

27. Extension Worker's Perception on Health and Environmental Hazards Posed by Urban Livestock Keeping in Makarfi Local Government Area, Kaduna State of Nigeria: Implications for Climate Change Mitigation

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Abstract

The study examines Extension Workers perception on health and environmental hazards posed by Livestock keeping in Makarfi urban Kaduna State of Nigeria and its implication for climate change mitigation. A total sample of 80 was selected divided into 5 wards using simple random technique. Face to face interview was conducted to get accurate results from sample respondents. Data was analysed using frequencies, mean, percentages and descriptive methods. The major conclusions drawn from this paper were: perception of respondents regarding health and environmental hazards posed by Urban Livestock keeping revealed that 66 (82.5%) of the respondents are aware that livestock keeping could have a negative effect on urban health and environment. While 14(17.5%) respondents are unaware. Similarly, 20(25%) of the respondents opined that destruction of crops and filth in urban environment has a negative effect to urban livestock keeping. Opinion regarding farmers views on control measures showed that 4(5%) agreed that on zero grazing 7(8.7%) proper disposal of wastes 14(17.5%) reducing the number of animals 15(18.7%) feeding animals well, 20(25%) seeking veterinary services 10(12.5%) cleaning shed daily and finally 10(12.5%) provision of extension services. It is recommended that; Extension Services should also raise awareness among urban livestock keepers in Makarfi town of the impact of livestock on climate change and provide them with useful advice on appropriate mitigation measures.

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1. Introduction

Climate change is defined as change in a state of climate that can be identified for e.g. using statistical test by changes in mean and or the variability of its properties.

Various scientists have studied the different components of climate change to some extent it was discovered, that the causes of climate change were identified as industrialization, urbanization, water pollution, deforestation and transportation are among the highest contributors. (IPCC, 2007).

In Nigeria Agriculture is the main source of food and employer of labour employing about 60-70 percent of the population. It is a significant sector of the economy and the source of raw materials used in the processing industries as well as the major source of foreign exchange earnings for the country. Since Agriculture is rain fed in Nigeria any change in climate is bound to impact its productivity in particular and other socio-economic activities generally.

The livestock sector has a primary and growing role in agricultural economy. It is an important determinant of human health and provides a component of diets (FAO, 2006). In Nigeria there are health and environmental damages caused by livestock which are likely to increase if we do not act. This is because the demand of milk, meat, eggs is rising rapidly across in our country especially in urban areas

due to increasing urban population (Asadu, et al).

Vandesteeg, et al (2009) note that more research is needed on livestock development and environmental health to ensure that poor farmers are helped to sustain their farming systems over a long period of time there is a need to accept their views and concerns since they are the major stakeholders. This study was therefore designed to ascertain Extension Workers perception on hazards posed by urban livestock keeping.

1.2. Problem Statement

Climate change is a contributory factor to food price crises and its impact on agriculture in Nigeria. This is expected to get more serious for instance Livestock disease outbreak which may put the local and rare breed (plants and Animals) at risk of being lost through the Impact of climate change and diseases epidemics. Livestock freely roaming around in urban centres can cause traffic accidents and also destroy ornamental plants, water pipes and fences. There is also evidence that many human diseases can be transmitted from livestock to people during production, processing and consumption

1.3. Objectives

The objectives of this paper are presented as follows:-

1. to ascertain the type of animals kept and rearing system.
2. Identify hazards posed by urban livestock keeping.
3. Determine farmers' perception on control measures.

1.4. Research Questions:

The research paper is interested in providing answers to the following questions:-

1. Is there any awareness to the general public regarding health and environmental hazard posed by urban livestock?
2. What is the general perception of Extension Workers on control measures?
3. Are there any corrective measures/sustainable interventions taken to address climate change issues?
4. Is there any policy or Institutional arrangement that will help in reducing health and environmental risk?

2. Review Of Literature

BidoLIT D et al (2012) Investigates the effects of climate Change on Livestock husbandry and practices in Jigawa State Nigeria. They concluded that ranking of effects of climate change on livestock husbandry showed reduced feed intake (1st) reduced growth rate (2nd) increased frequency of abortion (3rd) reduced birth rate (4th) increased disease condition (5th) increased incidence of parasites (6th) and increased mortality rate (7th).

Rowlinson (2008) Concluded that climate change will have far-reaching consequences on animal husbandry mainly via impacts on grass and range and productivity. Heat stress on animals will reduce the rate of animal feed intake and cause poor performance growth.

FAO 2008 Stated that Developing Countries will be most Impacted because of their lack of resources, knowledge veterinarians and extension services research and technology development.

Sidahmed, (2008) Identified the problems of Livestock as increased human population, urbanization, environmental degradation and increased consumption of animal sourced foods have made some coping mechanisms ineffective.

3. Methodology

Methodology is defined as a philosophy of research process which includes the assumptions and values

that serve as rationale for researching conclusions. The method of research for this study was the use of available data and survey method.

3.1. Background Information About the Study Area

Kaduna State is in Northwestern Nigeria its capital is Kaduna city. The state covers total area of 46,063Km² (17,781sqm). The population is 6,066,562million and it is ranked No. 3rd out of 36 states. It is populated by 59 to 63 different ethnic groups. During the Colonial Administration, Kaduna was the capital of Northern region. In 1967 it gave birth to six states leaving Kaduna as the capital of North Central state whose name was changed to Kaduna State in 1976. Kaduna was further sub-divided in 1987 creating Katsina state.

Makarfi Local Government Area was selected for the study. It has an area of 541Km² and a population of 146,259 at the 2006 Census. It shares common boundaries with Rogo Local Government Area of Kano State to the North and Ikara Local Government Area to the South and East Kudan Local Government to the West and Soba Local Government Area in the South-East all in Kaduna State. The inhabitants of this Local Government Area are predominantly Hausa / Fulani. Also, other Nigerian ethnic groups such as Igbo, Yoruba and a host of other minority Nigerians reside in the area. Agriculture is the main occupation of Makarfi Local Government Area which is blessed with vast fertile land suitable for cultivation of Sugarcane, Maize, Sorghum, Rice, beans, G/Nut, tomatoes, onion, pepper and chili.

The area is most famous for its leading position in sugarcane in Kaduna State. To boast sugarcane production the State Government has constructed a sugarcane processing company in the area. Makarfi Local Government Area is also rich in livestock production that has boasted the economy of Kaduna state in Nigeria.

Population: The population of the study consisted of all livestock keepers in Makarfi urban area.

Sample Selection: A total of 80 samples size was selected divided into 5 wards using a sample random technique a total of 16 samples size per ward. The selection of the above wards was based on their active involvement in livestock keeping. An interview schedule was used to collect information from heads of households.

Data Collection: Data was collected from sample respondents in the study area on socio-economic backgrounds such as Age, occupation, status, level of education, etc.

Data Analysis: Descriptive statistics such as Arithmetic mean and simple percentages were used to achieve the above objectives. Results of the study were interpreted to draw up conclusions.

4. RESULTS AND DISCUSSION

4.1. Personal Characteristics of Urban Livestock Keepers N = 80

Age, Occupational status and level of education were some of the personal characteristics describe as follows:-

Age: Data presented in Table 4.1.1 shows that 7(8.75%) respondents belong to 25 – 35 age groups. About 20(25%) are in the age group 35 – 44 years. Majority of the respondents 30(37.5%) belong to the age group of 45 – 54 years. While 18(22.5%) are in the age group of 55 – 64 years. The least number of respondents 5(6.25%) within the age range of 65-74 years.

Survey results in Table 4.1.2 revealed that 16(20%) respondents were regularly employed. While 22(27.5%) fell within temporary / casual employment. Majority of the respondents 30(37.5%) are self-employed / trading. About 12(15%) are engaged in farming to sustain their livelihood.

According to Information presented in Table 4.3 regarding educational qualifications of respondents. It shows that 10(12.5%) had no formal education. About 12(15%) attempted primary education. Similarly, 15(18.7%) completed their primary education. While 8(10%) completed their secondary education and finally 15(18.8%) benefited from higher education.

Table 1: Distribution of Respondents according to Personal Characteristics.

Personal Characteristics	Frequency	percentage
<i>Age:</i>		
25 – 34	7	8.75
35 – 44	20	25
45 – 54	30	37.5
55 – 64	18	22.5
65 – 74	5	6.25
Total	80	100
<i>Occupational Status:</i>		
Regularly employed	16	20
Temporarily / casual	22	27.5
Self-employed / Trading	30	37.5
Farming only	12	15
Total	80	100
<i>Level of Education</i>		
No formal education	10	12.5
Primary school attempted	12	15
Primary school completed	15	18.7
Secondary school attempted	8	10
Secondary school completed	20	25
Higher education	15	18.7
Total	80	100

Source: Survey Results, 2016

Thus, majority of the respondents were educated at certain level. The fact that most of them were literate is advantageous to the adoption of any innovation meant to improve livestock keeping in the study area. The above findings are in line with (Aqwu and Anyawu, 1996) who reported that, increased farmer education positively influenced adoption of improved practices.

4.2. Types of Animal Kept and Rearing System

Survey results in Table 2 showed that 8(10%) improved chicken were kept. Similarly, 14(17.5%) local chicken 12(15%) Turkeys (16(20%) Rabbits were kept respectively. Majority of the respondents 28(35%) kept goats and sheep respectively. A very small proportion of respondents 2(2.5%) kept pigs in the study area.

Furthermore, about 20(25%) and 20(25%) practiced intensive and free range system. Majority of the respondents 40(50%) adopted semi-intensive system. The above findings are in concurrence with Bidoli et-al 2012 who reported that 50% of the nomadic livestock farmers keep 2000 less number of cattle, goat, sheep and poultry while less than 7% of livestock, goats, sheep and chicken. This implies that livestock husbandry and poultry practices among the study areas is crucial as a means of sustaining their livelihoods.

Table 2: Distribution of Respondents according to Animal Kept and Rearing System.

Types Kept	Frequency	Percentage
Improved chicken	8	10
Local chicken	14	17.5
Turkeys	12	15
Rabbits	16	20
Goats / Sheep	28	35
Pigs	2	2.5
Total	80	100
Rearing System:		
Intensive	20	25
Free range	20	25
Semi – Intensive	40	50
Total	80	100

Source: Survey Results, 2016

4.3. Awareness and Perception on Health And Environmental Hazards Posed By Urban Livestock Keeping

Perception of respondents regarding health and environmental hazards posed by urban livestock keeping is presented in Table 3. It showed that 66(82.5%) of the respondents are aware that livestock keeping could have a negative effect on urban health that environment. While 14(17.5%) respondents are unaware. About 14(17.5%) agreed that livestock can cause erosion. Similarly, 20(25%) of the

respondents opined that destruction of crops and filth in urban environment as a negative effect to urban livestock keeping. While 8(10%) reported that livestock can cause diseases which could be transmitted to human beings. Majority of the respondents 25(31.3%) opined that emission of gases from livestock can cause climate change. The lowest percentage respondents agreed that livestock roaming can cause accidents and finally 7(8.7%) agreed that livestock can destroy crops in the study area. The above findings implies that majority of urban livestock keepers in the area were not aware of the contribution of livestock to climate change. The above findings are in line with Asadu et-al 2012 who reported damages as indicated by respondents included accident (46.7%) emission of gases from livestock which cause climate change (4.0%) and destruction of water sources (10.7%). This implies that majority of them considered livestock as a menace because it generates wastes, smell, noise and spread diseases.

Table 3: Distribution of Respondents According to Awareness and Perception of Damage in Urban Areas:

Variables	Frequency	Percentage
Aware	66	82.5
Unaware	14	17.5
Perception on Type of Damage		
Livestock can cause erosion	14	17.5
Livestock causes filth to environment	20	25
Health risk as a result of Livestock diseases	8	10
Itemits gases which can cause climate change	25	31.3
Livestock roaming can cause accidents	06	7.5
Livestock destroys crops in the study areas	07	8.7
Total	80	100

Source: Survey Results, 2016

4.4. Extension Workers Opinion on Control Measures

Opinion regarding Extension Workers views on control measures to avoid future occurrence is presented in Table 4. The results showed that 49(5%) agreed on zero grazing 7(8.7%) proper disposal of wastes 14(17.5%) reducing the number of animals, 15(18.7%) feeding animals well, 20(25%) seeking veterinary services, 10(12.5%) cleaning shed daily and finally 10(12.5%) provision of extension services. The above findings are in line with Foeken (2006) who reported that various ways of dealing with problems of livestock keeping include, restraining the animals, seeking veterinary services, feeding the animals well to limit noise and ensuring proper waste disposal. Asadu (2012) also reported strategies for controlling damages as restraining animals from entering farms (2.85) seeking veterinary services ((2.85) cleaning of shades daily to avoid filth (2.84) proper disposal of wastes (2.79) and reducing the number of animals.

Table 4: Measures used in Controlling Damages done by Livestock Keeping:

Variables	Frequency	Percentage
Zero Grazing	4	5
Proper Disposal of Wastes	7	8.7
Reducing the Number of Animals	14	17.5
Feeding Animals well	15	18.7
Seeking Veterinary services	20	25
Cleaning shed daily	10	12.5
Provision of Extension services	10	12.5
Total	80	100

Source: Survey Results, 2016

5. Summary, Conclusions & Recommendations

5.1. Summaries

The study examines Extension Workers perception of health and environmental hazards posed by Livestock keeping in Funtua Urban change mitigation. A total sample of 80 was selected for the study divided in 5 wards in Funtua Local Government Area. Face to face interview was conducted to get accurate results from the respondents. Data was analysed using frequencies, means, percentages and descriptive methods. Results of key findings was interpreted to draw up conclusions.

5.2. Conclusions

The major conclusions drawn from this paper were as follows:-

1. Perception of respondents regarding health and environmental hazards posed by urban livestock keeping revealed that 66(82.5%) of the respondents are aware that livestock keeping could have a negative effect on urban health and environment. While 14(17.5%) respondents are unaware. On the same proportion about 14(17.5%) agreed that livestock can cause erosion. Similarly, 20(25%) of the respondents opined that destruction of crops and filth in urban environment has a negative effect to urban livestock keeping.
2. Opinion regarding Extension Workers views on control measures to avoid future occurrence showed that 4(5%) agreed that on zero grazing 7(8.7%) proper disposal of wastes 14(17.5%) reducing the number of animals, 15(18.7%) feeding animals well 20(25%) seeking veterinary services 10(12.5%) cleaning shed daily and finally 10(12.5%) provision of extension services.
3. Survey results regarding types of animals kept and rearing system have shown that 8(10%) of the respondents reported improved chicken were kept. Similarly, 14(17.5%) local chicken and 12(15%) Turkeys 16(20%) rabbits were kept respectively. Majority of the respondents 28(35%) kept goats and sheep respectively. A very small proportion of respondents 2(2.5%) kept pigs in the study area.

5.1. Recommendations

On the basis of the above conclusions, the following recommendations are made:-

1. It is important to identify sustainable interventions those that can provide real incentives for using environmentally options since the challenge is to limit its impact on the environment while satisfying the growing demand for its products milk, meat and eggs. This recommendation would address the problem posed by urban livestock keeping in Funtua Local Government Area.
2. A number of technical options could lessen the impact of intensive livestock production. Conservation agriculture and other forms of resources preserving technologies can restore important soil habitats to reduce degradation.
3. It is also necessary to improve the management of animal waste (manure and slurry) to reduce methane emission, notably through efficient conversion into biogas (Spore, 2008).
4. Vandesteeg, et al 2009 is of the view that, the amount of methane produced unit of animal product can be reduced by giving ruminants better. This can be achieved with the development of Fodder banks improved pasture species planted legumes and feed supplements with crop by-products.
5. Another option is to replace low production animals, thus, reducing total emissions, while maintaining or increasing the supply of livestock products (Rota and Theieme, 2009). This will require cross breeding schemes to produce better species to suit a particular environment such as Funtua town in Katsina State of Nigeria.
6. Managing livestock requires a mix of policy, institutional change and technology investment (Asadu, et al 2012). Therefore, building locally specific capacity that can respond to change is extremely important. Policies and institutional arrangements are essential in mediating how livestock sector develops so as to reduce health and risks.

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