

Farmers' Perceptions of Effect of Open-Grazing on Food Production in Isoko North and South Local Government Areas of Delta State, Nigeria

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Abstract: This study investigated farmers' perceptions of effect of open-grazing on food production in Isoko North and South Local Government Areas of Delta State. It was necessitated by persistent shortage and rising prices of food stuff in Isoko North and South Local Government Areas of Delta State. The shortage of food could be partially from Fulani-herdsmen and farmers clashes which have contributed to the loss of lives and properties, crop destruction and abandonment of farm settlement. The research objectives of the study were to determine farmers' perceptions of effect of open-grazing on food production in Isoko North and South Local Government Areas of Delta State and examine the strategies to tackle the problems of open-grazing on food production in Isoko North and South Local Government Areas of Delta State. Survey research design was employed for the study. The instrument for data collection was questionnaire administered to 123 farmers drawn using purposive sampling technique. Data collected were analyzed using frequency, percentage, mean and standard deviation. The results of study revealed among others that the farmers perceived the effect of open-grazing on food production to include: destruction of crops in the farmland by cattle, increase in soil erosion that adversely affect crops in the farmland, shortage of food due to low harvest of farm products, high cost of food items and decrease of soil organic matter that adversely affect crop production. It was concluded that open-grazing is destructive and have far reaching consequences on crop production in Isoko North and South Local Government Areas of Delta State in Nigeria. Based on the findings, it was recommended among others that Federal Government of Nigeria should establish modern cattle ranches in each state and lease to herdsmen for rearing their cattle.

Keywords: Farmers, Perceptions, Effect, Open-Grazing, Food Production, conflicts

I. INTRODUCTION

Livestock rearing provides a rich source of protein and income to individuals. Chukwuemeka, Aloysius and Eneh (2018) stressed that livestock has also been a good source of raw materials for the leather and clothing industry as well as providing employment to those who keep it. Livestock rearing is a dominant practice of Fulani Herdsmen in Nigeria. Iloanya and Chukwuemeka (2020) noted that a typical Fulani herdsman keeps and sustains his herd through open grazing.

Open grazing is the act of freely moving in search of pasture and water. It is an obsolete form of pasturing. According to Jooji (2020), open-grazing is the age-old practice of roaming

about with animals in open field, plains and nearby bushes in search of pasture or food for the animals. Continuing, Jooji (2020) averred that it is mostly practiced in Nigeria by Fulani herders who move for days on foot with their herds from the north to the more rain-fed southern parts of the country pasturing their flock as they go. It is practice of moving livestock around bushes for pasture. According to Chukwuemeka, Aloysius and Eneh (2018), open-grazing is the practice whereby cattle are herded by taking them round in large numbers to feed in open spaces and uncultivated grass lands in a migratory or nomadic style. Madube, Nuwe, Opara and Anne (2018) asserted that grazing abounds across the Nigeria due to variation in climate.

The differences in weather conditions between North and other parts of Nigeria compel herdsmen to move their cattle to different regions of the country in search of pasture. While driving cattle across regions sometimes the destruction of crops occur and becomes a source of crisis between farmers who claim customary right over land and herdsmen who are regarded as strangers (Akuul and Kizito, 2019). Madube et al., (2018) stressed that open-grazing as one of the most dominant economic activities has resulted in degradation of vegetation, land, and water over the years, which impacted negatively, the non-farming and farming economic and social opportunities. Taiye, Dauda and Emmanuel (2017) stressed that open-grazing cause disturbance to surface soils and fertility by altering the soil physical and chemical properties. Olajojo et al., (2020) pointed out that the conflict arising from open-grazing contributes to farmers' displacement which has drastically reduced agricultural production in Nigeria. Farmers' displacement is a serious setback to crop production in Delta State. The practice of open-grazing has resulted to the struggle for control of resources contributes to incessant conflicts among herdsmen and farmers. Olajojo et al (2020) maintained that the conflict between the Fulani herdsmen and the farmers usually arise when the former in vade community farmland with their cattle and graze unrestricted both on cultivated and uncultivated land thereby destroying valuable food and cash crops which are the mainstay of the host communities.

Open grazing has become a source of worry in Delta State due to Fulani herdsmen move around with weapons like AK47s

II. METHOD

and cutlass which are being used to attack farmers whenever clash occurs. Lezuya (2021) noted that land related issues, especially on grazing fields, account for the highest percentage of the conflicts between the farmers and herdsmen. The conflict between herdsmen and farmers has led to the loss of lives, loss of cattle, destruction of farmland and properties. The continuous attacks of Fulani-herdsmen on farmers posed a serious threat to food production in Delta State. Ukhurebor and Adetunji, (2020) posited that the nomadic herdsmen who engage in open grazing sometimes applied some insecticides and synthetic pesticides for the management of pests and diseases that normally affect their cattle which constitute hazards to the health of human and their animal respectively. They added that this might even lead to accumulation of these pesticides on their forage and some might even slit on the soil thereby affecting the normal soil activities such as soil microorganisms, soil respiration, soil carbon, soil enzymes such as catalase, urease, acidic phosphatase, alkaline phosphatase among others. Chukwuemeka, Aloysius and Eneh (2018) averred that the practice of open-grazing has contributed to cows, sheep, and goats roaming around school playgrounds, golf courses, government residential areas, street shoulders, and railway sidings both at nights and during the day in Nigerian cities. The authors added that they hinder traffic flows, endanger human and vehicular road users, and exacerbate city congestion, and most often, cause fatal road mishaps. In addition to all these, Igbokwe-Ibeto, Nnaji and Mac-Ozigbo (2021) stressed that local farmers hardly can cultivate at their full capacity due to fear of being attacked and killed by the rampaging Fulani herdsmen who engage in open grazing. This seems to have contributed to food shortages due to the abandonment of farm lands and destruction of crops.

Objectives of the Study

The broad objective of this study was to investigate the farmers' perceptions of effect of open-grazing on food production in Isoko North and South Local Government Areas of Delta State. The specific objectives of the study include to:

1. Determine farmers' perceptions of effect of open-grazing on food production in Isoko North and South Local Government Areas of Delta State.
2. Examine the strategies to tackle the problems of open-grazing on food production in Isoko North and South Local Government Areas of Delta State.

Research Questions

The study was guided by two research questions.

1. What are the farmers' perceptions of effect of open-grazing on food production in Isoko North and South Local Government Areas of Delta State?
2. What are the strategies to tackle the problems of open-grazing on food production in Isoko North and South Local Government Areas of Delta State?

Survey research design was adopted for the study. The justification for the choice of survey research design was because it enables the researchers to collect information from the sample considered to be representative of the population of the study to describe the farmers' perceptions of effect of open-grazing on food production in Isoko North and South Local Government Areas of Delta State. The study was carried out in Isoko North and South Local Government Areas of Delta State. The people are mostly Christians of different denominations. The area is home to people from numerous ethnic extractions in Nigeria. Most of the inhabitants in the area are farmers and traders. The population of the study comprised all the farmers in Isoko North and South Local Government Areas of Delta State. The sample size of the study was 123 farmers drawn using through purposive sampling technique.

The study utilized primary source of data collected from the 123 farmers using structured questionnaire administered to them. A total of 123 copies of the questionnaire were distributed, and 117 copies of questionnaire were successfully retrieved, indicating 95% return rate. The data collected were analyzed using, frequency, percentage, mean and standard deviation. The decision rule is that the mean ratings that fall below 2.50 were taken as disagreement, while mean rating of 2.50 and above were taken to indicate agreement (Nnebedum, Abadi & Obasi, 2019).

This study was carried out in Isoko North and South Local Government Areas of Delta state. The Isoko South and North Local Government Areas of Delta State lie approximately between latitudes 5°10'N and 5°35'N and Longitudes 6°00'E and 6°25'E. The area falls within the rain forest belt of 5°N on the Niger Delta region in Nigeria. It covers an appropriate area of 12,688 km² and has a population of about 305,836 people (National Population Census, 2006). Generally, the Isoko South and Isoko North Local Government Areas of Delta State, Nigeria is a low lying area in the coastal belt with rivulets and channels thereby forming part of the extensive Niger Delta basin. The vegetation of the area is a broad zone of deciduous and evergreen forest with scanty impenetrable mangrove forest associated with the coastal belt of forest reserve along the Aviara Clan area with valuable trees. The occupation of the people is mainly farming and fishing. The area is one of the highest oil producing community in the State. (<https://en.wikipedia.org/wiki/Isoko>). It has the popular Araya Bible tourist Center, Eni of Uzere, and sand beach of Ivrogbo. Isoko South Local Government Area of Delta State has Oleh, as its headquarters and the urban towns are Oleh and Irri. Similarly, Isoko North Local Government Area of Delta State has Ozoro, as its headquarters with Ozoro as its Urban area.

The study area is predominantly a farming community where different arable and perennial crops are produced. These include cassava, coco yam, maize, plantain/banana, yam,

groundnut and vegetable crops (leafy vegetables, tomatoes, okra, and garden egg). The tree crops cultivated in the study area are oil palm and rubber. The common fruits produced are pineapple and orange. In the livestock subsector, poultry and fish farming are common. The people are known for fish farming as the area encourages cultured fish production. Poultry farming is also common in the study area. The rearing of goats and sheep is also done though on small scale.

Cassava is the most cultivated arable crop and its cultivation is restricted to the upland communities in the study area. This

is because most part of the Local Government Area is water logged as a result of the low level of elevation of the area. (wikipedia.org/wiki/Isoko_region). The communities in Isoko North noted for cassava cultivation include Aradhe, Ellu, Emevor, Idheze, Ofagbe, Okpe-isoko, Otor-igho, Owhelegbo, and Ozoro. The communities in Isoko South known for cassava cultivation include Oleh, Emede, Olomorho, Igbide, Enhwe and Uzere. (See fig 3.1 for the map of Isoko north and south Local Government of Areas).

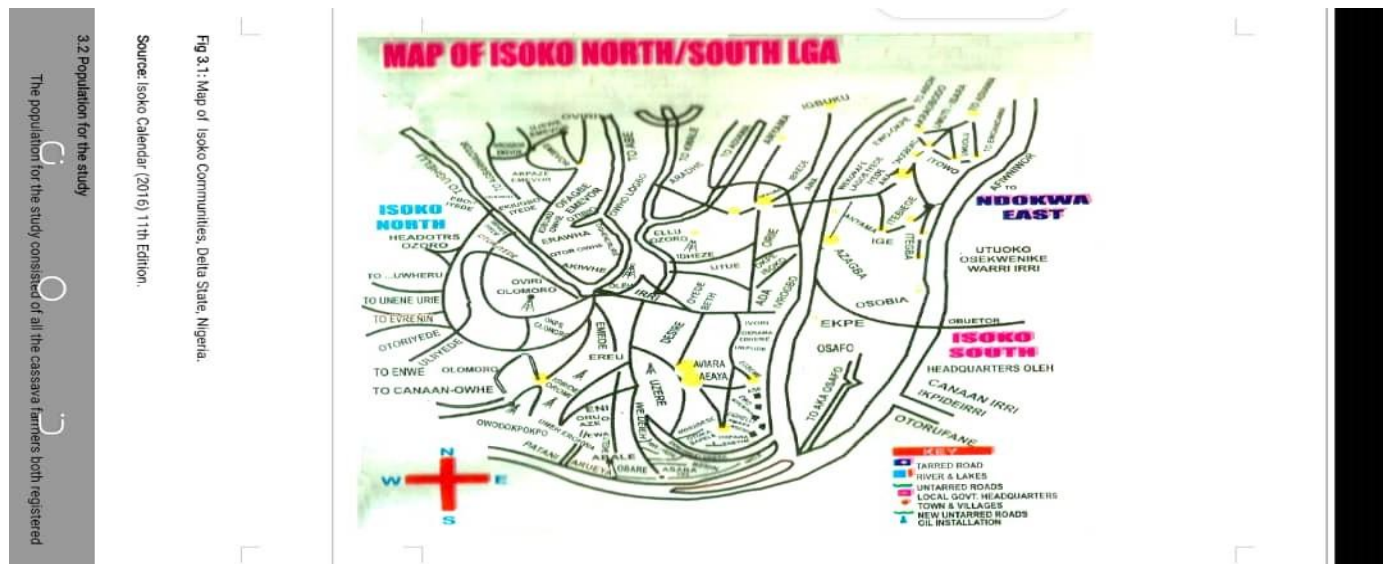


Figure 1: Map of Isoko North and South Local Government Areas of Delta State.

III. RESULTS

The demographic characteristics of the farmers consisted of their sex, marital status and age.

Table 1: Distribution of Respondents based on Gender

The 40% (46) of the farmers are male, while 60% (68) are female showing that there are more female farmers than male in the area. This is shown on Table 1 below

Gender	Frequency	Percentage (%)
Male	46	40
Female	68	60
Total	114	100

Source: Researcher's Field Survey and Computation, 2021

The 83% (95) of the farmers are married, while 17% (19) are single showing that there are more married farmers than single in the area. This is shown on Table 2 below.

Table 2: Distribution of Respondents based on Martial Status

Martial Status	Frequency	Percentage (%)
Married	95	83

Single	19	17
Total	114	100

Source: Researcher's Field Survey and Computation, 2021

The majority 68% (78) of the farmers are between 25-49 years of age, 4% (4) of the respondents are below 25 years, while 28% (32) of the respondents are 50 years and above. This is shown on Table 3 below.

Table 3: Distribution of Respondents based on Age

Age	Frequency	Percentage (%)
Below 25 years	4	4
25 – 49	78	68
50 and above	32	28
Total	114	100

Source: Researcher's Field Survey and Computation, 2021

Research Question One: What are the farmers' perceptions of effect of open-grazing on food production in Isoko North and South Local Government Areas of Delta State?

Table 4: Mean and Standard Deviation Scores of Famers on the Effect of Open-Grazing on Food Production

S/N	ITEMS								
		N	SA	A	D	SD	\bar{x}	SD	Decision
1	Destruction of crops in the farmland by cattle	114	54	27	19	14	3.06	1.07	Agree
2	Increase in soil erosion that adversely affect crops in the farmland	114	47	34	17	16	2.98	1.06	Agree
3	Shortage of food due to low harvest of farm products	114	41	29	21	23	2.77	1.14	Agree
4	Over-grazing of fallow land that adversely affect crop production	114	37	26	24	27	2.64	1.17	Agree
5	High cost of food items	114	40	21	30	25	2.68	1.15	Agree
6	Decrease soil organic matter that adversely affect crop production	114	38	30	13	33	2.64	1.22	Agree
	Cluster Mean						2.80	1.14	Agree

Data Analysis presented on Table 4 revealed that the farmers recorded mean scores above the cut-off mean of 2.50 for all items indicating agreement with the statement as the effect of open-grazing on crop production. The overall standard deviation score of 1.14 are closer to the mean indicating similarity in their responses in each cluster. The cluster mean

of 2.80 indicated that there are effect of open-grazing on food production in Isoko North and South Local Government Areas of Delta State.

Research Question Two: What are the strategies to tackle the problems of open-grazing on food production in Isoko North and South Local Government Areas of Delta State?

S/N	ITEMS								
		N	SA	A	D	SD	\bar{x}	SD	Decision
7	Establishment of modern ranches for cattle rearing	114	39	21	25	29	2.61	1.20	Agree
8	Enacting opening grazing prohibition law	114	24	44	29	17	2.66	0.98	Agree
9	Orientation of herders and farmers on the need to embrace peace in the practice of open grazing and farming	114	36	24	32	22	2.65	1.12	Agree
10	Dialogue for conflict resolution among herdsmen-farmers at community level	114	27	38	40	9	2.73	0.91	Agree
11	Creation of routes for cattle rearing to prevent trespassing on farmland	114	26	28	35	25	2.48	1.07	Disagree
12	Prosecution of any one found wanting in the herdsmen-farmers clashes	114	30	32	37	15	2.68	1.01	Agree
13	Aids to the victims of farmers-herder clashes to reduce the tendency for reprisal attack	114	32	42	11	28	2.68	1.14	Agree
	Cluster Mean						2.64	1.06	Agree

Table 5: Mean and Standard Deviation Scores of Farmers on the Strategies to tackle the Problems of Open-Grazing on Food Production

As revealed on Table 5, all items except 11 have mean scores above the cut off mean of 2.50 and this indicates their agreement with the items as the strategies to tackle the problems of open-grazing on food production. The overall standard deviation score of 1.06 indicated that the respondents are homogeneous in their responses. The cluster mean of 2.66 indicated that there are strategies to tackle the problems of open-grazing on food production in Isoko North and South Local Government Areas of Delta State.

IV. DISCUSSION

The finding of the study revealed that there are effect of open-grazing on food production in Isoko North and South Local Government Areas of Delta. The farmers perceived the effect of open-grazing on food production to include: destruction of crops in the farmland by cattle, increase in soil erosion that adversely affect crops in the farmland, shortage of food due to

low harvest of farm products, high cost of food items and decrease soil organic matter that adversely affect crop production. This is in agreement with the earlier report of Iloanya and Chukwuemeka(2020) who observed that open grazing system is disruptive to food crop and animal production as most times, animals on open grazing enter into cultivated farmlands and damage crop yields meant for human food consumption. The farmers perceived that the open-grazing of herdsmen is a threat to their crops since they allow their cows to feed on the farmer crops.

There are strategies to tackle the problems of open-grazing on food production in Isoko North and South Local Government Areas of Delta State. The strategies to tackle the problems of open-grazing on food production include: establishment of modern ranches for cattle rearing, enacting opening grazing prohibition law, orientation of herders and farmers on the

need to embrace peace in the practice of open grazing and farming, dialogue for conflict resolution among herdsmen-farmers at community level, prosecution of any one found wanting in the herdsmen-farmers clashes and aids to the victims of farmers-herder clashes to reduce the tendency for reprisal attack. This is in line with the result of Mohammed and Abdul (2020) who reported that the solutions to opening-grazing resulting to herders-farmers conflict in Nigeria include: dialogue, ranching, grazing reserves and cattle routes among others. Conflict between farmers and herdsmen is reinforced by open-grazing of herdsmen's habit of allowing cattle to veer into the farmers' farm to eat crops on the farmland can be reduced through enactment of law, orientation and dialogue. The amicable resolution to farmers-herdsmen conflicts also entails creating cattle routes.

V. CONCLUSION

Based on the findings, it was concluded that open-grazing is destructive and have far reaching consequences on crop production in Isoko North and South Local Government Areas of Delta State in Nigeria Cassava which is the most cultivated arable crop is affected by open-grazing. The practice of open-grazing trigger farmers and herdsmen conflict that contribute to destruction of farmland and cattle rustling. Open-grazing is outdated in this modern era of population growth and technological advancement.

VI. RECOMMENDATIONS

Based on the findings, it was recommended among others that:

1. Delta State Assembly should enact and ensure full enforcement of open-grazing prohibition law to reduce herdsmen-farmers conflict
2. The State Government should use mass media to enlighten farmers and herdsmen on the habit of rearing their crops and cattle without trespassing by either party.
3. Federal Government of Nigeria should establish modern cattle ranches in each state and lease to herdsmen for rearing their cattle.

ACKNOWLEDGMENTS

The researchers' profound gratitude goes to Mr Chidi Nnebedum whose humane disposition, wealth of experience and constructive criticisms spurred the completion of this great feat. Equally acknowledged are all the authors whose

works served as reference materials in this study. Above all, the researchers remain ever grateful to God, for giving them the grace and persevering strength throughout the period of the study.

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