put in place by the government in the area of study.

Key words: Farmers, pastoralists, intrusion, crops, economic livelihood

INTRODUCTION

Agriculture provides the means of livelihood and economic sustenance for the majority of the population of Nigeria. Farmers and pastoralists are the main agricultural practitioners, make significant contributions in meeting the nutritional needs of the country and thus contributing to food security (Obioha, 2005). They are almost wholly dependent on crop production to sustain their vocations. In recent times, access to water and grazing land has become more competitive and has led the farmers and pastoralists into arguments on a regular basis. This is a worrisome trend because both have coexisted inter-dependently for centuries, sharing the same fields for farming and grazing with a manageable level of tolerance and accommodation

(Oyetade, 2007). In recent years, Nigeria has witnessed series of violent communal clashes arising from the activities of the nomads who move about on a daily basis with their cattle in search of water and green pastures. They are on the streets in most of the cities and could also be found operating in the remotest villages in various states of the country (Okoli and Atelhe, 2014). Nweze (2005) noted that many farmers and herders have lost their lives and herds, while others have experienced declining productivity in their herds. The socio-economic effects of the intrusions include reduction in crop yield and income of farmers/nomads, displacement of farmers, loss of lives and properties and loss of products in storage (De Haan, 2002).

Table 1. Socio- economic characteristics of respondents in the study area

Variables	Category	F	%
Gender	Female	7	8.90
	Male	72	91.10
Marital status	Single	3	3.80
	Married	71	89.9
	Widow	5	6.30
Age	21-40	19	24.05
	41-60	37	46.84
Family size	≥ 61	23	29.11
	1-3	3	3.80
	4-6	29	36.71
	7-9	29	36.71
Level of education	≥ 10	18	22.78
	No formal education	31	39.20
	Primary	9	11.40
	Secondary	16	20.30
	Tertiary	22	27.80
Land acquisition	Inherited	36	45.60
	Purchase	2	2.50
	Rented	12	15.20
Farming experience	Gift	29	36.70
	1-10	16	20.30
	11-20	22	27.80
	21-30	19	24.00
	31-40	16	20.30
	> 41	6	7.60

This has implication for food security and tribal co-existence, Nigeria being a multi- ethnic and a multi-tribal nation. The objective of this study is to evaluate the effect of Fulani herders' intrusion on the economic livelihood of crop farmers in Yagba East Local Government Area of Kogi State, Nigeria.

MATERIALS AND METHODS

This study was carried out in Yagba East Local Government Area of Kogi State, Nigeria (latitude 7°30' N, longitude 5° 45' E). The Local Government has an area of 1,396 km² and a population of 140,150. It also has humid climate with a temperature range of 26 - 28°C and annual rainfall of about 1017 - 1528 mm. The people live in various rural villages, their major occupation being farming and trading which they practice at subsistence level. The major crops grown are maize, yam, pepper, cassava, sorghum, and tree crops like cashew and oil palm.

Data collection was done through the use of structured questionnaires which were distributed to crop farmers and pastoralists, as well as oral interview. A total of one hundred and twenty (120) questionnaires were administered randomly to crop farmers (n = 80) and Fulani herders (n = 40) in selected villages of the study area. Out of these, one hundred and eighteen (118) questionnaires

(crop farmers = 79 and cattle herders = 39) were completed and returned. Information about the socioeconomic status of the farmers were obtained through the farmer's responses. Such information included the age, marital status, educational status and occupation. Causes of Fulani herders' intrusion into crop farms and intervention of extension agents in cattle herders' and crop farmers' conflicts were evaluated. Data on the effect of Fulani herders' intrusion on economic livelihood of crop farmers were extracted from the completed questionnaires as well as oral interview. Data analysis was done using descriptive statistics and ordinary least square estimator model as specified below:

$$Y = \alpha + \beta x + \varepsilon$$

Where Y = farmer's income; x = Fulani herder's intrusion; α = value of Y when x is 0; β = regression coefficient and ε = error term

RESULTS AND DISCUSSION

Socio-economic characteristics of crop farmers in the study area

Results on socioeconomic characteristics of farmers in the study area are shown in Table 1. Majority of the farmers (91.1%) were males, perhaps the females were more

Table 2. Farming operations of crop farmers

Variable	Category	F	%
Cropping pattern	Mixed cropping	33	41.80
	Sole cropping	3	3.80
	Inter cropping	1	1.30
	All of the above	42	53.20
Level of farming operation	Large scale	39	49.40
	Small scale	40	50.60
Types of crop grown	Cash crop	41	51.90
	Arable crop	16	20.30
Hectares of land cultivated	Cash and arable crop Less than 1 hectare	22	27.80
	1 - 2 hectares	5	6.30
	3 - 4 hectares	34	43.0
	≥ 4 hectares	34	43.0
		6	7.60

engaged in home work and marketing activities. Most of the respondents (89.9%) whose modal age is also between 41 – 60 years are married, with 73.4% of them having between 4-9 dependants. This is an indication that most of the farmers are still energetic and in their productive age. The fact that majority of the farmers are married implies that they may be able to utilize family labour to reduce input costs and increase productivity. Indeed, the number of persons in a household provides family labour for agricultural productions as revealed by the reports of Muntaqha (2007). The results also show that majority of the respondents (51.9%) have over 20 years of farming experience and about 50.6% of them are predominantly small-scale farmers (Table 2). This may be because they acquire land for farming mainly by inheritance (45.6%) and may indicate the practice of individual system of land ownership.

Such system could possibly constraint expansion of farmlands and planting of permanent crops such as tree crops. The level of operations of farmers in the current study could also be due to the fact that majority of the farmers (57.0%) engage in other occupations such as trading (12.7%), civil service (25.3%) and artisan (20.3%), whereas only 43.0% of them have farming as their primary occupation. This is evidenced by the percentage of literate farmers (60.8%) observed in the current study. Thus, in spite of the small-scale activities of majority of the farmers, new agricultural innovations are likely to be easily embraced. Majority of the farmers (51.9%) grow cash crops such as cashew, orange, etc, 27.8% of the farmers grow both cash and arable crops whereas only 20.3% grow arable crops. Major arable crops grown in the study area include yam, maize and guinea corn which usually serve as alternative feedstuff that attract the cattle particularly during the dry season periods (Olabode and Ajibade, 2010). Since the crop farmers have little or no control over cattle grazing, it is not unlikely that majority of the farmers must have chosen to concentrate more on growing cash crops in

order to avoid conflicts with the Fulani cattle herders and yet maintain their income through crop farming.

Causes of cattle herder's intrusions into crop farms

Results on causes of cattle herder's intrusion into crop farms are shown in Table 3. About 61.54% of the Fulani respondents have above 61 heads of cattle in their herds. It is therefore not surprising that majority (84.6%) of the cattle herders said they always were not able to control their cattle during grazing. This was actually attested to by all the respondents who pointed out that the larger the herd size, the more difficult it is to control the herd. This is further compounded by unavailability of feed during dry season period, making feeding of the cattle difficult as noted by all (100%) of the respondents in the current study. This is in agreement with Olabode and Ajibade (2010), who reported that intrusion into crop farms is common during the dry season as a result of lack of pasture and water for the cattle. Furthermore, most (97.40%) of the cattle herders said that there are no specified grazing routes in the study area. Furthermore, 30.80% of the cattle herders admitted that crop farms are located along the few existing grazing routes. All these factors lead to intrusion of cattle into crop farms.

Consequences of Fulani herders' intrusions on rural crop farmers

Table 4 shows the intrusions of Fulani herders' into rural crop farms. All the crop farmers (100%) sampled in the study area strongly agreed that cattle herds do intrude into their crop farms occasionally (94.9%). It was also discovered that the intrusions usually happen during the dry season periods (86.1%) compared with the raining season (13.9%). This implies that there is a seasonal trend in the intrusion and it corroborates with the findings of

Table 3. Causes of cattle herder's intrusions into crop farms

Variables	Category	F	%
Herd size	21-40	3	7.69
	41-60	12	32.43
	61-80	16	41.03
	> 81	8	20.51
Available feed in raining season	Yes	39	100.00
	No	0	0.00
Available feed in dry season	Yes	0	0.00
	No	39	100
Unable to control cattle	Yes	33	84.60
	No	6	15.40
Specified grazing routes	Yes	1	2.60
	No	38	97.40
Crop farmers located along grazing routes	Yes	12	30.80
	No	27	69.20

Table 4. Fulani herders' intrusions on rural crop farmers in the study area

Variables	Categories	F	%
Intrusion of herder	Yes	79	100.0
	No	0	0.0
Frequency of intrusion	Frequently	4	5.1
	Occasionally	75	94.9
Season of intrusion	Rainy	11	13.9
	Dry	68	86.1
Consumption/destruction of crops	Yes	100	100.0
	No	0	0.0
Intrusion resulting to conflicts	Yes	49	62.0
	No	30	38.0
Loss of life	Yes	0	0.0
	No	79	100.0
Loss of properties	Yes	21	26.6
	No	58	73.4

Olabode and Ajibade (2010). The results further showed that the intrusions commonly lead to consumption or destruction of crops (100%) which in some cases result in conflicts (62.00%), and although there were usually no loss of lives (100%), the conflicts were sometimes accompanied by loss of properties such as houses and cattle (26.60%). This will no doubt have a negative effect on the output as well as the economic status of both crop farmers and Fulani herders. This observation is in accordance with the reports of Opoku (2015) who evaluated the effects of conflict on farming communities in Ghana. Tonah (2006) similarly stated that the most frequent cause of dispute between crop farmers and pastoralists is the destruction of crops by cattle.

Table 5 shows the effects of herder's intrusions into crop farms on the livelihood of crop farmers. The farm size of majority of the crop farmers in the study area ranged between 1 – 4 hectares (86.00%) in agreement with the findings of Okuneye et al. (2001). This implies that fairly large areas of land are committed to crop production and

the activity will also require significant inputs in terms of labour and other sundries. However, 45.60% of the farmers could not repay loans, 83.50% expressed inability to effectively feed their families and 70.90% could not pay children's school fees. These are indications that the outputs obtained by the crop farmers from their farming activities cannot effectively cater for their needs and may therefore explain why majority of the farmers seek other sources of income. Although many factors could be responsible for the low output of the farmers, consumption or destruction of crops by cattle, coupled with overgrazing of fallow land (100%) as noted in the current study, may be major contributing factors. This infers that the intrusion of Fulani herders into crop farms has a negative impact on the livelihood of crop farmers. In addition, farmers who could not repay their loans may not be able to access further loan facilities. Opoku (2015) similarly reported farmer's inability to pay children's school fees, the deficiency he attributed to reduction in the income of the farming families. Inability to pay school fees could invariably draw

Table 5. Effect of Fulani herders' intrusions on rural crop farmers in the study area

Variables	Categories	F	%
Hectares of land cultivated	Less than 1	5	6.3
	1-2	34	43.0
	3-4	34	43.0
	≥ 4	6	7.6
Inability to feed family	Yes	66	83.5
	No	13	16.5
Overgrazing of fallow land	Yes	79	100.0
	No	0	0.0
Displacement of farmer	Yes	5	6.3
	No	74	93.7
Abandoned farms	Yes	55	69.6
	No	24	30.4
Inability to pay children's school fees	Yes	56	70.9
	No	23	29.1
Inability to nav loan	Yes	36	45.6
	No	43	54.4
Social insecurity	Yes	64	81.0
	No	15	19.0

Table 6. Ordinary Least Square Analysis

Predictor	B	SE	T-value	Sig	Result
(Constant)	8.932	0.478	18.677	0.00	
(T) Are the farmers affected by the intrusion	6.547	0.869	7.837	0.00***	Sig
(P) Change in income after intrusion compared with before	6.525	1.422	4.589	0.00***	Sig
(T*P) Interaction between T and P	2.689	1.316	2.044	0.044**	Sig
$R^2 = 0.730$					
Adjusted $R^2 = 0.719$					

Cut of score: ≥ 18% =Affected; < 18% = not affected. $Y = 8.93 + 6.55T + 6.52P + 2.69T*P$

Table 7. Extension agents' intervention mechanisms in the study area*

Intervention mechanisms	F	%
Settlement of dispute, giving of advice and educating both sides	118	100.0
Settlement of dispute and giving of advice	112	94.92
Educating both sides	97	82.20
Giving advice	101	85.59
Settlement of dispute	109	92.37

*Respondents include both crop farmers and Fulani herders

back educational status which is supposed to actually assist in reducing poverty in the area. Furthermore, about 69.60% of the crop farmers abandoned their farms, perhaps due to low productivity or fear of being attacked by the intruding cattle herders. Indeed, 81.00% of the crop farmers in the current study expressed social insecurity. Haman (2002) stated that open confrontation between the crop farmers and cattle herders usually results in rural insecurity and out migration. The unnecessary fear of being attacked may hinder the farmers from carrying out their economic activities, with resultant increase in poverty level and threat to food security (Ofuoku and Isife, 2009). The ordinary least square analysis revealed that the crop farmers were significantly ($P = 0.00$) affected by the

intrusion of Fulani cattle herder's into crop farms. This is further buttressed by the significant ($P = 0.044$) interaction between the herder's intrusion and change in the crop farmer's income after the intrusion compared with their income before the intrusion (Table 6).

Intervention mechanisms of extension agents

The intervention mechanisms of the extension agents in the study area are shown in Table 7. Majority (81.00%) of the respondents said that they have contact with extension agents on monthly basis. Furthermore, 100% of the respondents agreed that settlement of dispute, giving of advice and educating both sides are the most effective

mechanisms used by the extension agents to resolve conflicts between the crop farmers and cattle herders.

CONCLUSION AND RECOMMENDATION

Based on the findings of the study, it is concluded that the intrusion of cattle herders into crop farms have a significant effect on the crop farmer's output/income and economic livelihood in the study area. It is therefore recommended that adequate grazing reserves and stock routes be identified and provided by the Local, State and Federal Government of Nigeria. This should be coupled with provision of water reservoirs as well as veterinary clinics on livestock routes

Conflict of interests

The authors declare that they have no conflicting interests

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