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Trend in Animal Farming in Benue State, Nigeria

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Authors' contributions

This work was carried out in collaboration between both authors. Author JCI designed the study, wrote the protocol and supervised the work. Authors JCI and CEN carried out all laboratories work and performed the statistical analysis. Author JCI managed the analyses of the study. Author CEN wrote the first draft of the manuscript, managed the literature searches and edited the manuscript. Both authors read and approved the final manuscript.

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ABSTRACT

The study was carried out to assess the trend in animal farming in Benue State, Nigeria for the period before year 2007, 2007, 2008, 2009, and in year 2010. Multistage sampling technique was used to select twelve blocks from the three zones in the State. Thirty cells and four hundred and thirty two farmers were sampled from the blocks. Data were analyzed with percentage and mean score while some were presented in charts. The study recorded that little or no change has occurred in animal farming in the area. Poultry was more commonly kept during the period studied and this was mostly done under extensive management system. Thus, there is need for increase in awareness of the importance of animal farming. Agricultural extension agents should engage in more training for farmers on rearing animals like cattle, sheep, and most importantly micro livestock like fish, snail and rabbit that are prolific and lucrative in order to combat malnutrition and ensure household food security.

Keywords: Agricultural production trend; animal production; animal farming; Benue State.

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1. INTRODUCTION

Apart from serving as a source of food for humans, animal production is important in providing non-food materials such as hides, skin, wool and feather which are used as raw materials [1]. Livestock production is the most efficient user of uncultivated land and also contributes to crop production [2]. Healthy, productive livestock can ensure that the farmer has a regular stream of income through the sale of milk and eggs [3]. For many smallholder farmers, livestock are the ready source of cash to buy inputs for crop production- seeds, fertilizers and pesticides. Incomes from livestock are also used in buying things the farmer cannot make for themselves including: paying for school fees, medicine, and tax [4]. Income from cropping is seasonal; but livestock, with their high rates of reproduction and growth, can provide regular source of income for the farmer. Larger animals such as cattle are a capital reserve, built up in good times to be used when crops are poor or when the family is facing large expenses such as the cost of a wedding or hospital bill [4].

The demand for and consumption of livestock products are increasing faster than increase in world population [5]. It is projected that the current rapid increase in consumption of food of animal origin in the developing countries will continue [6]. However, the Nigeria livestock sub-sector tends to be playing a decreasing role in national development in terms of contribution to the country's agricultural share of Gross Domestic Product (GDP) [2]. There is also low per capita protein consumption rate among Nigerians. For instance, of the FAO/WHO recommended daily protein intake of 35gram of which 65% (22.75gram) should be derived from animal protein, only 10gram of the protein consumption of average Nigerians come from animal origin [7]. As the country's population increases, animal production should increase steadily to meet the growing demand, as livestock can be one of the greatest assets in helping Nigerian farmers to overcome the challenges of food insecurity [3]. In view of these, the study aimed to ascertain the trends in farming of major livestock including cattle, goat, sheep, poultry, rabbit, and fish in the study area. The production system adopted by farmers was also studied.

1.1 Purpose of the Study

The overall purpose of the study was to ascertain the trend in animal farming in Benue State, Nigeria. Specifically the study sought to:

1. Identify the socio-economic characteristics of respondents in the area;
2. Ascertain the trend in animal farming in the area; and
3. Ascertain production systems adopted by animal farmers in the area.

2. METHODOLOGY

The study was carried out in Benue State, Nigeria. The state lies between latitudes 6°25′N and 8°8′N and longitudes 7°4′E and 10°E. Proportionate sampling technique was used to select twenty five percent of blocks in each of the three agricultural zones in the State. Five, three and four blocks were then selected from zones A, B and C, respectively giving a total of twelve blocks. Three cells were randomly selected from each of the selected blocks giving a total of 36 cells. Twelve heads of farming households who were rearing livestock for the period under study (i.e. before 2007 to 2010) were selected from each cell which gave a total sample size of four hundred and thirty two (432) respondents. Data were collected using semi-structured interview schedule. Socio-economic characteristics of the respondents were collected by asking them to indicate their sex (male or female), age (in years), and marital status (single, married, widowed etc) while educational level was collected as no formal education, Primary education, Secondary education, Ordinal Level Diploma (OND)/National Certificate of Education (NCE) and higher degree among others. In order to ascertain the trends in animal farming in the area, respondents were asked to indicate the animals they reared for the period before 2007, 2007, 2008, 2009 and 2010 (2007 was chosen by the researchers as a baseline year). Respondents were also asked to indicate the management systems they used in rearing animals during the period under study. This was obtained by asking them to indicate whether they allowed their animals roam about freely all day and all the time (extensive), or confined them for some time each day and allowed free roaming for some part of the day (semi-intensive) or confined the animals all day, all the time (intensive). Data were analyzed using percentage and presented in bar charts.

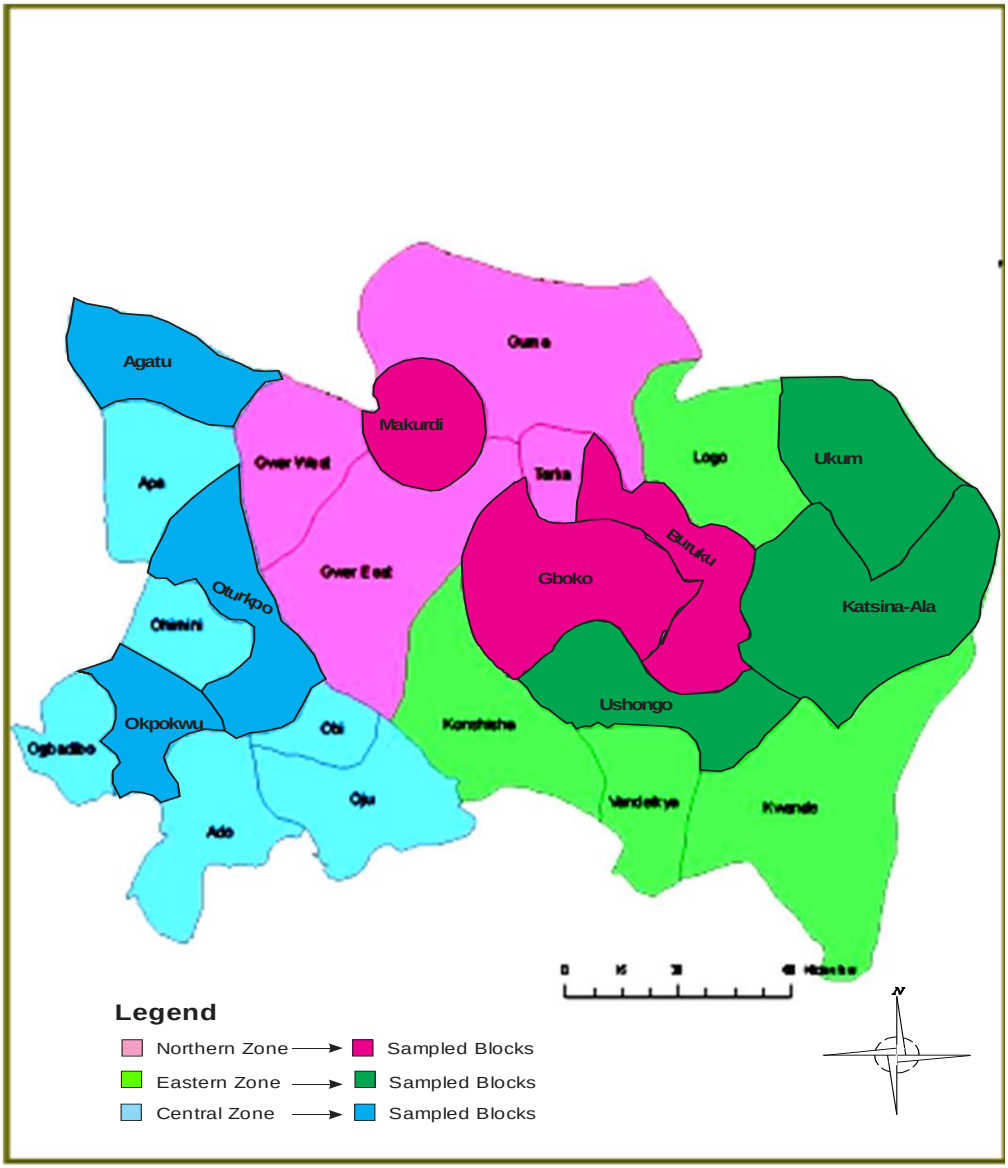

Fig. 1. Map of Benue State showing the study area

3. RESULTS AND DISCUSSION

3.1 Socioeconomic Characteristics of Respondents

Table 1 shows the socio economic characteristics of respondents. From the Table, majority (86.8%) of the farmers were male, married (89.6), with a mean age of 47.9 years. This shows that generally the farmers were relatively young and at their productive age to handle tedious and onerous tasks in agriculture. Greater proportion (30.1%) of the respondents had secondary education. The mean household size was 8 persons. This shows that the farmers had relatively large household size. Large household size may be advantageous among farm families as they provide more labour for engagement in agricultural activities. The mean years of farming experience was 19.7 years. A farming experience of nearly two decades would have provided the farmers with considerable expertise in their livelihood activites. Greater proportion of respondents had farm size of 1.1-3 hectares; the mean farm size was 3.5 hectares.

Table 1. Percentage distribution of the respondents according to their socio-economics characteristics

Characteristics	Percentage (n=432)	Mean
Age (years)		
21-30	4.9	
31-40	22.4	47.9
41-50	39.6	
51-60	22.5	
>60	10.6	
Sex		
Male	86.8	
Female	13.2	
Marital status		
Married	89.6	
Single	5.1	
Separated	0.9	
Widowed	4.4	
Educational qualification		
No formal education	18.3	
Primary education	28.9	
Secondary education	30.1	
OND/NCE	16.0	
HND/degree	3.9	
Higher degree	2.8	
Household size		
1-5 persons	29.6	
6-10 persons	47.5	
11-15 persons	13.9	8
16-20 persons	4.5	
>20 persons	4.9	
Farming experience (years)		
1-10	26.6	
11-20	39.4	
21-30	19.4	
>30	14.6	19.7
Size of farm (ha)		
≤ 1	20.8	
1.1-3	40.0	3.95
3.1-5	17.8	
> 5	21.1	
Organizational membership		
Farmers cooperatives	50.5	
Family/Community organization	22.4	
Religious organization	32.9	
Trade/artisan union	55.1	
Political group	1.2	

**Multiple responses*
Source: Field survey Nov, 2011

3.2 Trend in Animal Farming for the Period under Study (Before 2007 to 2010)

3.2.1 Cattle

It is evident in Fig. 2 that 15% of the respondents reared cattle before 2007 which rose to 17% in 2007, declined (16%) in 2008 and rose slightly again to 17% each in 2009 and 2010. Cattle make significant contribution with respect to selling, meat consumption and arable inputs such as drafts and fertilizer [8]. Yet it was not commonly reared among these farmers probably because of poor knowledge of management practices, lack of space, capital and labour needed for its husbandry.

3.2.2 Goat

Trend in goat farming as shown in Fig. 3 indicates that 57% of the farmers reared goat before 2007 but declined (48%) in 2007 followed by some increase (54%, 57% and 59%) in 2008, 2009 and 2010, respectively. Generally, about half of these farmers reared goat. Trend in its production suggest that more farmers were going into it in recent time probably because it is a multipurpose animal with very few demand of housing and management and can be raised by landless agricultural labourers [9].

3.2.3 Sheep

In Fig. 4, about 30% of the respondents kept sheep before 2007, which declined (28%) in 2007 and then increased (30%,) in 2008 and 32% each in 2009 and 2010, respectively. From the findings, it can be deduced that although, most of these farmers were not rearing sheep they showed interest in its production in recent time. This may be due to the fact that sheep are better adapted to marginal and sub marginal land, eat more different types of plants than any other kind of livestock and turn waste into profit [10].

3.2.4 Poultry

Majority (63%) of the farmers rearing poultry before 2007 which declined (52%) in 2007 and rose to 59%, 61% and 65% in 2008, 2009 and 2010, respectively (Fig. 5). Poultry was animal commonly reared by these farmers within these years. This is also the case in most farm families probably because it does not require high capital, input and returns from it is often quicker. Poultry

industry in Nigeria has also been seen as the fastest means of bridging the protein deficiency gap in the country [11].

3.2.5 Rabbits

Fig. 6 reveals that only 14% of the farmers reared rabbit before 2007 with slight variations (13%, 14%, 13% and 14%) in proportion that reared it in 2007, 2008, 2009 and 2010, respectively. The findings show that rabbit was not commonly reared by the farmers probably because it is very largely dependent on respiratory evaporation which confers only limited power of adaptation to hot climates [12]. Also, there is a slight increase in the proportion of respondents that reared rabbit in recent time (2010) probably because the state has relatively cold climate.

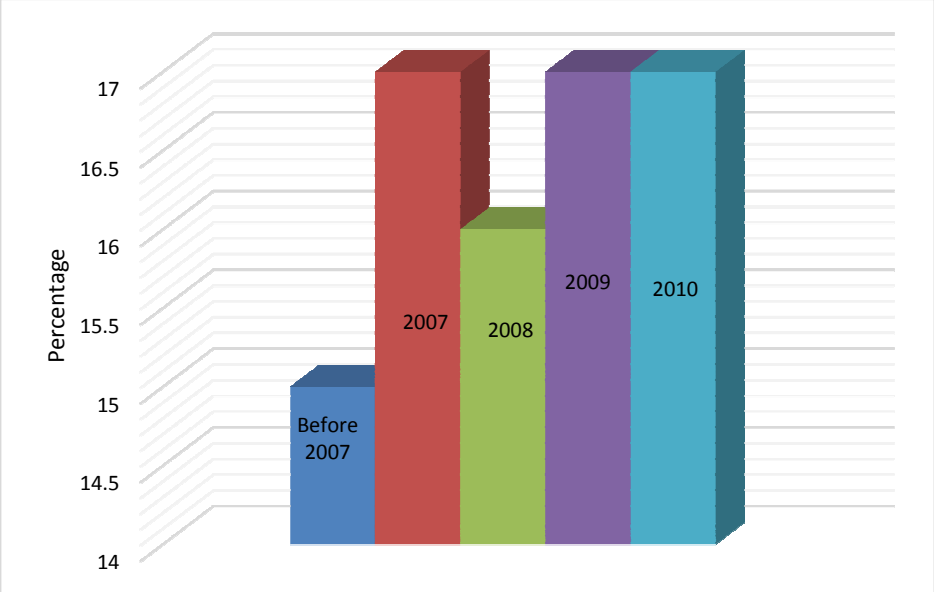

Fig. 2. Proportion of farmers rearing cow/cattle

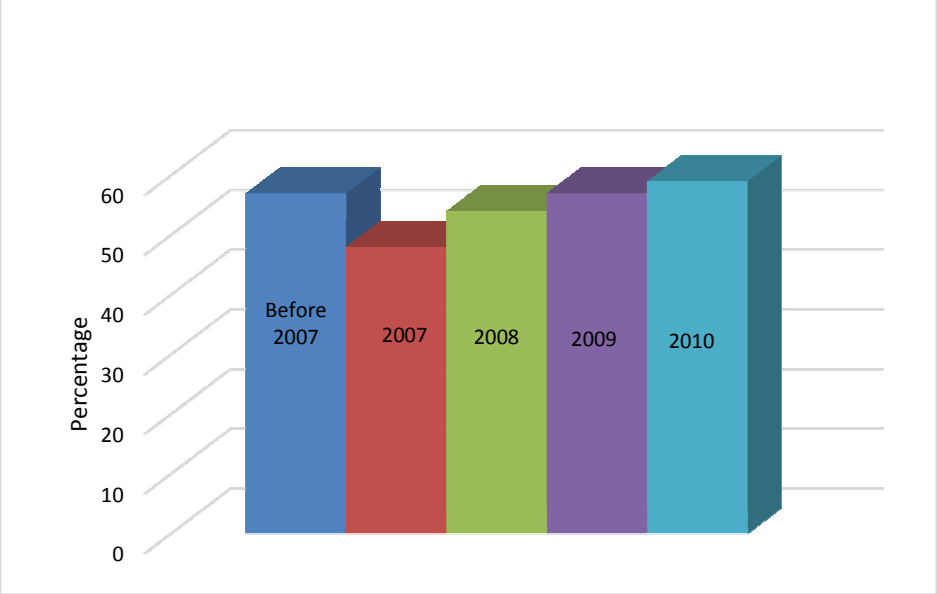

Fig. 3. Proportion of farmers rearing goats

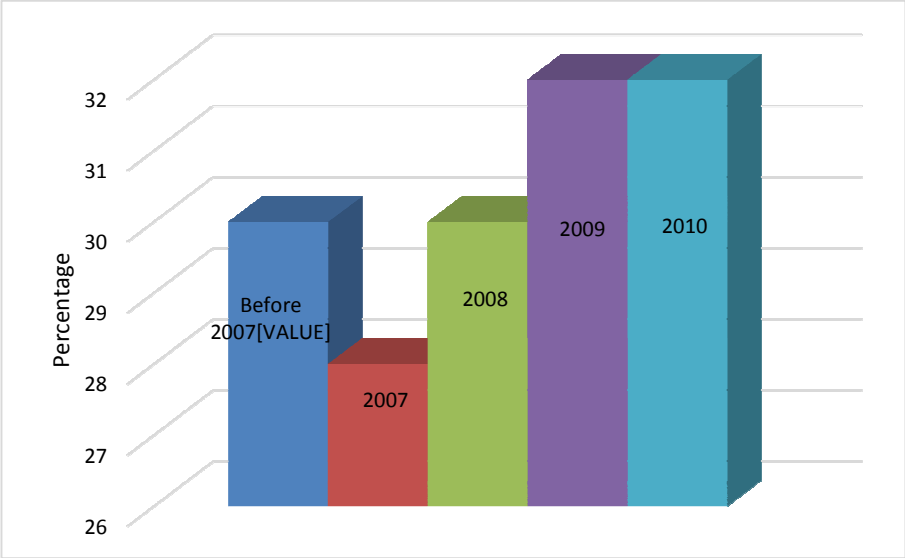

Fig. 4. Proportion of farmers rearing sheep

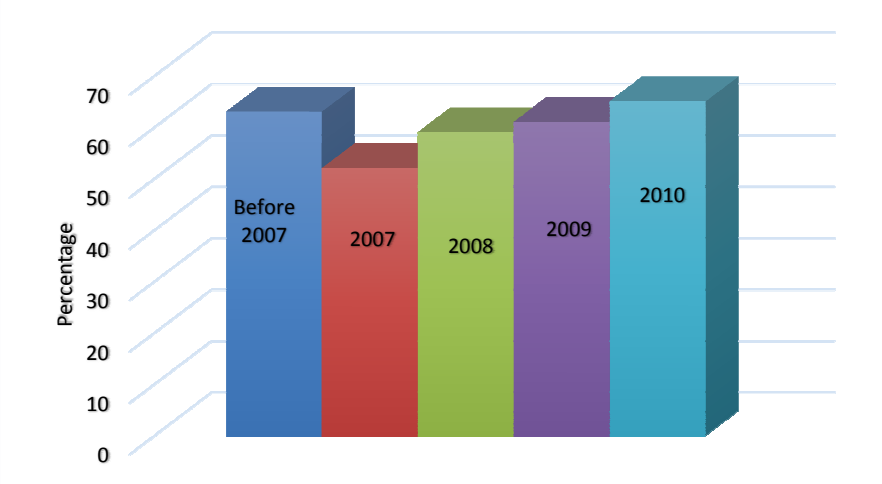

Fig. 5. Proportion of poultry farmers

3.2.6 Fish

Fig. 7 shows that only 14% of the respondents reared fish before 2007 which declined to 15% in 2007, increased to 17% and 20% in 2008 and 2009, respectively but slightly declined again (19%) in 2010. The findings suggest that fish was one of the animals not commonly reared by the farmers. The result is in order because fishery may be said to be a new technology on the part of small holder farmers especially in developing countries and many farmers are yet to incorporate it into their farming systems. Although the proportion of farmers engaged in fish farming was low, it is important to note that the number of farmers going into fish production was generally increasing. This suggests that there could be increased fish production in the area in the long term.

3.3 Animal Farming Management Systems Adopted by Farmers

3.3.1 Intensive system

Fig. 8 shows that about 23% of the respondents reared their animals under intensive management system before 2007 while 24% of them reared their animals under this system in 2007. In 2008, 29% of these farmers reared

animals under intensive system while 32% and 33% of them reared animals under this system in 2009 and 2010, respectively. This findings show that irrespective of merits of intensive system of managing animals, it was not commonly used by the farmers. This could be explained firstly, by the availability for extensive roaming of animals, a situation which is expected to diminish slowly as the population increases and the demand for land for crop production intensifies. Secondly, intensive management system of animals is labour, capital and skill/technique intensive and there is still some uncertainty regarding public acceptance of this system [13]. Thirdly, these farmers may have been already engaged in laborious agricultural tasks like crop farming and probably in other income generating ventures which will not afford them opportunity to cope with the management system. The trend in the use of the management system also shows that there was slight but steady increase in the proportion of these farmers that use the management system within these years. This may mean that farmers are adopting intensive system of rearing animals in recent time probably because of its superiority (in terms of output and income) over other animal management systems.

3.3.2 Semi-intensive

About (33%) of the farmers reared their animals under semi-intensive system before 2007, which declined (31%) in 2007, increase in 2008 (33%) and 2009 (37%) and decrease in 2010 (35%) (Fig. 8). The findings show that this management system was not also commonly used by the farmers within these years. However, it was used

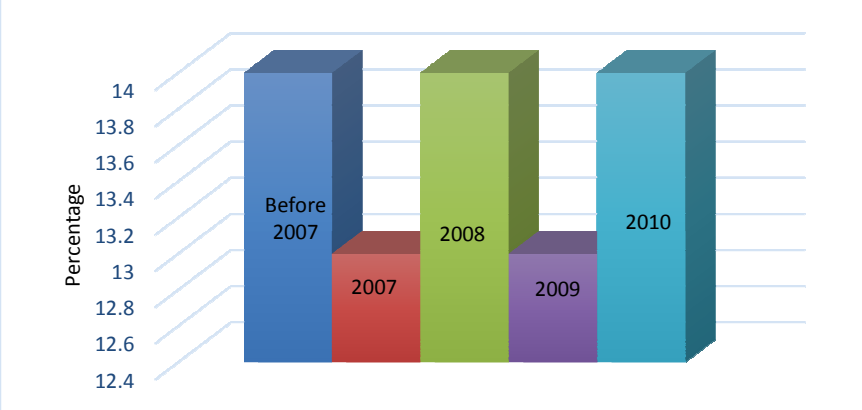

Fig. 6. Proportion of rabbits farmers

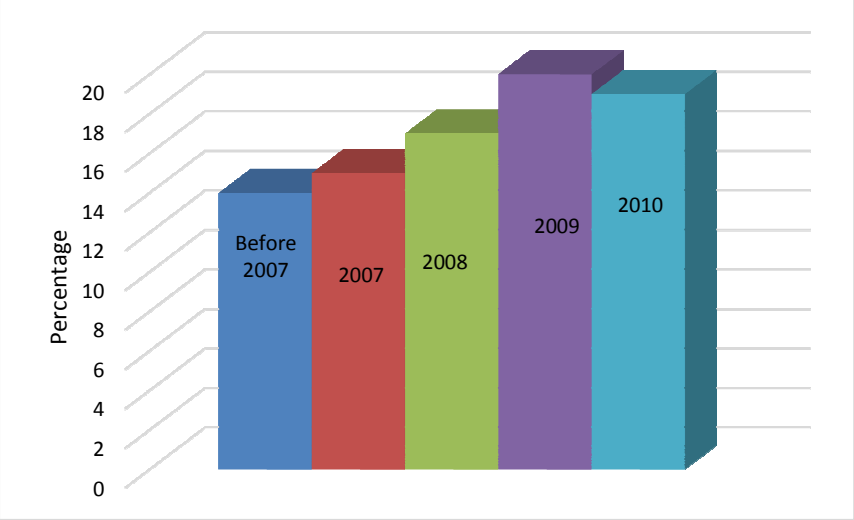

Fig. 7. Proportion of fish farmers

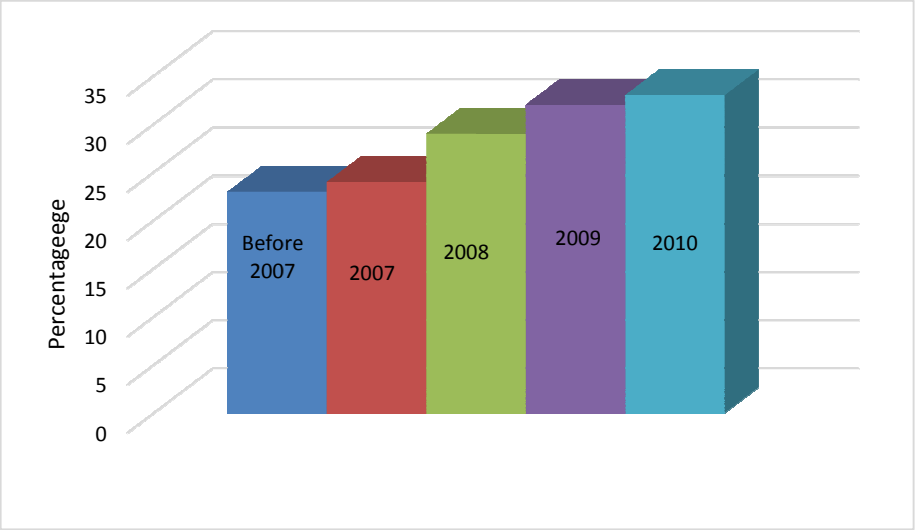

Fig. 8. Proportion of farmers practicing intensive animal management system

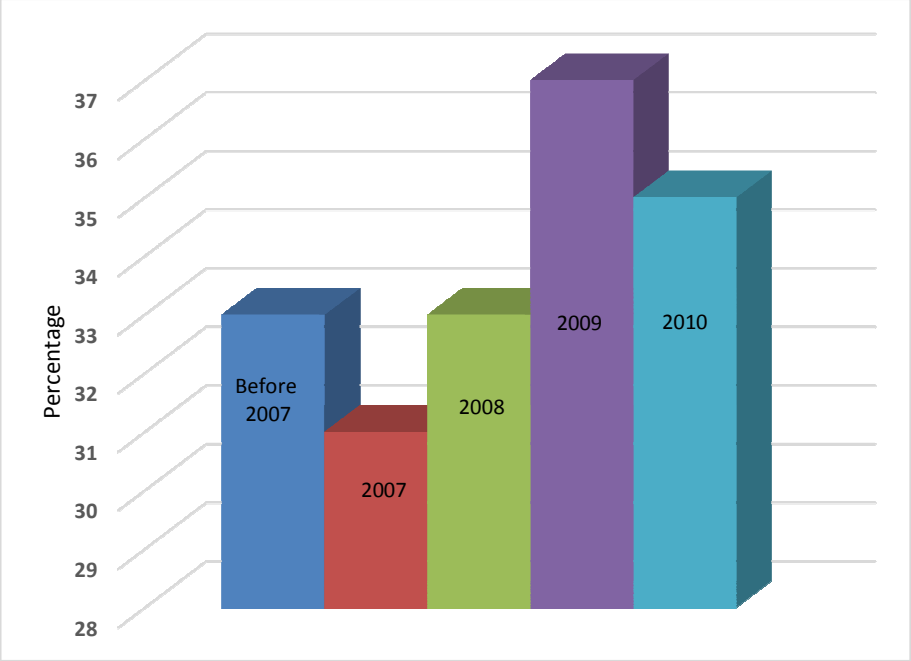

Fig. 9. Proportion of farmers practicing semi- intensive animal management system

more than intensive management system by the respondents probably because it does not require much labour and capital like intensive management system.

3.3.3 Extensive

Fig. 10 show that proportion of farmers that reared their animals under extensive management system before 2007 was 40%, with a decline (34%) in 2007 and increase afterwards (37% in 2008 and 40% each in 2009 and 2010). From the findings it can be inferred that extensive management system was animal management system used by greater proportion of the farmers. Trend in the use of this management system among them shows slight and steady increase in the proportion that used it after 2007 till 2010. This may mean that more farmers were using extensive management

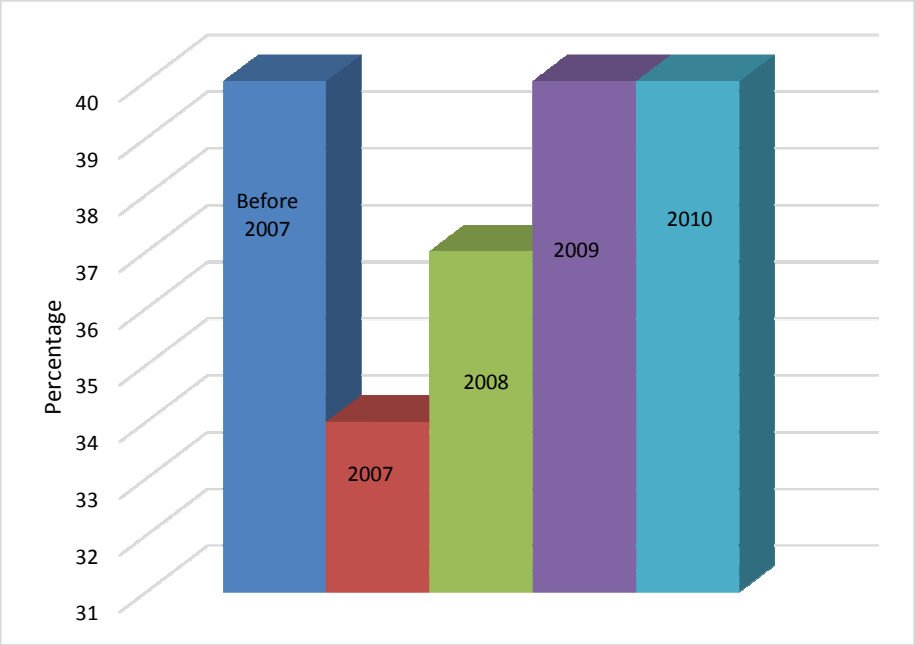

Fig. 10. Proportion of farmers practicing extensive animal management system

system in rearing their animals within these years. It is likely that farmers especially those that produce at subsistent level will employ this management system because it is cheaper and requires little or no input from the farmer.

4. CONCLUSION

Based on the findings of the study, it can be deduced that little or no changes have occurred in animal farming in the area. Also, little or no changes have occurred in their management systems adopted by the farmers. The whole trend shows a whole lot of fluctuations indicating that the farmers' production and interest in animal farming are not encouraging. This observation could suggest a number of issues ranging from lack of incentives for farmers which hinders increased production to insufficient interest on the part of the livestock farmers too.This trend may therefore pose a lot of challenge to food security in general and animal protein availability in particular.

5. RECOMMENDATION

Efforts should be made to encourage increased animal farming in the area. Policy makers should make efforts to ensure that increased animal production is sustained in the area. This could be done by providing enabling environment for the farmers including infrastructural facilities and soft loans. Agricultural extension agents could also create awareness and training opportunities on cattle, sheep, goat, and poultry production in the area. It is important to also emphasize micro livestock like fish, snail and rabbit production for farmers which may require cheaper inputs in their production.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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