Effects of Livestock Production on Rural Development in Ishielu Local Government Area of Ebonyi State, Nigeria

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KEYWORDS

Livestock production, Socio-economic livelihood, Sustainable development, Wealth creation.

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ABSTRACT

The study assessed the effects of livestock production on rural development in Ishielu Local Government Area of Ebonyi State, Nigeria. Multi-stage sampling procedure involving purposive and random sampling techniques were used in the selection of 150 respondents. Primary data were collected through interview schedule and analyzed using both descriptive and inferential statistics such as frequencies, percentages, mean score and factor analysis. Result showed that the major types of livestock enterprises undertaken by the respondents were: poultry production (85.3%), fishery (68.0%), goat keeping (66.0%), cattle rearing (58.0%) and piggery enterprise (53.3%). These enterprises improved the livelihood of respondents through increased income *($\bar{X} = 3.69$), employment generation ($\bar{X} = 3.46$) and enhanced availability of meat and egg products ($\bar{X} = 3.45$). Other benefits were: increased food nutrition/daily protein requirement (85.3%), increased profitability (79.3%), increased soil fertility (78.7%) and supplies of raw materials for industries (76.0%). High cost of livestock feeds, livestock diseases, low access to veterinary services and inadequate extension service are some of the constraints limiting the performance of the farmers. Therefore, the study recommended that farmers should organize themselves into groups in order to share knowledge and experience for the improvement of livestock farming. This will also help them to secure loans from micro and macro credit institutions.*

INTRODUCTION

Livestock systems dominate about 30 percent of the planet's ice-free terrestrial surface area and are a substantial global asset with a worth of at least $1.4 trillion (Meissner *et al*, 2023; Yitbarek, 2019). The livestock sector is increasingly organized in long market chains that employ at least 1.3 billion people globally and directly support the livelihoods of 600 million poor smallholder farmers in the developing world (Khade *et al*, 2021; Obot *et al.*, 2021). Livestock are important in supporting the livelihoods of poor farmers, consumers, traders and labourers throughout the developing world. The greatest impact of livestock in sustainable development designed to help the poor is enhancement of livestock-production systems. Animal diseases are crucial constraints, in that the animals of poor farmers are particularly vulnerable to disease because of the high cost or unsuitability of animal-health and production inputs (Nwose *et al.*, 2021; FAO, 2010). The majority of the world's estimated 1.3 billion poor people live in developing countries where they depend directly or indirectly on livestock for their livelihoods. Globally, livestock contributes about 40 percent to the agricultural gross domestic product (GDP) and constitutes about 30 percent of the agricultural

GDP in the developing world (Obot *et al*., 2020; Michalk *et al.,* 2019. These estimates highlight the important contribution of livestock to sustainable agricultural development.

For many years livestock departments have attempted to improve the lives and productivity of rural communities' livestock owners. Although the most common problems relate to nutrition (availability and quality of feed) and to diseases, many development programmes concentrate on specific aspects, such as disease control Godswill *et al.* (2020). In reality there is a need to integrate different components to ensure that sustainable systems of production are established (Mohammed *et al.* 2013).

The contribution of livestock to the world's food supply, family nutrition, income, employment, soil fertility, livelihoods, transport and sustainable agricultural production continues to be a subject of significant review and debate (Randolph *et al.,* 2017). Furthermore, estimates show that globally, livestock provide animal traction to almost a quarter of the total area under crop production (Devendra, 2010). Livestock also provide a safety net in times of need in the form of liquid assets and a strategy of diversification for food production (Freeman *et al.*, 2018). All these reviews and studies thus far have shown that livestock play multiple roles in the livelihoods of people in developing communities, especially the poor.

National Bureau of Statistics pointed that small ruminant animals (sheep and goats) are an important source of income in western Asia and North Africa, semi-arid areas with less than 300 mm average annual rainfall. According to Randolph *et al.* (2017) small ruminants in Southern Nigeria are integral components of the household, where they contribute to the cultural, food and socio-economic life of the people. Traditionally, sheep and goats have served as means of ready cash and a reserve against economic and agricultural production hardship. Sheep and goats play a significant role in the food chain and overall livelihoods of rural households. They are key opportunities for smallholder small ruminant producers to not only engage in income generating activities, enabling them to escape the poverty trap but also to consume animal source food they could not afford to buy. Randolph *et al.* (2017) affirmed that livestock are important in supporting the livelihoods of poor livestock keepers, traders and labourers throughout the developing world.

Although, with a fast growing population, Nigeria is threatened with the problem of food insecurity and poverty which can be addressed with a more developed animal production sector in addition to other sectors (Fasoyiro and Taiwo 2012). The average Nigerian still consumes far less animal protein than his counterpart in the developed world because the animal production industry is still in its infancy due to hydra-headed problems and the per capita income is low leading to a consumption of less than 9grams of animal protein per capita per day as compared to over 50 grams per capita per day in North America and Europe (Boland *et al.* 2013). Some countries even in the developing world are already considering novel approaches to meat production such as *in vitro* meat production (Sachan *et al.* 2012) but in Nigeria, animal production is facing numerous challenges with certain factors militating against successful animal production.

Livestock contribute directly to the economy through employment generation, increase in savings and investment, foreign exchange earnings, contribution to human food and nutrition. Livestock also contribute indirectly to food security by increasing crop output through providing manure, and serve as a buffer to mitigate the impact of fluctuations in crop production on the availability of food for human consumption, thereby stabilizing food supply. Despite its smaller output compared with that of staple crops, productivity and income growth in the livestock sector have strong income multiplier and poverty reduction impacts (Tyohen and Mbakpene, 2023; Alabi *et al*., 2019). It is on this premise, that this study is birthed.

Objectives of the Study

The aim of the study was to assess the effect of livestock production on rural development in Ishielu L.G.A of Ebonyi State. The specific objectives were to:

i. identify the various types of livestock enterprises in the study area;
ii. evaluate the effect of livestock production on rural development;
iii. identify the benefits of livestock production in the development of the rural dwellers; and
iv. identify constraints to livestock production for enhancing rural development.

METHODOLOGY

This study was conducted in Ishielu Local Government Area of Ebonyi State Nigeria. Ishielu Local Government Area is one of the thirteen (13) Local Government Areas in Ebonyi State, South east Nigeria with its headquarters at Ezillo which is 37 kilometer away from the state capital. Ishielu L.G.A is made up

of twelve (12) autonomous communities; Ntezi, Amauzo, Ezillo, Okpoto, Nkalagu, Ezzagu, Iyonu, Obeagu, Agba, Azinyaba, Umuhuali and Nkalaha. Ishielu L.G.A has a land area of 517 km^2 and a total of 198,793 in population (NPC, 2006). Geographically the local government lies between latitude 4°N and longitude of 8°S of Ebonyi State. The local government is situated at north boundary of Benue state, in South by Ezza South Local Government Area.

The Local Government Area is characterized by mean temperature of 27-30 °C and the prominent climate seasons are rainy season and annual rainfall of 1770mm to 2000mm, lasting from late March to October, dry season, lasting from late October to early March (Omaka, Offor and Onwe, 2015). The vegetation of the place is tropical derived savanna populated by grasses and trees of different sizes in the area. The soil types is basically clayey, loamy clay and clayey loam. The main occupation of the dwellers are crop and livestock farming. Other occupations include: civil services, trading, building and construction work and some artisanal activities. The major crops grown in the area include; yam, cassava, maize, potatoes, oil palm, rice and vegetables. Some farmers also engage in livestock rearing at subsistence level, animals raised are chickens, fishes, rabbits, pigs, donkeys, cattle, sheep and goats.

Sampling Techniques

A multistage sampling procedure was used in selecting the respondents for this study. The first stage involved a random selection of five communities in Ishielu LGA. From the selected five communities, two (2) villages each were randomly selected making it a total of 10 villages. From the 10 villages selected, 15 households were randomly selected from the list containing the names of the household heads obtained from the village head, making a total of 150 respondents that were used in this study.

The data for the study were collected from primary source with the aid of a well-structured questionnaire administered as interview schedules. Descriptive statistics such as frequency distribution, mean, tables and percentages were used in analyzing objectives i, ii and iv. Objective iii was analyzed using mean score derived from 4-point Likert rating. Objective v was analyzed with the aid of factor analysis obtained from Varimax rotated component matrix.

Model Specification

Factor Analysis Model

In order to obtain the factor loadings of each of the variables necessary for achieving objective iv, factor analysis model was used. Each dependent variable (Y) can be expressed as a weighted composite of a set of latent variables (F) such as:

$Y = \alpha_1 F_1 + \alpha_2 F_2 + \text{----------} + \alpha_n F_n$
Where:
Y = Dependent variable
α = Constant
$F_1 - F_n$ = Independent variable
n = Number of independent variable
For this study, factors of 0.40 and above were selected and used for the analysis and otherwise ignored.

RESULTS AND DISCUSSION

Various Livestock Enterprises
Various livestock enterprises were considered and analyzed in this section, the result obtained is presented in Table 1.

The result in Table 1 showed that the major types of livestock enterprises available in the area were: poultry production (85.3%), fishery (68.0%), and goat keeping (66.0%). Others were: cattle rearing (58.0%) and piggery enterprise (53.3%). But, sheep rearing and rabbitry were undertaken by 30.0% and 10.0%, respectively by the respondents. This implies that all the seven (7) livestock enterprises analyzed were practiced in the area but poultry farming ranked first and the most practiced type of livestock enterprise in the study area. This could be attributed to the fact that poultry production gives quick output (Orebuji, (2010).

Table 1: Percentage Distribution of the Respondents based on the Livestock Enterprises

Livestock Enterprises	Frequency	Percentage (%)
Cattle rearing	87	58.0
Goat keeping	99	66.0
Poultry production	128	85.3
Swine production	80	53.3
Rabbitry	15	10.0
Sheep rearing	46	30.7
Fishery	102	68.0

Source: Field Survey, 2023. ***Multiple Responses Recorded**

Effect of Livestock Production on Rural Development

The effect of livestock production on rural development was analyzed with the help of mean score and the result presented in Table 2.

The result shows that livelihood support in terms of income generation ($\bar{X} = 3.69$), creates employment ($\bar{X} = 3.46$), increased availability of meat and egg products ($\bar{X} = 3.45$) and attracts installation of mechanized cold rooms ($\bar{X} = 3.16$) were the major impact of livestock production on rural development in the study area. Other impact of livestock production on rural development in the area were reduction in political thuggery ($\bar{X} = 2.98$), complements crop production ($\bar{X} = 2.95$), reduced dependency on fulani reared cattle beef ($\bar{X} = 2.91$), creates avenue for diversification among farmers ($\bar{X} = 2.87$) and reduced involvement in social vices (yahoo + etc) ($\bar{X} = 2.82$). The total mean was 3.16, which implies that the impact of livestock production on rural development in the area were moderate.

Table 2: Mean Score Distribution of the Respondents on Impact of Livestock Production on Rural Development

Impacts	Mean	Remark
Livelihood support in terms of income generation	3.69	Accepted
Increased availability of meat and egg products	3.45	Accepted
Creates employment	3.46	Accepted
Poverty reduction	3.27	Accepted
Reduced dependency on Fulani reared cattle beef	2.91	Accepted
Complements crop production	2.95	Accepted
Attracts installation of mechanized cold rooms	3.19	Accepted
Creates avenue for diversification among farmers	2.87	Accepted
Reduction in political thuggery	2.98	Accepted
Reduced involvement in social vices (yahoo + etc)	2.82	Accepted
Total mean	3.16	Accepted

Source: Field Survey, 2023

Benefits of Livestock Production on the Socioeconomic Development of the Rural People

The benefit of livestock production as it relates to the socioeconomics development of the rural people was examined and the result presented in Table 3.

Result of the analysis in Table 3 revealed that the major benefits of livestock production on the development of lives of rural people were increased food nutrition/daily protein requirement (85.3%) and increase of income (84.7%), followed by increased profitability (79.3%), droppings increases soil fertility (78.7%) and provides raw materials for industry (76.0%). Other benefits were some of the livestock are used for ploughing (50.7%), safer working conditions (50.0%) and avoidance of herders-farmers crises (49.3%). This implies that livestock production has benefited rural peoples in diverse ways.

Table 3: Percentage Distribution of the Respondents based on the Benefits of Livestock Production on the Socioeconomic Development of the Rural People

Benefits	Frequency	Percentage (%)
Increased food nutrition/daily protein requirement	128	85.3
Some of the livestock are used for ploughing	76	50.7
Avoidance of herders-farmers crises	74	49.3
Increase of income	127	84.7
Safer working conditions	75	50.0
Increased profitability	119	79.3
Droppings increases soil fertility	118	78.7
Provides raw materials for industry (bone, hides, skine.t.c)	114	76.0

Source: Field Survey, 2023 ***Multiple Responses Recorded**

Constraints to Livestock Production for Enhancing Rural Development in the Study Area.
Factor analysis was used to determine constraints to livestock production for enhancing rural development in the study area. The result obtained is presented in Table 4. Table 4 showed the Varimax rotated component matrix on constraints to livestock production for enhancing rural development in the study area. From the field data collected, two (2) major constraints were extracted based on the responses of the respondents. Only variable with constraints loading of 0.40 and above at 10% overlapping variance (Ashley *et al*., 2006) were used in naming the constraints. Variable that loaded in more than one constraint were discarded while variables that have constraints loading of less than 0.40 were not used.

Factor 1 was considered and named production factor due to the variables that loaded high under it. This high loading variables includes; high cost of livestock feeds (0.743), livestock diseases (0.723), low access to veterinary services (0.801), Poor access to market (0.817), poor attitudes to livestock production (0.693) and inadequate grazing land (0.759). This result agrees with the findings of Afolabi and Tiamiyu (2021) who noted that livestock business in Egbeda Local Government Area of Oyo State, Nigeria were attributed to weak information on potential production type and innovations.

Also, factors 2 was considered and named institutional factor because of the constraints that loaded high under it. These include: Inadequate extension service (0.806), Lack of Government support (0.708), poor transportation facilities (0.716) and climatic and environmental factors (0.695). This findings is in line with the report of Silong and Gadanakis (2020) who noted that poor transportation limits livestock production in Nigeria. Also, Nkonki-Mandleni *et al.* (2019) reported that poor tranportation and lack of climate equipment affect livestock production negatively in South Africa. Therefore, two major constraints to livestock production for enhancing rural development in Ishielu L.G.A of Ebonyi State were production and institutional constraints. This result is in line with the findings of Mapiye *et al.* (2021) who reported that institutional constraints affect livestock production.

Table 4: Varimax Rotated Component Matrix on the Constraints to Livestock Production for Enhancing Rural Development in the Study Area.

Constraints	Factor 1	Factor 2
	Production	Institutional
High cost of livestock feeds	0.743	0.291
Livestock diseases	0.723	0.280
Low access to veterinary services	0.801	-0.019
Level of farmers education	0.268	0.282
Urbanization	0.331	0.099
Poor access to market	0.817	0.278
Inadequate extension service	0.149	0.806
Inadequate manpower	-0.464	0.263
Lack of Government support	0.338	0.708
Poor transportation Facilities	0.273	0.716
Climatic and environmental factors	0.299	0.695
Poor attitudes to livestock production	0.693	-0.437
Lack of supporting livestock policy	0.650	0.612
Distance to market	0.354	0.315
Inadequate grazing land	0.759	0.219

Source: Field Survey, 2023

CONCLUSION AND RECOMMENDATIONS

The study has shown that livestock production contributed significantly to improving the socioeconomic conditions of the farmers by ensuring rural development in the study area. Based on the findings of the study, the following recommendations were made:

i. Farmers should organize themselves into groups, preferably cooperative societies in order to share knowledge and experience for the improvement of livestock farming. This will also help them to secure loans from micro and macro credit institutions.
ii. Farmers should be motivated through credit facilities and series of trainings on technological advancements in order to ensure sustainable production of livestock, since the farmers were majorly affected by production factors in the study area.
iii. The government and other stake holders should organize sensitization programmes on livestock production for youths as this will increase their awareness on livestock farming.
iv. Government should ensure the availability of enough inputs and capital for rural farmers.

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