INOSR Experimental Sciences 15(3):60-69, 2025. **ISSN: 2705-1692**
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International Network Organization for Scientific Research
https://doi.org/10.59298/INOSRES/2025/1536069

The Impact of Livestock Rearing on Food Security in Bugaaki Sub-County Kyenjojo District, Uganda

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ABSTRACT

The purpose of this study was to investigate the Impact of Livestock Rearing on Food Security in Bugaaki Sub County Kyenjojo District, Uganda. The sample comprised of 60 livestock and 20 food crop producers in Bugaaki Sub County Kyenjojo District. The data was collected using questionnaires and interview guides. The findings revealed that long horned cattle, Sheep and Goats are mostly reared; it also revealed that overgrazing due to livestock rearing has caused soil infertility which leads to poor quality production of agricultural produce, it was further recommended that, provision of seeds resistant to diseases and pests would improve food security. It also recommended that the government should sensitize the masses by Educating farmers on the importance of growing many food crops to overcome food insecurity.

Keywords: Livestock rearing, Food security, Kyenjojo District, Overgrazing, Agricultural production

INTRODUCTION

Nationally, Despite the fact that Uganda is a food self-sufficient country [1], the proportion of undernourished population is 26% that is very high [2]. The services and industrial sectors of Uganda's economy have seen a higher growth rates, but the economy of Uganda still depends on its agricultural sector. It is contributing about 22% towards the national GDP and employing about 45% of the total workforce [3]. It is one of the world's largest agricultural commodities producing sector [2]. It not only serves as a main supplier of raw materials to the industrial sector but provides shelter to more than 45% of country's labour force. Additionally, more than 63% of the total population lives in rural areas that are directly or indirectly dependent on agriculture for their livelihood. The majority of the farmers (more than 85%) owns less than 5 hectares of land [3]. These are the households who are the most vulnerable ones to become food insecure [4]. Globally, no nation has actually become great without developing its agriculture and its concomitant institutions [5]. According to [6], globally there is enough food for all, but more than 780 million people are chronically undernourished worldwide. Food security in a broad sense has to do with having at all times an adequate level of food and food products to meet increasing consumption demand to mitigate fluctuation in output and price [7]. According to [6] food security is a situation when all people at all time have physical and economic access to sufficient, safe and nutritious food for a healthy and active life. [8], see food security as a function of food production level, that is, high level of food production is equals to food security. However, [9], food security entails producing food that will go round every citizen both in quality and quantity. To achieve this, agricultural production needs to be enhanced with adequate knowledge of the environment, climatic condition, the market and its operation, and be aware of price and price mechanism, good transportation system, storage, fashion modality to check glut and be well prepared in case of disasters. Food insecurity is the opposite of this, it is the lack of access to sufficient quality and quantity of save nutrition food for an active and healthy life; the inability of households or individuals to meet the required consumption level in the face of fluctuating production, price, and income [10]. Livestock rearing has increased a lot of threats on food security. It has led to overgrazing, Bush burning which leave the land bare leading to soil erosion hence affecting plant growth for both pasture and food crops, Distraction of crop plants by a stray animal from the farm, these problems have caused limited food production thus threatening food security. But little of this information has been documented thus the researcher wished to investigate on the impact of livestock rearing on food security in Bugaaki Sub County Kyenjojo District

METHODOLOGY

Research Design

According to [11], the design enables the researcher to collect data to assess current practices for improve, Descriptive research was used to obtain information concerning the current status of phenomena to describe what exists with respect variables or conditions in a situation. [12], state that survey studies collect data with the intention of determining the relationships existing between specific events or variables. Descriptive survey design was used to collect and analyze data to determine the relationship between independent valuables and dependent valuables and further establish the impact of livestock rearing on food security. The data collected was qualitative since the techniques and measures to be used do not produce discrete numerical data [13]. Mostly, in qualitative research techniques, the data are in the form of words rather than numbers and these words are often grouped into categories.

Target Population

A target population is the aggregate of all the cases that conform to some designated set of specification. [14], define it all members of real or hypothetical set of people, events or objects to which a researcher wishes to generalize the results of the research study. The target population of this study was 100 respondents and these consisted 70 rural households that are livestock farmers and 30 crop farmers.

Sample Size

A sample is a small proportion of a target population selected for analysis [14]. The main purpose of educational research is to learn something about a large population of subjects by studying a smaller group of its subjects called sample. The study sample was selected basing on the recommendations of [15] table in determining sample size to represent a cross section of people in the study. [15], suggested a table for easy referencing of sample size determination and no calculations are needed to use. The study comprised of both sexes but of different groups and the study used 80 respondents that is 60 Livestock farmers, and 20 Food crop producers who were randomly selected out of the target population.

Sampling Techniques

Stratified random sampling was employed to select respondents for the study to select respondents believed to have the required information [16]. These were both Livestock Farmers and Food crop producers in the study. These were expected to have enough information needed in the study than any other group.

Data Collection Methods

The study employed the following methods namely, Questionnaire survey, interviews

Questionnaire

Questionnaires are designed to fulfill a specific research objective. The questionnaire used was semi-structured. The research instrument used two sets of questionnaires designed by the researcher. Questionnaires are chosen because they are more efficient in covering a large number of respondents with in a shorter time, the two sets were designed to cover Livestock Farmers and Food crop producers' respondents.

Questionnaire Survey

This method was used to collect data from Livestock Farmers and Food crop producers. This method is possible because methods are free of the researcher biasness as well as cost effective in terms of construction and administration [17].

Interviews

This involved face to face interaction between the researcher and the participant through discussion.

Data Collection Tools

Interview Guide

The interview guide was used with the Livestock Farmers and Food crop producers of Bugaaki Sub County in the agricultural sector. This involved face to face interaction between the researcher and the participant through discussion. The interviews are in two ways, namely structured interviews, in which the responses by the participants are brief and specific, unstructured interviews, where the responses are long, elaborated and not specific.

Documentary Review Guide

Most of data used in the study is secondary data. Secondary data is the data that exists somewhere having been collected and used for some other purposes [18]. Secondary data includes documents such as newspapers and reports. These are analyzed to get information pertinent to the study.

Validity and Reliability of Instruments

Validity of Instruments

According to [19], validity is concerned with establishing whether the instrument content is measuring what it is supposed to measure. Validity of instruments is improved through expert judgment. The researcher ensured that research questions are in conformity with the study objectives to ensure content validity of the instruments. For this study, the researcher sought assistance from research experts, experienced graduates, lecturers and in particular

the experienced supervisors who examined the instruments and gave feedback and their recommendations were incorporated accordingly.

Reliability of Instruments

The term reliability means that scores from an instrument are stable and consistent. An instrument is reliable when it can measure variables accurately and obtain same results under same conditions over a period of time. [20], defines reliability as the measure of the degree to which a research instrument yields consistent results or data after repeated trials. To enhance reliability; pilot study was conducted where the questionnaires were administered. The reason for this pre -test improved reliability of the instruments by discarding and modifying the instrument to improve quality of the instrument thereby increasing its reliability.

Data Analysis

The analysis was descriptive. Data was analyzed using quantitative methods, edited, categorized and presented in percentages from frequency tables, graphs and charts for easy interpretation. In the case of open-ended questions, all responses to questions were noted and arranged into meaningful trends. This was validated with data collected from interviews and observation which was also edited and categorized using Microsoft excel.

Ethical Consideration

Permission was issued from Kampala International University (KIU) and Bugaaki Sub County officials where the research was carried out. A written consent from explaining the rationale for the study, benefits and rights of respondents and confidentiality to protect the respondents were presented to the respondents in English where applicable.

Research Procedure

The researcher requested for an introductory letter from the Dean faculty of education which was used to introduce him to the authorities of Bugaaki Sub County seeking permission to carry out research in the area. The researcher then made preliminary visits to the Sub County and sought appointment of the intended research. The researcher also administered questionnaires to the respondents. Then the data was tabulated, analyzed and checked to ensure completeness.

RESULTS

Response Rate of the Target Groups

Data was collected from the district agricultural officials and livestock farmers in Bugaaki Sub County, Kyenjojo District. A total of 80 questionnaires were given to all respondents those made up of 60 livestock farmers and 20 food producers. In total 80 informants were interviewed and were all returned fully completed.

Background Information of the Livestock Farmers

The study explored the background data of livestock farmers which focused on their gender and working experience. To determine their gender, livestock farmers were asked to indicate their gender. The data was presented figure 1

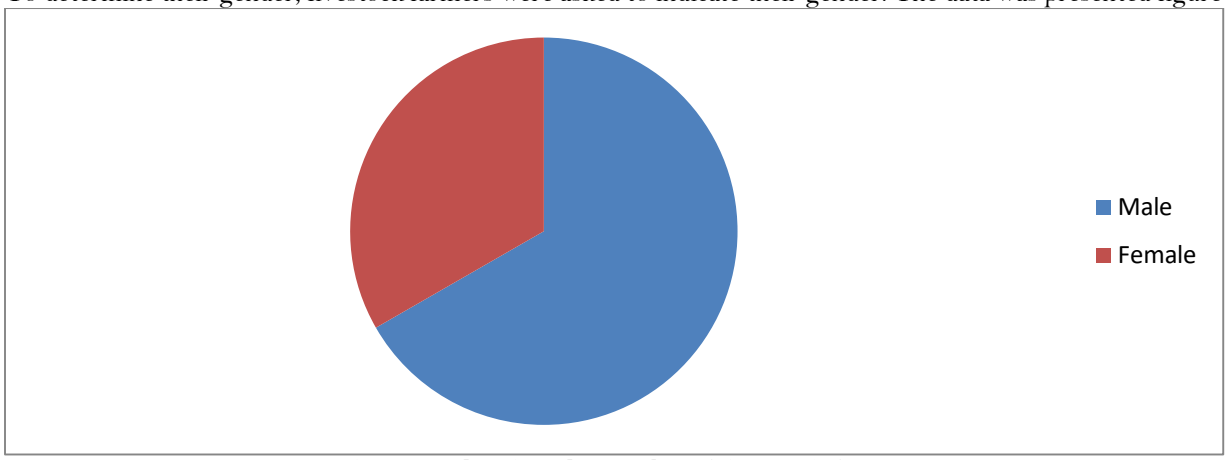


Figure 1: Showing the gender of livestock farmers

The farmers were asked to disclose their age in order to guide the researcher on the appropriateness of their responses. The results were tabulated in table 1

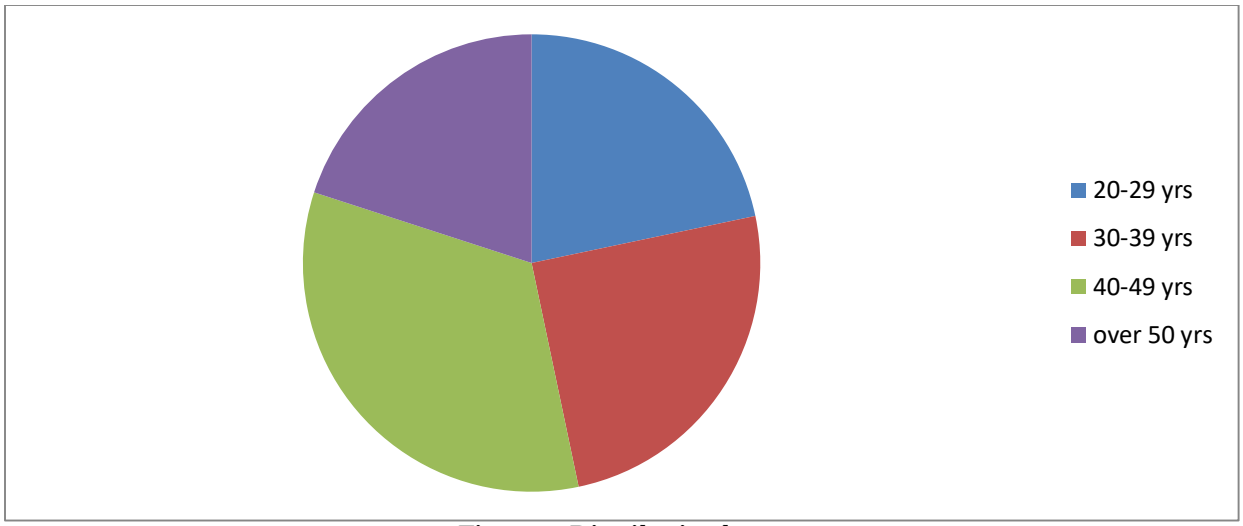


Figure 2: Distribution by age

The table below shows that majority of the livestock farmers (33.3%) were aged between 40-49 years. (25%) of the livestock farmers were aged 30-39 years, (21.7%) of the livestock farmers were aged 20-29 years while few of (20%) of the livestock farmers were aged above 50 yrs. To determine the period, they had been in livestock rearing, the pastoralists were asked to indicate how long they had been in service. The data was presented in table 1.

Table 1: Working experience as livestock farmers

Duration	Frequency	Rate (%)
Below 4yrs	8	13.3
4-8yrs	15	25
8-12yrs	25	41.7
Above 12yrs	12	20
Total	60	100

The data indicated that (13.3%) of livestock farmers had worked for less than 4years, (25%) had worked between 4-8years, (41.7%) between 8-12years and (20%) for over 12 years in their farming practice. This shows that majority of pastoralists had experience in livestock rearing.

The Type of Animals Reared in Kyenjojo District

The study findings indicated that majority of respondents agreed that local breeds like cows, goats and sheep are majorly reared in Kyenjojo District Findings also indicated that Horses and Rabbits and pigs are rarely reared in Kyenjojo District. However, livestock farmers were asked on the types of animals reared in Bugaaki Sub County Kyenjojo District and the results were summarized in the Figure 3 below

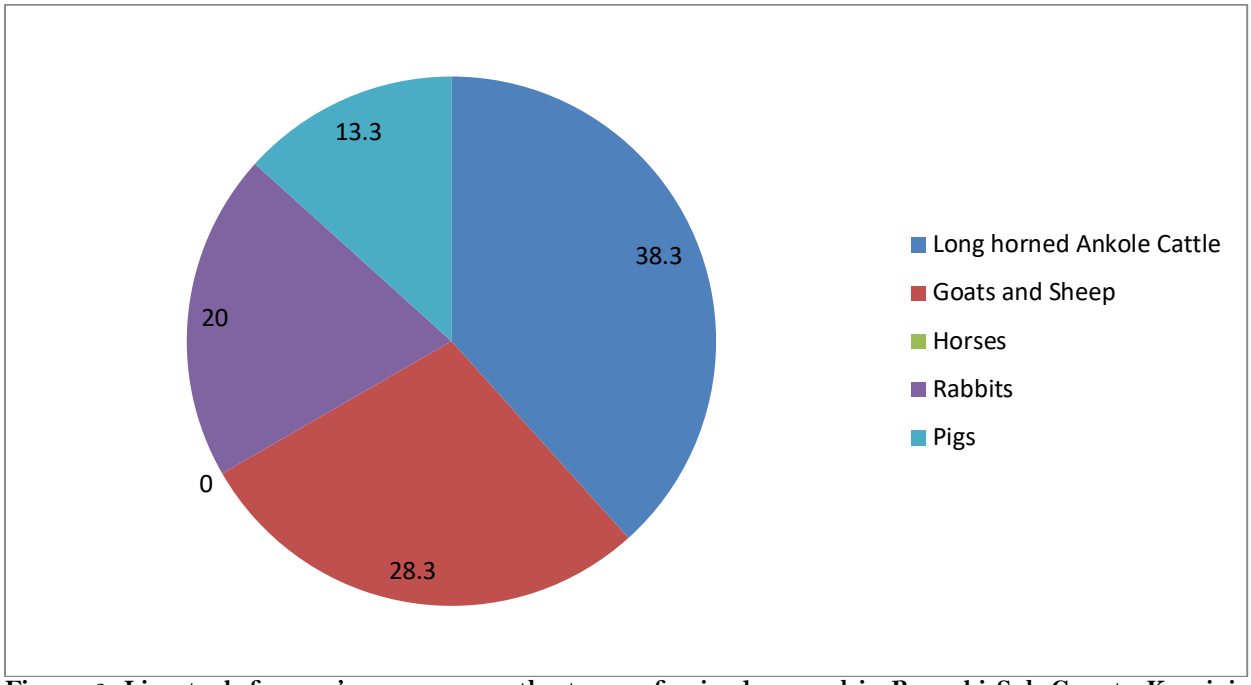


Figure 3: Livestock farmers' responses on the types of animals reared in Bugaaki Sub County Kyenjojo District.

According to the figure 3 above (38.3%) of livestock farmers agreed that long horn cattle are reared, (28.3%) of livestock farmers rear goats and sheep, (20%) of livestock farmers rear rabbits while (13.3%) of livestock farmers and foo rear pigs.

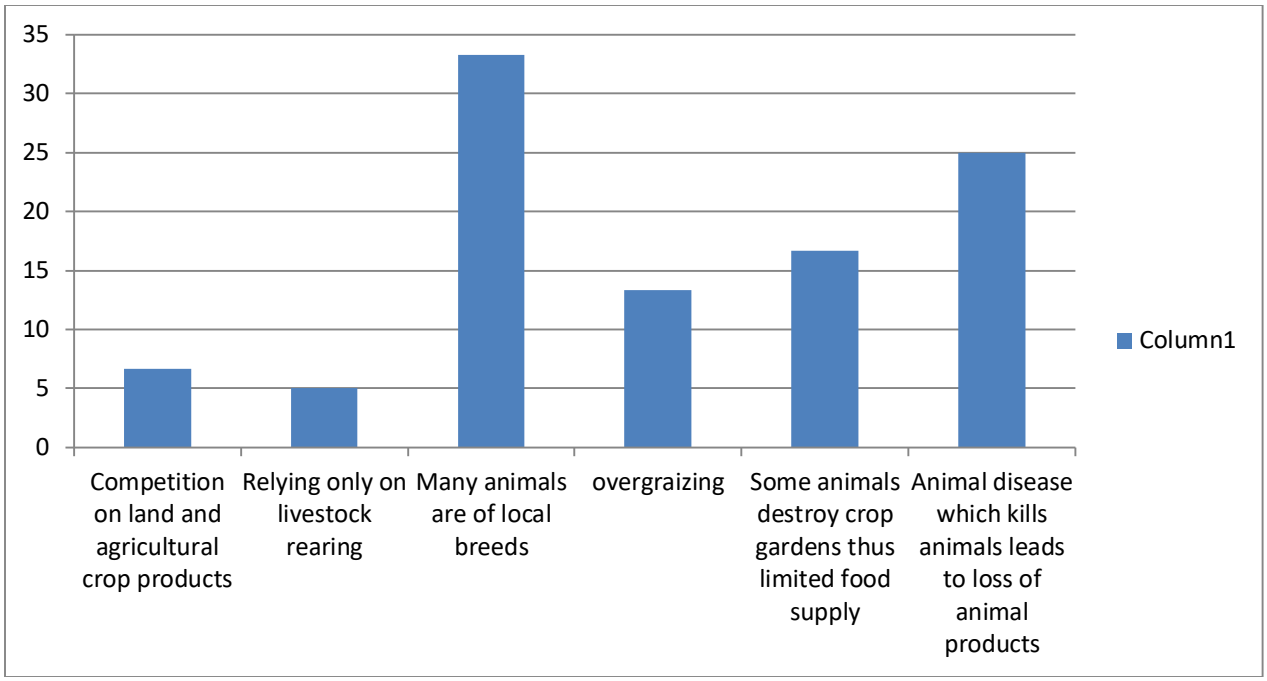
Table 2 Showing livestock farmers' responses on the types of animals reared in Bugaaki Sub County Kyenjojo District.

	Food producers	
Types of animals	Frequency	Percentage
Long horn Ankole cattle	8	40
Goats and sheep	5	25
Pigs	4	20
Total	20	100

According to the table 2 above and (40%) food producer agreed that long horn cattle are reared, (25%) of food producers' rear goats and sheep, (15%) of livestock farmers and food producers' rear rabbits while (20%) of food producers' rear pigs.

How Livestock Rearing Threatens Food Security in Bugaaki Sub-County Kyenjojo District.

Livestock farmers were asked on how livestock rearing threatens food security and their responses were not far different from that of Food crop producers. Also, a pastoralist on the response on how livestock rearing threatens food security had to say that many animals are attacked by diseases like nagana and anthrax thus limiting the number of animals which causes limited animal food supply like meat and milk



The Figure 4: livestock farmers responses on how livestock rearing threatens food security in Bugaaki Sub County Kyenjojo District

Majority of respondents (33.3%) livestock farmers agreed that animal disease which kills animals leads to loss of manure for plant growth thus threatening food security, (25%) livestock farmers agreed that some animals are of local breeds which produce poor quality of meat and milk production thus threatening food security, (1i%) of livestock farmers respectively agreed that some animals destroy crop gardens thus limited food supply.

The Table 3: Shows livestock farmers responses on how livestock rearing threatens food security in Bugaaki Sub County Kyenjojo District

	Food producers	
Responses	Frequency	Percentage
Competition on land and agricultural crop products	2	6.7
Many people rely only on livestock rearing which limits crop plantation thus limited food supply	0	0
Some animals are of local breeds which produce poor quality of meat and milk production thus threatening food security	8	26.7
Overgrazing due to livestock rearing has caused soil infertility which leads to poor quality production of agricultural produce.	4	13.3
Some animals destroy crop gardens thus limited food supply	6	20
Animal disease which kills animals leads to loss of manure for plant growth	10	33.3
Total	20	100

Majority of respondents (33.3%) food producers agreed that animal disease which kills animals leads to loss of manure for plant growth thus threatening food security, (26.7%) food producers agreed that some animals are of

local breeds which produce poor quality of meat and milk production thus threatening food security, (20%) of food producers respectively agreed that some animals destroy crop gardens thus limited food supply, (13.3%) of food producers agreed that overgrazing due to livestock rearing has caused soil infertility which leads to poor quality production of agricultural produce while (6.7%) of livestock farmers and food producers agreed that competition on land and agricultural crop products also threatens food security unlike none of the respondents agreed that many people rely only on livestock rearing which limits crop plantation thus limited food supply.

Means of Ensuring food security in Bugaaki Sub County Kyenjojo District.

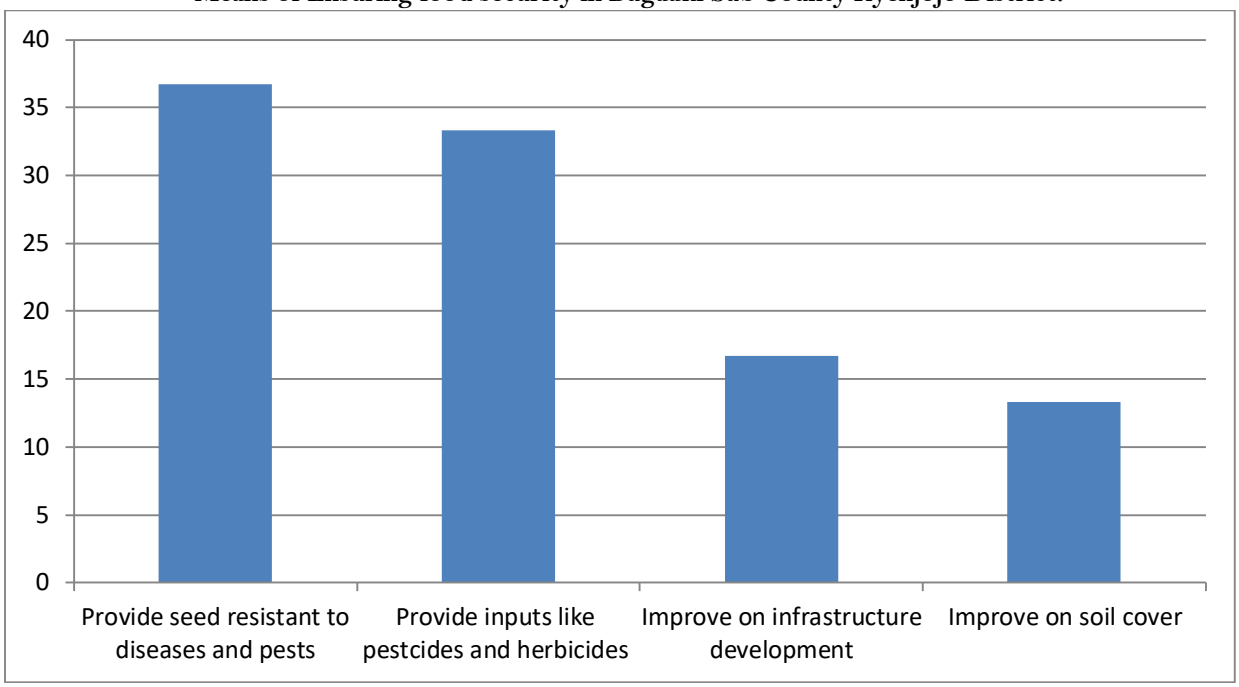


Figure 5: livestock farmers' responses on the means of ensuring food security in Bugaaki Sub County Kyenjojo District

Majority of respondent (36.7%) of livestock farmers agreed on provision of seeds resistant to diseases and pests, (33.3) of livestock farmers responded that the government should support by providing inputs like pesticides, herbicides, fertilizers, (16.7%) of livestock farmers responded on infrastructure development to enable farmers easily access available markets for the produce unlike none of the respondents agreed that farmers should be trained importance of growing all crops to overcome food insecurity. Food producers were asked on the means of ensuring food security in Bugaaki Sub County Kyenjojo District and the results were tabulated in the table 4 below

Table 4: Showing livestock farmers and food producers' responses on the means of ensuring food security in Bugaaki Sub County Kyenjojo District

	Food producers	
Respondents	**Frequency**	**Percentage**
Provision of seeds resistant to diseases and pests	10	33.3
Government support by providing inputs like pesticides, herbicides, fertilizers	9	30
Farmers should be trained importune of growing all crops to overcome food insecurity	0	0
Infrastructure development to enable farmers easily access available markets for the produce	7	23.3
Improve on soil cover	4	13.3
Total	30	100

Majority of respondent (33.3%) of food producers agreed on provision of seeds resistant to diseases and pests, (30%) of food producers responded that the government should support by providing inputs like pesticides, herbicides, fertilizers, (23.3%) of food producers responded on infrastructure development to enable farmers easily access available markets for the produce unlike none of the respondents agreed that farmers should be trained importance of growing all crops to overcome food insecurity.

DISCUSSION OF FINDINGS

Types of Animals Reared

According to the study findings majority of respondents (60%) of District agricultural officials agreed that long horn Ankole cattle a reared. The local breeds of cattle, goats and sheep are mostly reared in Bugaaki Sub County Kyenjojo District. This is in line with [6] Cattle, sheep and goats account for 92 % of all livestock in the world, with relative abundance of the different species varying significantly among regions. Further findings revealed that (20%) rear pigs. [6], stated that goats being most abundant in Africa and Asia, whereas pigs dominate livestock numbers in China. Thus, in Bugaaki Sub County Kyenjojo District pigs are rarely reared compared to goats, sheep and cows. Further findings revealed that none of respondents agreed that they rear Horses, Buffalos unlike few of respondents agreed that they rear rabbits.

How Livestock Rearing Threatens Food Security

Majority of respondents found that (33.3%) and (26.7%) of livestock farmers and food producers respectively agreed that some animals are of local breeds which produce poor quality of meat and milk production thus threatening food security. Many animals reared in Bugaaki Sub-County Kyenjojo District rear Ankole cattle which of poor quality thus they produce poor quality and quantity of products like meat and geese thus threatening food security. Further findings revealed that (25%) and (33.3%) of livestock farmers and food producers responded that animal disease which kills animals leads to loss of manure for plant growth. This is in consistent with [21] that the impacts of diseases were classified into as those impacts associated with "overt disease" and those associated with "disease risk". While the overt disease impacts acted mainly through loss of livestock productivity (production losses, treatment costs, market disruption, reduced crop production through loss of manure, draught, etc.), disease risk influenced species and breed choice, management practices and preventive control costs, and unrealized livestock productivity – or lost potential.

Means of Ensuring Food Security

Study findings revealed that there are different stakeholders involved to overcome neglect of some crops and food insecurity and these include; NGO'S, government, local leaders and farmers. Study findings revealed that (36.7%) and (33.3%) of livestock farmers and food producers agreed on provision of seeds resistant to diseases and pests, (33.3) and (30%) of livestock farmers and food producers responded that the government should support by providing inputs like pesticides, herbicides, fertilizers, (16.7%) and (23.3%) of livestock farmers and food producers responded on infrastructure development to enable farmers easily access available markets for the produce unlike none of the respondents agreed that farmers should be trained importance of growing all crops to overcome food insecurity. This is agreement with [22] that there is need for development practitioners to examine what incentives and property rights are essential to encourage private sector to play an increasingly important role in rural development and set up farmer support service for more than one million smallholder farmers in the country. It can be concluded that smallholder agriculture can be made more productive and sustainable by, improving price incentives and increasing the quality and quality of public investments; making product markets work better; improving access to financial services and reducing risks; enhancing the performance of producer organizations; promoting innovation through science and technology. Also, according to [23], well-functioning input and output markets need to be established as they help 97 farmers acquire and use improved inputs as well as market their produce. Improved markets effectively reduce transaction costs and risks. Furthermore, well-functioning markets ensure that the benefits of productivity are passed on to the smallholder farmers. Increasing productivity will reduce pressure on marginal lands, as the intensification of cultivated land will reduce the need to expand production into fragile marginal lands.

CONCLUSION

The study concluded that Ankole long horned cattle, goats and sheep are mostly reared in Bugaaki Sub County Kyenjojo District. This was found that Cattle, sheep and goats account for 92 % of all livestock in the world, with relative abundance of the different species varying significantly among regions. Further conclusions also concluded that pigs and rabbits are rarely reared in Bugaaki Sub County Kyenjojo District. This was due to variation in cattle, sheep and goats being most abundant in Africa and Asia, whereas pigs dominate livestock numbers in China. The study also concluded that some animals are of local breeds which produce poor quality of meat and milk production thus threatening food security. Many animals reared in Bugaaki Sub County Kyenjojo District rear Ankole cattle which of poor quality thus they produce poor quality and quantity of products like meat and geese thus threatening food security. The study also concluded that animal disease which kills animals leads to loss of manure for plant

growth. Disease impacts acted mainly through loss of livestock productivity (production losses, treatment costs, market disruption, reduced crop production through loss of manure, draught, etc), disease risk influenced species and breeds choice, management practices and preventive control costs, and unrealized livestock productivity – or lost potential. Further conclusions also concluded that smallholder agriculture can be made more productive and sustainable by, improving price incentives and increasing the quality and quality of public investments; making product markets work better; improving access to financial services and reducing risks; enhancing the performance of producer organizations; promoting innovation through science and technology.

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CITE AS: Nuwe Ivan and Turyamureeba Silaji (2025). Influence The Impact of Livestock Rearing on Food Security in Bugaaki Sub-County Kyenjojo District, Uganda. INOSR Experimental Sciences 15(3):60-69. https://doi.org/10.59298/INOSRES/2025/1536069