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Perceived Effect of Semi-Intensive system of Cattle Rearing on the Dwellers of Akinyele Community Inakinyele Local Government Area of Oyo State

Lawal, M.O.[1]; Jatto, K.A.[1], Adeoye, A.S.[2,*], Fadimu, B.O.[1], Ogunbela, A.A.[1] and Aduoju, A.R.[1]

[1]Forestry Research Institute of Nigeria, P.M.B. 5054, Jericho Hills, Ibadan, Nigeria
[2]Federal College of Forestry, P.M.B. 5087, Ibadan, Nigeria
*corresponding email:

Abstract— *The study assessed the perceived effect of semi-intensive system of cattle rearing on the Dwellers of Akinyele Local Government Area of Oyo state. The study objectives examined were the socio-economic characteristics of the dwellers, the coping strategy and the benefit derived from semi-intensive system of cattle rearing in the study area. A well-structured questionnaire was used for the collection of data through a multi stage sampling procedure to select a sample of 104 respondents for the study. The data collected were analyzed with descriptive statistics such as frequencies and percentages, and inferential statistics such as Chi-square and Pearson product moment correlation (PPMC) to draw inferences between variables of the hypotheses. The results showed that about 53.8% of the respondents were females between the ages of 31- 40 years and are married. Christianity and Islam were practiced at 47.1% and about 37.5% of the respondents had adult education with household size of 5-8 (48.1%). Majority of the respondents (74.0%) practiced farming as their major occupation with about 43.3% of them having trading as other means of livelihood. The invasion of farmland by cattle, destruction of heap, ridges and farm produce, unnecessary defecation and urine causing cholera and water pollution from semi-intensive system of cattle rearing was perceived to have high effect on the dwellers in the study area. The coping strategies of the dwellers with semi-intensive system of rearing cattle occasionally adopted were provision of credit facilities for the construction of large fenced grazing land, security implementation, proper environmental sanitation, and fully implementation of intensive system by the dwellers and organization of committee on disputes settlement. The chi-square analysis indicated that age, marital status, religion, level of education, household size and major occupation were significantly associated with the perceived effect of semi-intensive system of cattle rearing on the dwellers in the study area ($p \leq 0.05$), whereas the PPMC analysis revealed that the perceived effect of semi-intensive system cattle rearing had no significant relationship with the benefit of system of cattle rearing on the dwellers ($r=0.114$, $p>0.05$). The study therefore recommended that policies that aimed at improving on environmental sanitation programme to ensure disease free environment should be introduced by the government. The cattle rearers should also ensure proper monitoring of their animals in order to establish a healthy relationship amongst the people of Akinyele community.*

Keywords— ***Perceived effect, Semi-intensive system, Cattle rearing, Dwellers, Akinyele community.***

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I. INTRODUCTION

Agriculture plays significant roles in Nigeria's economy and some of these roles have been outlined by different authors (NBS, 2012; Ugwu and Kanu, 2012; Dayo*et.al*, 2009). One of the challenges confronting the sector is the impact of grazing livestock animals on the crop production, especially in the northern part of Nigeria. This is a serious problem because Nigeria has a high herd of cattle population, majority of which are in the hands of the pastoralist (Obadiah and Shekinah, 2012). By 2001, Nigerians livestock farmers were rearing about 15million goat, 26.7million sheep and 118.6million poultry birds, other animals reared include 1million horses, camels, and donkeys. There are three major systems of cattle rearing in Nigeria, such system are broadly classified as: **Intensive system**: this is a situation where animals are confined in cage/ enclosure and are highly provided with all their needs; **Semi-intensive system**: animals are allowed to exercise or roam about over some time with partial or proper monitoring and later returns to their cages; and **Extensive system**: this is situation where animals are allowed to wonder around in search for their needs without being care for (Ezeibe, 2010)**.** Although, the information on the number of livestock animals that are reared in each of the system could not be accessed, predominantly among small scale farmers is the extensive system and it is also called the free range system.

In Nigeria, cattle are reared primarily for meat which is a veritable source of protein for human and for milk such as found with government aided industries like Kano dairy farm noted for large scale production for milk, yoghurt etc. in the 80s, hides and skins, bones hooves etc. all of which serves as raw materials for some agro allied industries. These industries serve as income and employment opportunities for the people wherever they exist. According to Blench (2010), the struggle for available land resources brings conflict between the crop farmers, dwellers and pastoralists. Hence, there is need to verify how the crop farmers and dwellers perceived the impact of semi-intensive system in the study area. This is very critical because the production of crops and cattle under extensive and semi-intensive system in Nigeria are not mutually exclusive because cattle graze on open grassland without being confined to any farm house or grazing route while farmers plant without fencing and dweller properties are at stake. Secondly, the production of livestock is not seasonal, which means cattle are fed throughout the year. During dry season, most of the crop farmers and cattle farmers come in contact at the stream, rivers and lakes to have access to water; these increase conflicts consequently which may also affect the dwellers (Pasquale *et al.*, 2007).

Since the most frequent causes of conflict are damages caused by animals, there is every need to verify how the dwellers perceived semi-intensive system of rearing cattle in the study area (Adebayo and Olaniyi, 2008). The economics of production and scale of development of cattle industry do not justify intensive system of production but a semi intensive system finds a ready acceptance due to the profitability and sustainability to economic system of the community. Damages and mess caused by these animals usually leads to malice, disunity, violence, disagreement and bloodshed because dwellers and rearers involved try to reach their objectives (Adebayo and Olaniyi, 2008).

Presently in Nigeria, this conflict has now been subsumed into a broader dichotomy of religion (Blench, 2010). Several other studies have reported increasing conflicts induced frustrations experienced by rearers, crop farmers and dwellers within and outside Nigeria. The conflict according to Adisa and Adekunle (2010), are becoming fiercer and increasingly widespread in Nigeria which heightened the level of insecurity of dwellers and demonstrated high potential to exacerbate the food crisis in Nigeria and other affected countries due to loss of farmers' lives, dwellers lives, animals, crops and other valuable properties. For this reason, this study is looking at the Perceived Effect of Semi-Intensive System of Cattle Rearing on the Dwellers of Akinyele Local Government Area of Oyo State. The specific objectives are to describe the socio economic characteristics of the respondents, examine the perceived effect of semi-intensive cattle rearing system, identify the benefit of semi-intensive cattle rearing system, examine the coping strategies of semi-intensive system on the respondents, and examine the determinants of the perceived effect of the semi-intensive cattle rearing system in the study area. The hypotheses for the study are as follows: **$H0_1$**: there is no significant association between the socio economic characteristics and the perceived effects of semi-intensive system of rearing cattle in the study area; **$H0_2$**: there is no significant relationship between perceived effects of semi-intensive system of rearing cattle and the benefits on the dwellers of Akinyele community.

II. RESEARCH METHODOLOGY

Study area

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The study was carried out in Akinyele Local Government Area (LGA) of Oyo state, Nigeria. It is one of the eleven LGAs that make up Ibadan, with headquarter in Moniya. It was founded in 1976 and shares boundaries with Afijo LGA to the North; Lagelu LGA to the west and Ibadan north LGA to the south.Akinyele LGA is located within longitude of 3.9110^0E and latitude of 7.5309^0N and Altitude of about 22.5 above sea levels. It occupied a land area of 464.892km^2 with a population density of 516 per km^2 using 3.2% growth rate from 2006 census figures. The 2010 estimated population for the local government area is 239,746.The local government is divided into twelve wards which are; Ward 1 Ikereku, Ward 2 Olanla/Oboda/Labode, Ward 3 Arulogun, Ward 4 Olode/ Amosun/ Onidundun, Ward 5 Ojo-Emo/Emo, Ward 6 Akinyele/Isabiyi/Irepodun, Ward 7 Iwokoto/ Talonta/ Idi-oro, Ward 8 Ojoo/ Ajibode/ Laniba, Ward 9 Ijaye/ Ojedeji, Ward 10 Ajibade/ Alabata/ Elekuru, Ward 11 Olorsa-oko/ Okebemi/ Mele, and Ward 12 Iroko.

Sampling procedure and data collection

The target populations of the study are the dwellers of Akinyele Local Government Area. They are mostly farmers who utilized the vast agricultural land for the production of arable crops. Data for this research was collected from primary source through the use of a well-structured questionnaire. Multi stage sampling procedure was used for this research. The first stage involved the purposive selection of Akinyele Local Government Area because farming is their major occupation.The second stage involved the simple random selection of 3 wards out the 12 wards in the study area. Ward 5, ward 6 and ward 10 were selected. The third stage involved the random selection of 2 cells each out of the selected wards in the study area. The selected cells are; Ojo-Emo and Moniya in ward 5, Akinyele and Irepodun in ward 6 and Ajibade and Alabata in ward 10. The fourth stage involved the random selection of 20 respondents (dwellers) in each cells. A total of 104 questionnaires were retrieved from120 questionnaires administered.

Analytical techniques

The data collected were analyzed using descriptive (frequency distribution, percentages, mean) and inferential (Chi-square and Correlation) statistics. The models for inferential analytical tools are specified as follows:

Chi-Square

$$X^2 = \frac{\sum(O - E)}{E}$$

Where;

X^2= Chi-Square

$\sum$= Summation of the values

O = Observed values of frequencies of nominal variables like, sex, religion, marital status, that is; the socio-economic variables for the study

E= Expected values are frequencies determined from response categories

Pearson Product Moment Correlation

$$r = \frac{n\sum XY - (\sum X)(\sum Y)}{\sqrt{(n\sum X)^2 - (\sum X^2)(n\sum Y^2) - (n\sum Y)^2}}$$

Where;

r = Correlation coefficient

n = Sample size

$\sum$ = Summation

X = Independent variables for the study; perceived effect of semi-intensive cattle rearing system

Y = Dependent variables for the study; Dwellers of Akinyele Local Government Area of Oyo state

III. RESULTS AND DISCUSSION

Table 1 shows the socio-economic characteristics of the respondents. The result shows that 55.8% of the respondents are between the ages of 31-40. This indicates that majority of the dwellers are young farmers. The finding corroborates the submission of Oyelamian and Ajanaku (2019) that youth are more involved in livestock farming in Oluyole Ibadan. About 53.8% are females while 46.2% of the respondents are males. This means that women are more involved and are more directly affected by the effects of semi-intensive system of cattle rearing. The result is line with Oyegbami and Lawal (2017) that women are more involved in raising animals and other farming activities. The result also shows that 76.9% of the respondents are married. The result further shows that 47.1% practice Christianity, as well as Islam (47.1%). The result shows that majority of the respondents had adult education (37.5%). About 74.0% of the respondents are farmers. The result is in agreement with Arowolo *et al*. (2013) that respondents involved in cattle rearing are mostly farmers. For other means of livelihoods reveals that 43.3% respondents are involved in trading.

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Table 1: Socio-economic characteristics of the respondents

Variables	**Frequency**	**Percentages**
Age		
20-30	30	28.8
31-40	58	55.8
41-50	14	13.5
50 and above	2	1.9
Gender		
Male	48	46.2
Female	56	53.8
Marital Status		
Single	19	18.3
Married	80	76.9
Divorced	4	3.8
Widower	1	1.0
Religion		
Christian	49	47.1
Islam	49	47.1
Traditional	6	5.8
Level of Education		
No formal education	22	21.2
Adult education	39	37.5
Primary education	29	27.8
Secondary education	11	10.6
Tertiary education	3	2.9
Household Size		
1-4	36	34.6
5-8	50	48.1
9 and above	18	17.3
Major Occupation		
Poultry keeping	25	24.0
Farming	77	74.0
Hunting 2 1.9	2	2.0
Other means of livelihood		
Teaching 29 27.9	29	27.8
Trading	45	43.3
Civil service	30	28.9

Source: Field Survey, 2017

Table 2 shows perceived effect associated with semi-intensive system of cattle rearing on the dwellers in the study area. It was observed from the table that 45.2% of the dwellers believed that the rate at which cattle invade their farmland is high.39.4% also believed that the cattle destroy their heaps, ridges and farm produced. The result agrees with the submission of Fasona *et al*. (2016) that cattle grazing results into conflict which are due to destruction of croplands and farm produce through encroachment. About 31.7% agreed that the rate at which the cattle cause road accident is very low. The dwellers also believed that the noise pollution generated from cattle is very low (28.8%) while 34.6% are undecided and 34.6% believed that the rate at which the herdsmen are killing the farmers is very low. 38.5% of the respondents agreed that the rate at which cattle rearing is causing water pollution is high. Generally, the respondents' perceived effect on semi-intensive system of cattle rearing on the community is very low.

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Table 2: Perceived effects of semi-intensive system of cattle rearing on the dwellers in the study area

Perceived effects	Very high	High	Low	Very low	Undecided
Invading farmland by cattle	24(23.1)	47(45.2)	27(26)	3(2.9)	3(2.9)
Destruction of heaps, ridges and farm produce	26(23.1)	45(39.4)	19(21.2)	12(8.7)	2(7.7)
Unnecessary defeating	24(23.1)	45(39.4)	19(21.2)	12(8.7)	2(7.7)
Road accident	13(12.5)	18(17.3)	25(24.0)	33(31.7)	15(14.4)
Attack by animals	7(6.7)	19(18.3)	20(19.2)	22(21.2)	36(34.6)
Stealing of farm produce	2(1.9)	6(5.8)	22(21.2)	27(26.0)	47(45.2)
Killing of farmers	14(13.5)	30(28.8)	24(23.1)	36(34.6)	
Destruction of household material by animal	16(15.4)	25(24.0)	43(41.3)	20(19.2)	
Cattle carrier of pathogenic disease	14(13.5)	22(21.2)	29(27.9)	27(26.0)	12(11.5)
Cattle droppings and urine causes cholera	13(12.5)	46(44.2)	28(26.9)	14(13.5)	3(2.9)
Water pollution	19(18.3)	40(38.5)	27(26.0)	16(15.4)	2(1.9)
Damages properties	19(18.3)	27(26.0)	34(32.7)	12(11.5)	12(11.5)

Table 3 shows results for benefit of semi-intensive system of cattle rearing to the dwellers' in the study area. It was observed that only 14.4% of the respondent strongly agreed that the system created job opportunity. 29.8% disagreed that the system contributed to socio-economic of the community. 40.4% agreed that it provides raw materials while 48.1% believed that cattle waste provides materials while 48.1% believed that cattle waste provides material for power generation 51% strongly agreed that the system is a source of protein consumption. 29.8% believed it improves crop yield while 51% agreed that the system is a source of wealth. 31% of the dwellers agreed that the system would enable them have cheap access to cattle. 29.8% 0f the respondents strongly agree that the system benefit the community in the area of improving crop yield. 41.3% agreed that the system contribute to nutrient cycle of their soil. The table evidently shows that semi-intensive system of cattle rearing provides a great benefit to the community in the areas of source of protein; waste for power generation, source of wealth as well as source of raw material.

Table 3: Benefits of semi-intensive system of cattle rearing to the dwellers

Benefits	SA	A	U	D	SD
Create job opportunity	15(14.4)	26(25.0)	18(17.3)	17(16.3)	28(26.9)
Contribute to socio-Economic	16(15.4)	23(22.1)	31(29.8)	31(29.8)	3(2.9)
Provides raw materials	30(28.8)	42(40.4)	23(22.1)	7(6.7)	2(2.9)
Cattle waste as power generation	27(26.0)	50(48.1)	23(22.1)	4(3.8)	
Provides protein	53(51.0)	44(42.3)	6(5.8)	1(1.0)	
Generate output	46(44.2)	49(47.1)	9(8.7)		
Improve crop yield	31(29.8)	29(27.9)	13(12.5)	13(12.5)	18(17.3)

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Contribute to nutrient cycle	30(28.8)	43(41.3)	20(19.2)	5(4.8)	6(5.8)
Source of wealth	9(8.7)	53(51.0)	36(34.6)	6(5.8)	
Access to cheap price	19(18.3)	33(31.7)	27(26.0)	22(21.2)	3(2.9)

Source: Field Survey, 2017

The result from Table 4 shows the coping strategies of the dwellers with semi-intensive system of rearing cattle. It shows that 44.2% of the dwellers believed that provision of grazing land is never a coping strategy of the dwellers with semi-intensive system of rearing cattle. It was gathered that 44.2% of the dwellers believed that provision of grazing land is never a coping strategy conducted by herdsmen. About 41.3% agreed that provision of credit facility is made available occasionally. The result corroborates with the findings of Coupe and Pasteur (2009) that coping strategy include system of money lending among rural dwellers. About 47.1% of the respondents agreed that occasionally proper environmental sanitation is a coping strategy adopted by the herdsmen. This is supported by the findings of NHDR (2018) that sanitation of the environment is important for communities in cattle rearing region of Nigeria, North-Eastern communities to be precise. Majority of the respondents believed that provision of infrastructure, organization of committee on disputes and full implementation of the system are occasional coping strategies adopted by herdsmen with percentage values of 43.3%, 41.3% and 45.2% respectively. The result depicts that most of coping strategies adopted by the herdsmen are occasionally helpful and needful. This result is supported by the submission of Ajayi *et al*. (2019) that infrastructure like erection of planks as partial fencing to prevent cattle from invading farms and conflict resolution.

Table 4: Coping strategies of the dwellers with semi-intensive system of rearing cattle

Coping strategies	**Frequently**	**Occasionally**	**Never**
Provision of grazing land	26(25.0)	32(30.8)	46(44.2)
proper supervision	16(15.4)	38(36.5)	50(48.1)
Credit facility	28(26.9)	43(41.3)	33(31.7)
Rejuvenation of farm settlement	14(13.5)	35(33.7)	55(52.9)
Security implementation	27(26.0)	42(40.4)	35(33.7)
Proper environment sanitation	23(22.1)	49(47.1)	32(30.8)
Provision of infrastructure	19(18.3)	45(43.3)	40(38.5)
Fully implementation of intensive System	34(32.7)	43(41.3)	27(26.0)
Total elimination of semi intensive system	10(9.6)	40(38.5)	54(51.9)
Organization of committee on dispute settlement	21(20.2)	47(45.2)	36(34.6)

Source: Field Survey, 2017

Table 5 shows the significant association between socio-economic characteristics of the respondents and the perceived effect of semi-intensive system of rearing cattle in the study area. It was evident that there is significant relationship in their age, religion, level of education, household size, marital status and their major occupations at 5% level of probability. The indication of this result is that perceived effect of semi-intensive system of cattle rearing is influenced by the age, marital status, religion, occupation as well as their level of education of the respondents in the study area.

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Table 5: Chi-square analysis of socio-economic characteristics of the respondents

Variables	X^2 - Value	p – value	Decision
Age	67.692	0000	Significant
Gender	0.615	0.433	Not significant
Marital status	156.615	0.000	Significant
Religion	35.558	0.000	Significant
Level of education	39.077	0.000	Significant
Household size	14.846	0.001	Significant
Major occupation	85.173	0.000	Significant
Other means of livelihood	4.635	0.099	Not significant

Note: NS=Not significant at 5% level of probability, S= Significant at 5% level of probability

Source: Data Analysis, 2017

Table 6 shows that there is no significant relationship between perceived effect of the system and benefits of semi-intensive cattle rearing on the dwellers in the study area (r=0.114, p>0.05). This implies that the perceived effect of semi-intensive system of rearing cattle had no effect on dwellers.

Table 6: PPMC Analysis of perceived effect of semi-intensive system of rearing cattle on the dwellers

Variables	r- value	p-value	Decision
Perceived effect Versus Benefits of semi-intensive on Dwellers	0.114	0.251	Not significant

Source: Data Analysis, 2017

IV. CONCLUSION

This study investigated the perceived effect of semi-intensive system of cattle rearing on the dwellers of Akinyele Local Government Area of Oyo state. The results of the study showed that majority of the respondents were females between the ages of 31- 40 years and were married. Christianity and Islam are practiced in the same percentage and their level of education was adult education with household size of 5-8, their major occupation is crop farming with a little bit of trading as an added occupation. The invasion of farmland by cattle, destruction of heap, ridges and farm produce; unnecessary defecating and urine causing cholera, water pollution had high perceived effect associated with semi-intensive system of cattle rearing on the dwellers in the study area. The coping strategies of the dwellers with semi-intensive system of rearing cattle that was occasionally adopted in the study area are provision of credit facilities for the construction of large fenced grazing land, security implementation, and proper environmental sanitation, fully implementation of intensive system by the dwellers and organization of committee on disputes settlement. Also the chi-square analysis result indicated that age, marital status, religion, level of education, household size and major occupation are the factors that determines the effect of semi intensive system of cattle rearing in the study area, while PPMC analysis result of the perceived effect of semi-intensive system and benefit of the system of cattle rearing had no effect on the dwellers of Akinyele Local Government Area of Oyo State.

V. RECOMMENDATIONS

Based on the findings of the study, the followings recommendations are made:

- Both the government and the dwellers should improve on environmental sanitation program to ensure disease free environment.
- Semi intensive system of cattle rearing should not be discouraged due to the benefits derived from it.
- The cattle rearers should ensure proper monitoring of their animals in orderto build a healthy relationship amongst the people.
- Government should ensure proper jurisdiction of land between the farmers and the cattle rearers in the study area to avoid chaos that may affect the dwellers.

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