

AMM -06

Factors Influencing the Efficiency of Cattle Production among Farmers in Bade Local Government Area, Yobe State, Nigeria

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Abstract

The factors influencing the efficiency of cattle production among farmers in Bade LGA, Yobe State, Nigeria were investigated. Structured questionnaire was used for data collection from 200 cattle farmers and analysed with descriptive statistics and regression analysis. Findings showed that cattle farmers between the age of 40-59 years old dominated ownership of cattle (55.50%). Semi intensive system was still practiced with majority dependent on forage grazing for the animals. A regression analysis result showed that certain socio-economic variables such as educational level and cattle farming experience had direct impact on cattle production ($R^2=0.48$). The findings suggest that improved cattle production could be achieved by giving considerations to those significant variables.

Keywords: Socio-economic, cattle, efficiency, Bade LGA, rural

Introduction

Concentration of Nigeria's livestock-based in the northern region is most likely to have been influenced by the ecological condition of the region which is characterized by low rainfall duration, lighter sandy soils and longer dry season (Lawal-Adebowale, 2012). Cattle are one of the major components of livestock existing in Yobe State. Aside being multiplied and sold to generate income, it has wider usage thus, help in the production of beef, hide and skin, Agricultural manure as well as source of transport for the movement of agricultural products from one location to the other. Similarly, it helps to provide power for the tilling of soil. Cattle are also fattened and sold, cross-breed to improved carcass weight, produce Agricultural manure. It also serves as a source of milk and cheese. The bones and blood are also used as part of ingredients needed for the production of chicken feeds among others. Determining the factors influencing the efficiency of cattle production in the study area is essential in order to answer the question as to whether farmers are to adopt and sustain livestock farming in their efforts to ensure food security and income generation.

The objective of the study was to identify factors influencing the efficiency of cattle production among farmers in Bade LGA, Yobe state, Nigeria.

Materials and Methods

The survey was conducted in Bade Local Government Area of Yobe State, Nigeria. Its headquarter is in the town of Gashua. It has an area of 772 km² and Coordinates: 12°52'5"N 11°2'47"E with population of 139,782 at the 2006 census. The postal code of the area is 631 (NIPOST, 2009). Gashua is a community on the Yobe River, a few miles below the convergence of the Hadejia River and the Jama'are River. Average elevation is about 299 m. The hottest months are March and April with temperature ranges of 38-40° Celsius. In the rainy season, June-September, temperatures fall to 23-28° Celsius, with rainfall of 500 to 1000mm. Agricultural production is not large-scale nor is it mechanized. There are 10 wards under Bade LGA, these are Sugum/Tagali, Dagona, Sarki Hausawa, Lawanfannami, Zango, Katuzu, Lawanmusa, Gwio-Kura, Usur/Dawayo and SabonGari wards.

The study adopted a survey research design to assess the socio-economic determinants of cattle production among farmers in Bade LGA, Yobe State, Nigeria. Primary and Secondary data were used in this study. There are 10 wards under Bade LGA, namely; Sugum/Tagali, Dagona, Sarkin Hausawa, Lawanfannami, Zango, Katuzu, Lawanmusa, Gwio-Kura, Usur/Dawayo and SabonGari wards. Random sampling technique was used to select six (6) wards out of ten wards in Bade Local Government. Structured questionnaires were administered in six different wards selected randomly across Bade Local Government. Direct survey and oral interview were also conducted among the 200 cattle farmers in the selected wards. Data on socio-economic characteristics, production systems and constraints were elicited using interview guides and analyzed with both descriptive statistics and regression analysis.

Both descriptive (frequency, percentage and mean) and regression model was used for analyzing the data generated from the study.

For grouped data, the mean;

$$\bar{X} = \sum x_i / N \dots\dots\dots (1)$$

Where,

N= number of observations

$\bar{X}$ = mean

$\sum x_i$ = Sum of variables (i = 1, 2, 3....n)

For grouped data;

$$\bar{X} = \sum fx_i / \sum f \dots\dots\dots (2)$$

Where $\bar{x}$ = mean

$\sum fx_i$ = sum of products of all variables (i = 1, 2, 3n)

$\sum f$ = sum of all frequencies

Regression Model: Regression analysis was used to ascertain the contributions of selected farmers' socioeconomic characteristics to cattle production systems. The multiple regression equation estimated model is given as:

$$Y = A + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + b_7 X_7 + \epsilon \dots\dots\dots (1)$$

where:

Y = Cattle production (herd size)

A = Constant

X₁ = Age (in years)

X₂ = Sex

X₃ = Educational level

X₄ = Household size (number of people)

X₅ = Farm size

X₆ = School years

X₇ = Cattle Rearing experience (in years)

ϵ = Capital

ϵ = error term, assumed to be independently and normally distributed.

The model shows the coefficient of multiple determinations (R^2), which explains the 'goodness of fit' for the relationship between the dependent variable and each independent variables in the equation.

Results and Discussion

Table 1 shows the distribution of respondents according to socioeconomic characteristics. The factors influencing economic efficiency of cattle enterprise in the study area are presented in Table 2. Regression model was used to determine the factors influencing economic efficiency of cattle enterprise of the respondents. The Pseudo R-square (coefficient of determination) was 0.4114 indicating that about 41.14% variation in cattle enterprise is explained by the explanatory variables included in the model. From the T-value of the regression, two independent variables (Educational level and Cattle farming experience) out of the eight variables included in the model were found to be statistically significant at 10% and 1% level of probability. They both have positive coefficients and directly related to efficiency of cattle enterprise in the study area.

The coefficient of educational level was positive (1.88) and statistically significant at 10% level of probability indicating a direct relationship with the dependent variable. This implies that a unit increase in Educational level of cattle rearers will increase the efficiency of cattle enterprise of the respondents.

The coefficient of cattle rearing experience was positive (5.44) and significant at 1% level of probability indicating a direct relationship with the dependent variable. This implies that a unit increase in cattle rearing experience of the farmers will increase the efficiency of cattle enterprise of the respondents in the study area. This finding is in agreement with the result of Asogwa *et al.* (2014).

Conclusion and Recommendation

The findings of the study suggest that selected socio economic characteristics have become linked with cattle production. More importantly, possession of cattle was positively influenced by educational level and cattle rearing experience. The study recommends that improved cattle production could be achieved by creating enabling environment to ameliorate problems faced by farmers.

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Table 1: Distribution of respondents according to Socio economic characteristics

Variables		Frequency	Percentage
Sex	Male	200	100.00
	Female	0	0
Total		200	100.00
Age	<20	1	0.50
	20 – 39	67	33.50
	40 – 59	111	55.50
	60 – 79	19	9.50
	>79	2	1.00
Total		200	100.00
Marital Status	Married	182	91.00
	Single	15	7.50
	Divorced	1	0.50
	Widow	1	0.50
	Separated	1	0.50
Total		200	100.00
Household Size	1 – 10	49	24.50
	11– 20	75	37.50
	21 – 30	44	22.00
	31 – 40	26	13.00
	>40	6	3.00
Total		200	100.00
Cattle Rearing Experience (Yrs)	1-10	78	39.00
	11-20	85	42.50
	21-30	31	15.50
	31-40	5	2.50
	>40	1	0.50
Total		200	100.00
Level of Education	No Formal Education	107	53.50
	Adult Education	15	7.50
	Primary Education	10	5.00
	Secondary Education	32	16.00
	Tertiary Education	26	13.00
Total		200	100.00

Source: Field Survey, 2017.

Table 2: Regression Coefficients of economic efficiency of the cattle enterprise

Variables	Coefficients	Standard error	T – value
Constant	13.68847	5.367496	2.25**
Age	-0.1380563	0.1211426	-1.14
Sex	11.02397	10.00919	0.10
Educational level	1.84698	0.9835711	1.88*
Household size	-0.0866316	0.1679368	-0.52
Farm size	1.59136	0.8567899	-0.67
School years	-0.5449743	0.3791058	-1.44
Cattle rearing experience	0.6960665	0.1289006	5.40***
Capital	-9.25E-06	7.76E-06	-1.19
Pseudo R-squared	0.4114		
R-squared	0.4759		
Log likelihood function	17.014		

Source: Field Survey, 2017.*significant at 10%, **significant at 5%, ***significant at 1%

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