SOCIO- ECONOMIC FACTORS INFLUENCING SMALL RUMINANT PRODUCTION IN ADAMAWA STATE; POLICY IMPLICATIONS FOR LIVESTOCK TRANSFORMATION IN NIGERIA.

MOHAMMED IBRAHIM GIREI1,2,JOSEPHINE BOSEDE AYOOLA2
1DEPARTMENT OF AGRICULTURAL EDUCATION,FEDERAL COLLEGE OF EDUCATION, YOLA.ADAMAWA STATE, NIGERIA
2DEPARTMENT OF AGRICULTURAL ECONOMICS, UNIVERSITY OF AGRICULTURE MAKURDI, BENUE STATE, NIGERIA,
MOHAMMED IBRAHIM GIREIcorresponding Author migirei@yahoo.com +2348069153671

Abstract - The paper examined the socio-economic factors influencing small ruminant production in Nigeria. Livestock subsector has an enormous contribution to developing countries economy, especially in the provision of food, raw materials, employment, foreign exchange earnings, and provision of market for the products of the industrial sectors. Structured questionnaire were distributed to one hundred and twenty small ruminant farmers using multi stage random sampling techniques. The data obtained were analysed by the use of simple descriptive statistics (mean, average and percentages) and multiple linear regression analysis. The result of the analysis shows that, majority (84.167%, 57.5%, 67.5 % and 58%) of sheep and goats' farmers were male and fall within the age range of 44- 56 years, were married and obtained primary education respectively. The majority of the farmers practiced extensive system of management. The study reveals that lack of capital/credit, insecurity, poor management system, pest and disease, lack of assess to drugs were the most serious constraints, others were lack of contact with extension staff, in adequate feed and lack of favorable market also affect sheep and goats production in the area. The regression result reveals that Sex, Accessibility to market, Educational level, Farming experience, Membership of Association and Access to credit facilities, were having positive impact on small ruminant production (R2) = 0.864. The findings suggest that improved small ruminant production could be achieved by giving considerations to those significant variables and the major constraints faced by the farmers, and also creating enabling environment through the provision of micro-credit will be of paramount importance in small ruminant production.

Keywords; Small, ruminant, Socio- economic, policy, implications, management, production

Introduction

Livestock subsector has an enormous contribution to developing countries economy, especially in the provision of food for the growing human population, supply of raw materials to the industrial sector, a good and reliable source of employment especially for the poor, generation of foreign exchange earnings, and provision of market for the products of the industrial sectors.

Moreover, in developing countries, livestock sector contributes more than 30% to the Agricultural Gross Domestic Product

(AGDP), and about 40% of the global GDP and serves as the fastest growing agricultural market, a major contributor to food and as well as serving as an vital source of employment for almost 1 billion poor people in unindustrialized countries like Nigeria, (Swanepoel, *et al*2010).

However, there is rapid growth in demand for livestock and livestock products, in developing countries, which is viewed as a 'food revolution'. Livestock products are costly in relation to staple foods, moreover, developing countries' consumption levels are still low, but increases with rising incomes. But growth in consumption is at the expense of increasing net imports of all livestock products. Therefore increase production and higher self-sufficiency would save foreign exchange. Furthermore, livestock production immensely contributes to rural livelihoods and poverty relief among farmers (Martin, 2014). The livestock sector in Somali accounts for 40% of the gross domestic product (GDP) and 80% of foreign exchange earnings (Wanyoike et al 2015). Whilein Nigeria, livestock production contributes only about 5% of GDP, whereas agriculture sector as a whole contributes 35% of GDP (Bernard *et al*., 2011). Sheep and goats production plays an important role in the livestock industry in Sub-Sahara Africa. They provide adequate food for the growing human population and also serve as a good source of soil fertility which is more essential for field crops. It's also established that over 90% of sheep and goats in the Sub-Saharan Africa are found in East and West Africa (Samaila, and Musa, 2012).

However, in Nigeria, sheep and goats are present in many rural households, and the majority of the animals are kept in free-roaming flocks with little management or capital inputs. The average flock ranges from two to five animals per owner, with goats being more common than sheep (Sumberg 2014, and Bayer, 1984).

Similarly, in Nigeria, it is shown that, small ruminants contribute an estimated 35% to the total meat supply; they are more common in the north than in the southern part, and more important in rural than in urban areas. Population estimates indicates that, there are roughly 1 million head of sheep and 7 million goats in the sub humid zone of Nigeria. In livestock units, this represents 3% and 16% respectively of total ruminants in the zone, the major breed of sheep and goats are Yankasa and West African Dwarf respectively (Bayer, 1984).

Furthermore, it is observed that, on average, 17 percent of the 280 million people living

in West Africa were food insecure, while about 30 percent live below the poverty line. Thirty-three percent of children below five years of age are stunted, 28.3 percent are underweight, and 10 percent lost their life (Babatunde 2012). Therefore, as a result of high pressing demand for food due to rapid growing of human population in Africa, there is a need to diversified production of both crops and animal, so that to tackle the problem of malnutrition and to be food secured in the continent.

Objectives of the study are;

to describe the socio- economic characteristics of the respondents in the area?

to determine the management system practices of small ruminant production in the study area?

to estimates the factors influencing small ruminant production in the area?

to determine the constraints militating against small ruminant production in the study area ?

METHODOLOGY

Study Area

Adamawa state covers a land mass of 39,742.12 sq km. This is about 4.4% of the land area of Nigeria. It lies between latitude 8N and 11N, longitude 11.5E and 13.5E. Adamawa state has a population of 3,168,101 based on 2006 census. This consists of 1,606,123 males and 1,561,978 females giving a population density of 80 people per sq km. Majority of the people in the state engaged in crop and animal production. Crops produced include Groundnuts, Cotton, Maize, Yam, and Cassava, Guinea-corn, millet, Beans, Sweet potato and Rice. While major animal produce are cattle, sheep and goats. The communities along the banks of River Gongola and Benue rivers engage in fish farming.

Method of Data Collection and analysis

The study used Primary data which was collected with the use of structured questionnaires administered to 120 respondents. A multi-stage random sampling procedure was adopted. Stage one involved the random selection of three out of the 21 Local Government Areas (LGAs) in the state. The selected LGAs are Fufore, Girei and Ganye, Stage two involved purposive selection of four villages from each of the selected LGA, based on their popularity on sheep and goats production. The final stage involved random selection of 10 small ruminant farmers from each selected village, making a total of 40 farmers from each

selected LGA, in the state. Descriptive statistics such as percentages, scores, frequency distribution etc, were used to analyzed socio- economic characteristics of farmers, management system of farming and constraints militating against sheep and goats production, while multiple regression analysiss was used to analyze the factors influencing sheep and goats production in the area.

The multiple regression model is given as:

$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + \ldots. b_{10}X_{1o} + U$…….

Equation (1)

Where:

Y = Dependent variable, sheep and goats (herd size) in number.

a = constant

b_1–b_{10}, = Regression coefficients

U = Error term

X_1 = Age (in years)

X_2 = Sex (male=1, female=0)

X_3 = Household size (number of people in the household)

X_4 = Educational level (number of years in formal schooling)

X_5 = Farming experience (number of years in sheep and goats production)

X_6 = Access to market (in kilometers)

X_7 = Extension contact (number of visits in the year 2015)

X_8 = Access to credit (in naira)

X_9 = Membership of farmers association (years of membership).

Results and discussion

Table 1: Distribution of respondents based on socio-economics characteristics

Variables	Categories	Frequencies	Percentages
Gender	Male	101	84.167
	Female	19	15.833
Age	18- 30	12	10
	31 – 43	31	25.83
	44 – 56	69	7.5
	>56	08	6.667
Marital Status	Single	22	18.33
	Married	81	67.5

	Widow	17	14.167
Educatio	Non		
nal level	formal	23	19.167
	Primary	58	48.333
	Post	32	26.667
	Primary		
	Tertiary	07	5.833

Table 1, indicates that, majority (84.167 %) of the farmers were male while only 15.833% were females. This implies that male participate more than the female in sheep and goats production in the study area. The finding is line with (Adams and Ohene-yankera, 2014, and Mabe, 2010) who observed that male participate more in ruminant production than the female. The reason may be attributed to societal customs and norms in sub-Saharan African countries where males control household productive assets. The study is in contrast with Fakoya&Oloruntoba (2009) they reported that female participates more than male in small ruminant production in Osun-state, Nigeria. The study reveals that, Majority (57.5%) of the farmers were within the age range of 44 to 56 years, while 10% , 25.833% and 6.667% were between 18 – 30, 31 – 43 and 57 and above years respectively. The finding is in line with Umunna, et al (2014) who reveals that majority of small ruminant farmers in southern guinea savanna of Nigeria fall within the age range of 40-49. The younger ones were less involved in livestock production. This may not be unconnected with rural-urban migration by the young men looking for white collar jobs in order to improve their standard of living. However, the age range of 44-56 is an indication of good agricultural potentiality of improving livestock production since people within this range would be more reasonable in compliance with new innovation. The study revealed that, majority (67.5 %) of the farmers was married, while 18.333% and 14.167% were single and widow respectively. Therefore, respondents that were married participate more on sheep and goats production in the area. This may be connected with the responsibility of the head in satisfying the need of his family members. It is reveals that majority (58%) of the respondents obtained only primary education, while 23%, 32% and 07% obtained no formal education, secondary education and tertiary education respectively. Moreover, it is known that, education is an engine room for any development. Therefore, to achieve sustainable development in agricultural production, farmers must be well educated.

Table 2. Distribution of respondents based on Management system of farming

Management System	Frequencies	Percentages (%)
Extensive (free range)	90	75
Semi intensive	18	15
Intensive	12	10
Total	**120**	**100**

Table 2. Indicates that majority (75%) of the farmers operates extensive system of management, while 15% and 10% practiced semi intensive and intensive system of management. This finding is in agreement with Ajala, et al (2008) who state that, majority of small ruminant farmers in Nigeria practiced extensive management system, where the animal depend on forage due to high cost of concentrate. The extensive system of management is simple and easy to manage unlike semi intensive and intensive management which is too expensive, but it ensured safety of the animal against risk and higher productivity will be obtained.

Table 3. Regression result for factors influencing sheep and goats production

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.976	1.413		3.521	.001
	Age	-0.030	0.024	-.054	-1.268	.207^{NS}
	Sex	0.172	0.074	.084	2.322	.022**
	Accessibility to market	0.179	0.083	.082	2.168	.032**
	Educational level	0.167	0.0158	.234	2.872	.002**
	Farming experience	0.299	0.060	.259	4.972	.000**
	Household size	0.117	0.325	.013	.360	.720 ^{NS}
	Contact with extension agent	0.047	0.575	.003	.082	.935 ^{NS}
	Membership of Association	0.101	0.051	.090	1.972	.031**
	Access to credit facilities	1.670	0.666	.090	2.509	.014**

a. Dependent Variable: farm size, R=0.930, R Square =0.864, ** significant at 5% level, Ns = not significant.

The study used multiple linear regression model to determined factors influencing sheep and goats production. Thus herd size is the dependent variable, while age, Sex, Accessibility to market, Educational level, Farming experience, Household size, Contact with extension agent, Membership of Association and Access to credit facilities, were the explanatory variables, the result was presented in table 3.

Table 3.revealed that, all the explanatory variables fit into the model at 0,05 significant levels and R^2 = 0.864, meaning that, 86.4% of the variation in small ruminant production is explained by the independent variables identified. The result shows that Sex, Accessibility to market, Educational level, Farming experience, Membership of Association and Access to credit facilities, were found to be positively significant at 5% level. The results indicate further that, access to credit is the most significant contributor to the factors influencing sheep and goats production 17 times than other factors. This clearly indicates that credit facilities has multiplier effect on farmer productivities, they increase their passions for animal production in order to meet with repayment of loan as well as to meet with their household responsibilities. Fakoya and Oluruntoba (2009) also observed that farming experience and education have direct positive impact on small ruminant production, in Osun state.

Table 4: Constraints to sheep and goats Production

Constraints	Frequency	Percentage	Rank
Insecurity (. Theft)	108	90	2
Lack of capital/credit	114	95	1
pests and diseases	98	81.667	4
Poor management system	105	87.5	3
Market availability	31	25.833	8
In adequate feed	60	50	7
Assess to drugs	71	59.167	5
Lack extension educ.	62	51.667	6

Table 4. Revealed the major constraints faced by sheep and goats farmers. The constraints were ranked according to degree of severity by the respondents, Lack of capital/credit, insecurity, poor management system, pest and disease, lack of assess to drugs were the most serious constraints, others were lack of contact with extension staff, in adequate feed and lack of favorable market in the area. However, efficient agricultural production demands adequate capital Fakoya and Oluruntoba (2009). Adams and Ohene-yankyara, (2014) observed that, One important way to improve traditional livestock production is to associate farmers to a reliable relevant institutions, like agricultural extension services, in order to educate farmers on adaptation of new technologies. They further observed that, 70% of the small ruminant farmers in Ghana lack extension education. This study is also in line with Babale, et al (2012) who reveals that, in adequate feed, lack of capital and inconsistent market were the major factors affecting animal production in Nigeria. Adama, et al, (2011).also observed that, the major constraints affecting livestock farmers in Burkina Faso, were issues of thefts and disease problems. Therefore, to realize efficient and reliable agricultural production these constraints need to be addressed.

Policy implications for livestock transformation in Nigeria

Government's roles should include:

Promote investments for the different business opportunities in order to support the private sector accordingly (e.g. Provision

of incentives)Define and enforce the right legislation and transversal reforms. Support small holder's organization, (cooperatives), Transfertechnical knowledge & provide training, Support R&D e.g., fund universities and research institutes to do applied research, and to encourage Private sector to operate and run improved production models.

Conclusion and recommendations

The finding shows that majority (84.167%, 57.5%, 67.5 % and 58%) of small ruminant farmers were male and fall within the age range of 44- 56 years, were married and obtained primary education respectively. The majority of the farmers practiced extensive system of management. The study reveals that lack of capital/credit, insecurity, poor management system, pest and disease, lack of assess to drugs were the most serious constraints, others were lack of contact with extension staff, in adequate feed and lack of favorable market also affect sheep and goats production in the area. The regression result reveals that Sex, Accessibility to market, Educational level, Farming experience, Membership of Association and Access to credit facilities were having positive impact on small ruminant production (R^2) = 0.864.

The following recommendation were necessary

- There is a need to provide farmers with credit facilities in order boost their production, since the finding shows that credit facilities has the highest contributing factor towards sheep and goats production in the area.
- The farmers need to be educated since most of them obtained primary education as their higher qualification and also practicing extensive system of farming. While the maximum agricultural productivity can be achieved through intensive system of management. Therefore, for farmers to be integrated to modern system of farming the issue of education must takes into consideration.
- The security network in the country should be revitalized to ensure peaceful coexistence of all citizens in the country. This will facilitate more investment and encourage small ruminant production in the country.
- Provision of more local cattle markets is essential for easy disposal of livestock. And also;
- All the mentioned constraints need to be addressed in order to improve mall ruminant production in the area.

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