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MSc. ECONOMICS

THE CONTRIBUTION OF LIVE STOCK PRODUCTION TO HOUSEHOLD INCOME AND FOOD SECURITY IN DANKO COMMUNITIES IN THE UPPER WEST REGION OF GHANA

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MAY, 2016

DECLARATION

I hereby declare that, except for references to other people's work, which have been duly acknowledged, this write-up is as a result of my own research into the topic under supervision and has not been presented for any other study.

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DEDICATION

I dedicate this work to God Almighty, my parents (Mr and Mrs Santaa) and lecturers who through their financial and material support have made this work successful.

ACKNOWLEDGEMENT

I give glory and honour to the **Almighty God** for guiding and protecting me to a successful end of this research. My sincere gratitude and appreciation also go to my supervisor **Mr. EMMANUEL BOABENG** and Professor J. OHENE MANU who immensely contributed to the success of this work through their supervision and constructive criticisms.

ABSTRACT

The survey is aimed at assessing the contribution of Livestock production to household income and food security in the lives of the people of Danko Community. The research revealed that the most common livestock kept in Danko Community was fowl and followed by goat. And livestock contribute positively to total household income.

The research indicates that, livestock production contributes to food security. This was ascertained through the use of Pearson correlation which depicted a strong positive correlation.

Nevertheless, the research revealed that livestock farmers face the following challenges disease infestation, poor pricing, poor breeds, inadequate veterinary officers among others.

The following points are worth noting. Most of the livestock farmers in Danko Community are illiterates. Livestock production contributes to a sustainable livelihood in Danko Community. The dominant animal kept in Danko Community is fowl. Livestock farmers face a lot of challenges like disease infestation, poor breeds of livestock, and inadequate veterinary officers among others. Livestock production increases household income and therefore individuals, government and Nongovernmental organizations should give much attention to the sector in order to reduce food insecurity and improve households' income.

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ACRONYMS

ACDEP	-	ASSOCIATION OF CHURCH DEVELOPMENT PROJECT
CBO	-	COMMUNITY BASED ORGANISATION
DFID	-	DEPARTMENT FOR INTERNATIONAL DEVELOPMENT
ECA	-	ECONOMIC COMMISSION FOR AFRICA
FAO	-	FOOD AND AGRICULTURAL ORGANISATION
GDP	-	GROSS DOMESTIC PRODUCT
IGES	-	INSTITUTE FOR GLOBAL ENVIRONMENTAL STRATEGIES
ILRI	-	INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE
LAC	-	LATIN AMERICA COUNTRIES
LID	-	LIVESTOCK IN DEVELOPMENT
MDGs	-	MILLENNIUM DEVELOPMENT GOALS
MOFA	-	MINISTRY OF FOOD AND AGRICULTURAL
NEPAD	-	NEW PARTNERSHIP FOR AFRICA'S DEVELOPMENT
NGOs	-	NON-GOVERNMENTAL ORGANISATIONS
NPR	-	NEPALESE RUPEE
NRI	-	NATURAL RESOURCE INSTITUTE
OECD	-	ORANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

SDD	-	SUSTAINABLE DEVELOPMENT DIVISION
SPSS	-	STATISTICAL PACKAGE FOR SOCIAL SCIENTIST
SSA	-	SUB-SAHARAN AFRICA
TBA	-	TRADITIONAL BIRTH ATTENDANCE
UDS	-	UNIVERSITY FOR DEVELOPMENT STUDIES
US	-	UNITED STATE
UWR	-	UPPER WEST REGION

CHAPTER ONE

INTRODUCTION

1.1 BACKGOUND TO THE STUDY.

Though recent statistics shows that Ghana has become service sector led economy with about 49.8% contribution to GDP, but most of the rural communities and the less developed regions still depend heavily for their livelihood. (Ghana statistical service 2015). Therefore agricultural growth still remain the key to advancement in rural livelihood and growth. For the past twelve years (2003 – 2014), Ghana has implemented aggressive Agricultural policy to promote growth in the Agricultural sector and propel economic growth and development especially in rural areas. The first of such policies is the Ghana Poverty Reduction Strategy I and II which spray from 2003 to 2009. This policy was to restructure agricultural sector and also assisting private sector to create wealth (NDPC, 2006). Promote growth and rural development. The Ghana Shared Growth and Development Agenda I was implemented in Ghana from 2010 to 2013. This was to enable agricultural sector to lead the growth and structural revolution of the economy and take full advantage of the benefits of augmented growth. Despite a successful implementation of these policies, growth in the Agricultural sector has dwindled from 2006 to 2015. Ghana has not achieved consistent growth rate in the Agricultural sector. The growth rate of Agricultural sector from 2007 to first quarter of 2015 grew between -1.7%, and 7.4%. (Ghana Statistical Service 2015).

According to Awumbila and Schandorf, People migrate from their respective communities due to the lack of productive economic activities during the dry season. This is because unlike the southern regions which have double rainfall seasons, the northern regions have single rainfall season (three months of rains annually). Our reliance on rainfall for farming activities is the predominant life sustaining activity for the inhabitants of the northern regions. The area experience

long dry season which make farming during this period nearly impossible due to the absence of water which is a critical ingredient in farming. As an adaptive measure, these rural folks migrate from their communities to areas in the southern part of Ghana in search of the limited job opportunities to feed themselves and their families. These migrants engage themselves in menial and lower paid jobs which are associated with several forms of risks. This situation has created several problems at both their communities of origin and destination. Williams (2002) observed that female porters (commonly known as kayayei) mainly from the northern part of Ghana have become a nuisance in the central business districts of the bigger cities in the country such as Accra and Kumasi (Awumbila and Ardayfio-Schandorf, 2008).

The Northern, Upper west and Upper east regions of Ghana have been identified with high level of poverty and food insecurity relative to the southern regions due to over reliance on rainfall for farming activities. Low Agricultural output gap in the North prevent Ghana from escaping poverty and becoming food secured. (World Bank 2013, IFAD 2012.). If agriculture has the potentials of contributing to food security and income then both crops production and livestock rearing need to be enhanced. There will be a continuous strong interaction between the agricultural fraternity and livestock. Complementarily between crop farming and livestock agriculture is made manifest through their joint contribution to human –welfare as well as the economic growth and development. As human population is ever increasing, there will be a continuous increase in demand for crops, livestock and livestock products. Therefore there is a need to expand agriculture holistically to reap the benefit of the exponentially increasing market for animals and their products. Urbanization and economic growth translate rising income into bulk demand for livestock products. Livestock has a very important social, economic and nutritional significance as far as human-wellbeing is concern. The livestock sector can emerge as the engine of agricultural

growth. Diversification through livestock immune farmers and make them much less subjected to the force of nature and unpredictability of nature and market (Birthal and Ali 2005). Livestock production complements income from crop production and other sources and captivates income shocks which are owed to crop fiasco. Livestock creates a continuous rise in income and employment and reduces seasonality in income patterns mainly of the low or no income earners. (Birthal and Ali 2005).

Livestock production adds about 6 percent to the Gross Domestic Product and 25 percent to the Agricultural Gross Domestic Product in sub Saharan Africa (Birthal et al., 2002). Over the last few periods, livestock sector has grown at an annual rate of 5.6 percent, which is greater than the growth rate of agricultural sector which is 3.3 percent (Birthal et al., 2002).

According to the Economic Report, (2009) livestock enterprise (poultry) is one of the lead contributors to the attainment of MDG 1 in Kenya.

In Ghana, a research conducted by Osei-Bonsu and Dery (2009) on coconut-based households show that, livestock production plays a vital role in the lives of individuals in terms of ensuring food security, improved nutrition, provision of income, wealth creation among others. Fluctuations in the livestock sector greatly affect food sufficiency around the globe. This implies that it is necessary if not sufficient to consider livestock as an important component in food production (Upton, 2004). Therefore, lack of considerable attention to the livestock sector will mean a lack of attention to food security and improvement in the living standard of people.

Food security is the condition in which people have continuity of food supply or the method by which this aim is accomplished. Globally, about 826 million people are persistently famished while 2 billion people lack food security (FAO, 1999).

1.2 Problem Statement.

Since the main occupation of the people in the three Northern regions (Northern, upper West and upper east) is agriculture, the people have little or no other option of generating income. (Awumbila and Ardayfio-Schandorf, 2008). After the single maximum rainfall which usually starts between May and September, these regions normally experience long dry season (MOFA, 2010). This makes the region unattractive to the energetic youth which influence them to migrate to urban centers in search for greener pastures.

According to Bilinsky et al. (2007), insufficient household food provisioning has been defined as the time between stock exhaustion and the next harvest. It is usually used as a measure of food insecurity in a highly subsistence - oriented area where production is primarily for home consumption and for that matter households do not make significant sales or purchases in the market. Quaye (2008) stated that most farming households experience significant degree of food insecurity with food insecure periods of between 3 and 7 months.

Food crop farmers in the aforementioned regions are not able to produce enough to last throughout the year and are also unable to store enough produce for home consumption throughout the year. The question one need to ask is how do they survive in this harsh period? To ameliorate the situation, MoFA over the years has embarked on various Food Security programmes in collaboration with NGOs in the Northern Region of Ghana. The present Block Farm Programme implemented by MoFA through which improved seeds, fertilizer, weedicide and tractor services are provided to farmers who then pay the total amount involved after harvesting.

According to UNFCCC (2007), over the past 10 years the Northern Region of Ghana has experienced extreme variability and unpredictable climate. This is a severe threat to food

productivity in the Northern Region where production relies on rainfall. Other potential effect of the changes in weather is the rise in the number of people at risk from hunger and decrease revenues from food crops.

Livestock production have been proven to be one of the best ways of improving food security, augment food crop production, and engender revenues for countryside and urban Populations in the Western Region of Ghana (Osei-Bonsuand Dery, 2009).

In the view of the dwindling food crop sector, this study seek to investigate the contribution of livestock production to household income and food security in Darko community in the Upper West region of Ghana.

1.3 Objectives of the study.

The main objective of this study is to measure the contribution of livestock production to household income and food security in Ghana using Dnako community as a case study.

Specifically, the study sought to

1. Evaluate the contribution of livestock production to household income.

2. Determine the contribution of livestock production to food security.

3. Identify the common livestock kept in Danko community.

4. Identify the challenges facing livestock farming in Danko community.

1.4 Research question

The study aims at assessing the contributions of livestock production to household income and food security in Danko Community. The study therefore sought to answer the following question

1. What is the contribution of livestock to household income in Danko community?

2. What is the contribution of livestock to food security in Danko community?

3. What are the challenges facing livestock farmers in Danko community?

4. What is common livestock reared by farmers in Danko community?

1.5 Significance of the study

Ghanaian economy is said to be an agrarian economy which is rain fed. Statistically, about 1.2 million people, representing5 percent of Ghana's population are food insecure. 34% of the total population are in Upper West region, Upper East is next with 15% and Northern region with 10%, amounting to about 453,000 people (WFP, 2009).

MoFA over the years has embarked on various Food Security programmes in collaboration with NGOs in the Northern Region of Ghana. The present Block Farm Programme implemented by MoFA through which improved seeds, fertilizer, weedicide and tractor services are provided to farmers who then pay the total amount involved after harvesting. This intervention sought to improve Agricultural production but these initiative have not yielded the desired target mostly due to unfavorable weather condition.

These interventions were food crop centered to the neglect of livestock production which can sever as a safety net to farmers during seasonal crop failure. So knowing the contributions of the livestock to household income and how it can contribute to food security is of great concern. Again identifying the major challenges that confront the farmers in the Danko community in the upper

west region of Ghana is in the right direction of knowing how to fine lasting solutions to some of these challenge that confront livestock production in the country. This will also ensure that there is enough livestock production in the country to feed the domestic market as well as exporting some to generate revenue for the country.

Finally, this thesis will add to the existing knowledge and will serve as reference on which further studies can be carried out.

1.6. Scope of the study

The study was carried out in the Danko community in the upper west region. Small and large scale livestock producing farmers were the target group for the study. The livestock kept and the size of the farm was considered by the study. The challenges livestock farmers face which hinders their production activities were also of focus of the study. The demographic and socio economic characteristic of the farmers as well as the contribution of livestock production to household income and food security were also considered.

1.6.1 Profile of the study area

This section outlines the situational analysis of the study area. Geo-physical characteristics embodying, location, climate, soil and vegetation, demographic characteristics, socio-political organization, economic activities and natural resources as well as spatial organization were issues considered.

Danko is found in the Wa Municipality in Upper West Region. It is located 3km south of the municipal capital, Wa. The community shares boundary with Dinanso, Bamahu, Wa and Joukpan to the East, West, North and South respectively.

The community falls under the interior continental savannah climatic zone and has two distinct seasons; Wet and Dry. The wet season begins in April/May and ends in October. The dry season occurs between October and April. The mean rainfall is about 91.2mm (Wa Meterological Agency, 2000). The rainfall pattern is characterized by unpredictability in relation to the number of months and the starting period. The mean annual maximum and minimum temperature figures are 34.8^0C and 21.6^0C respectively (Wa Meterological Agency, 2013).

The area is covered with brown sandy-loam soil, usually coarse in nature. It also has clayey soil. The sandy-loam is susceptible to erosion as well as rapid loss of water if there is any slight break in rainfall (MOFA). Despite these conditions, the sandy-loam permits cultivation of crops like maize, yam, beans, guinea corn and vegetables while the clayey soil permits rice cultivation in the community and is also used for pottery purposes. The sand in the community is also good for construction works. This utility value of sand however is degrading the environment of the Danko Community and its environs.

Vegetation

The natural vegetation of the community is the Guinea Savannah Woodland type (MOFA, 2013). It is made up of short deciduous trees and short grasses. The major tree species include the sheanut trees, baobab and nim trees among others.

Population size and distribution

The total population of Danko stands at 826 with male population of 386 while females constitute 440 in 2000. The Ghana Statistical Service projected a total population of 999 in 2010. Meanwhile, our survey indicates a total population of 1,123 with 525 as males and 598 as females (Field survey, 2012). This indicates an increase of 35.96% of the total population. Out of the total population of 1123, the population between the ages of 0 – 17 is 348, with the ages between 18 – 64 being 663 and 65+ having a population of 112. This huge increase can be attributed to relocation by UDS staff, government workers, retired workers as well as increase in birth rate.

The major economic activities engaged in by the people of Danko include; farming, pito brewing, shea butter extraction, charcoal production among others.

The people of Danko practice mixed farming as their major farming method with the use of rudimentary technology like the use of hoe and cutlass for clearing and tilling the land. The major crops grown during the farming season include guinea corn, groundnut, maize and rice. They are mainly cultivated on subsistence basis with the surplus sold in the market. Farm animals reared include goats, poultry, pigs, cattle and others.

"Pito", locally called "Daang" is brewed from locally prepared malt processed from guinea corn. The guinea corn is obtained from their farms and sometimes from their local market. The pito is sold locally but patronage is low in the rainy seasons, so when it is not finished, storage poses a big challenge to the brewers.

Charcoal production is one of the major economic activities undertaken by most of the people, especially women in the community. This is done concurrently with fuel wood collection. Wa market serves as a market center for these products. These activities however degrade the environment in and around the Danko community.

Shea butter extraction is one of the major economic activities undertaken by most of the people, especially women in the community. The shea fruits are collected from the wild. The nuts are boiled, dried and cracked to remove the shells. The nuts undergo different processes both manually and mechanically to extract the oil which is later processed into shea butter. The by-products are then thrown away at authorized places in their homes which pose environmental hazards.

The layout of the community is poor, as most of the buildings are not well planned. The settlement pattern is nucleated but dispersed at the outskirt of the town.

Danko the study area is endowed with schools, electricity and water among others.

The community has formal, informal and non-formal systems of education. The facilities of the formal education include primary and junior high schools. Informal and non-formal education also include acquisition of knowledge, skill through apprenticeship in tailoring, mechanics, hairdressing and any work involving on-the-job training and observation such as pito brewing among others.

The community has three boreholes (two of them belong to the community while the other is owned by an individual) and individual hand dug wells for their water supply. The community has no public toilet and also individuals do not have toilet facilities in their various homes. It also has no refuse container provided by the Municipal Assembly. In view of these, sanitation in the community is nothing to write home about.

The community has no clinic and also no licensed chemical selling shop where people access their health needs. In addition, the study community has no Traditional Birth Attendance (TBA), they normally go to the regional hospital for delivery and also for their health needs.

The natural environment of Danko community has been modified by human activities such as bush burning, cutting down of economic trees like shea and dawadawa trees for fuel wood and charcoal production. Bad farming practices also interact with climatic factors leading to soil erosion and reduction in soil fertility.

Gravel and sand winning activities have also resulted in permanent pits that worsen the extent of land degradation as well as serving as a breeding ground for mosquitoes. Over grazing and severe bush burning also lead to loss of vegetative cover and soil nutrients, desertification among others. The surrounding is also bushy, especially during rainy seasons, which also serve as a breeding place for mosquitoes and reptiles. There is also indiscriminate disposal of waste and fecal matter which can also lead to outbreak of diseases like cholera, typhoid etc.

1.7 organization of the study.

The thesis is in five chapters. Chapter one is the introduction and contain the background to the study, problem statement, study objectives, research questions, the scope and significance of the study. Chapter two deals with the review of literature and empirical review. Chapter three is the methodology and contains the strategies and techniques used in the study to achieve the set objectives. It deals with types and source of data, sampling techniques, data collection techniques and data analysis and presentation techniques. Chapter four looks at the data analysis and discussion of results. It focuses on descriptive analysis of the study and quantitative analysis as well. The final chapter contains the summary of major findings, conclusions of study, recommendations and limitation of the study.

1.8 Limitations of the research.

In conducting the study, some problems were encountered. One of these was the busy academic schedule which was combined with this research work. As a result time became scarce commodity to the researcher but with hard work and dedication, the task was successfully accomplished.

Also, there was a problem in terms of asking questions relating to income by the group because respondents felt reluctant in answering questions on income for the fear of either taxation or ulterior motives. However, with relevant strategies, the researcher was able to overcome this challenge by explaining the purpose of the research to the respondents and this enabled in obtaining the data needed.

Finally, there was a problem of getting the farmers in the house since data collection will coincided with period of harvesting farm produce.

CHAPTER TWO

LITERITURE REVIEW

2.1 introductions.

This chapter reviews relevant literature which form basis of the study as well as empirical review. It contains the theoretical framework and empirical framework of the study. Various Agricultural policies that have been implemented in Ghana during pre-independence and post-independence periods are also reviewed.

Food security is a condition in which people have stability and continuous food supply or the method by which this aim is achieved. Globally, about 826 million people are constantly hungry while 2 billion people lack food security because of poverty (FAO, 1999).

Livelihood encompasses the abilities, assets (including both material and social resources) and activities requisite for means of living. According to Opio (2009) livestock contribution to household sustenance is greater compared to its contribution from income and job creation as an economic activity in Sub-Saharan Africa, livestock production contribute about 25% to Gross Domestic Product (GDP) and up to 30% of non -food livestock product such as compost and animal drought power. In Sub-Saharan Africa (SSA) livestock production directly funds about 10% of the people in the region while additional 58% are to some extent dependent on this source".

According to. Thornton et al. (2002), domestication of livestock sustain about 600 million deprived people in Africa, Asia and Latin America Countries. Also, over one billion people rely on livestock for their livelihoods and over 1.3 billion people are employed in livestock enterprises. It was also highlighted that, livestock plays significant role in food security, wealth creation, capital accumulation, nutritional provision, traction, diversification, risk reduction and provision of regular income to small farmers and pastoralists

According to Organization for Economic Co-operation and Development (OECD), (2008), public and private investments in the livestock sector can reduce poverty and increase food security as well as ignite economic growth through consumption and production spill-over effects.

Livestock production has been well understood by Africans as a major venture that helps the poor individuals to improve their livelihood. In West African Countries where about two-third of the populace feed on less than US$ 1 a day, it is asserted that about 60% of these deprived rely on livestock for their incomes (Thornton et al., 2002).

According to Upton (2004), keeping livestock is more profitable than investing in any other financial asset by poor household. This is because it serves as cash buffer as well as a deterrent to inflation and therefore provides income sustaining ability for the farmer and household in general. Livestock make a significant contribution to most economies. Livestock produce food, Offer security, augment crop production, and create cash incomes for countryside and urban Populaces. It also generate energy and transport, and add value to goods which can have multiplier effects and create a need for services. Furthermore, livestock diversify food crop production and Income, offer year-round jobs, and diversify risk. Livestock also serve as important capital Backup for farming family unit (Upton 2004)

The incorporation of crop and livestock schemes can offer some significant Sustainable benefits for the farmer through nutrient reutilization and adding economic worth to the structure by grazing on crop remains which would otherwise be under Utilized. Furthermore, livestock also offer an enticement to plant nitrogen-fixing crops or Forages which function to increase soil fertility and reduce soil erosion. The significant contribution of livestock to the traditional sector adds to countryside standard of living and mainly the deprived are more -recognized

(LID 1999 and Upton 2004**).**

2.2 theoretical review

This section examines the factors that affect or influence demand and supply of livestock and livestock product. Livestock like any other commodity on the market is affected by price, income wealth, prices of related product (import), expectation among others

The supply on the other hand is influenced by factors such as cost of rearing livestock, prices at which they are sold on the market, risk and uncertainty in livestock production, age, vulnerability to shock among others.

The history of Agriculture postulates that Agriculture is made up of an integrated whole. That is, there are sub- sectors in the Agricultural system. These includes the crop sub- sector, the forestry sub sector, the fishery sub sector and the livestock sub- sector. A strong and vibrant Agriculture sector is the one which integrate and coordinate the activities in these sub sectors. The success of the Agriculture depends on and is influence by both economic and industrial factors but these factors are always outside the control of farmers. (Birner, 1999).

Based on consumer and economic theory of demand, the World Bank stated categorically in its World Development Report 2007 has emphasis the need to revamp the agriculture sector for poverty reduction if it becomes impossible to eliminate and has advised Agriculture led economies to put the Agricultural sector in the center of their development agenda, if the world wants to reduced poverty significantly by 2015. Therefore developing economists have taken it as challenge to sustain and magnify agriculture sector's unique poverty-reducing power.

the economic theory of demand postulate that supply in Agriculture is income elastic therefore economic policies aimed at income generation will indirectly contribute to improve local demand for food. As far as food consumption is necessary, the consumption of livestock product is inevitable. The higher demand for livestock and livestock products always serve as incentive to

farmers. The analysis of livestock trade has usually occurred at the micro-level of the national economy and there is some concern that the impacts of livestock trade which occur at the Macrolevel with reference to its influences on food security, poverty and livelihood but this may not be sufficiently identified or assumed by economic and social policy makers. This knowledge is indispensable in planning and implementing pro-poor growth policies where it is essential to understand the influence of livestock trade on specific groups (DFID, 2004).

According to Slingerland (2000), livestock rearing and livestock products is very essential cash crop in many smallholder mixed farming system in Sub –Saharan Africa. Demand for livestock and livestock products like meat, milk and eggs generate a relatively stable stream of income and the sale of live animals for cultural purposes. The major determinant of demand like income, own price, prices of imported livestock, cultural factors do influence livestock and livestock products and therefore contributes to the stability of the incomes of farm households as they act as a cash buffer, a capital reserve and as a blanket against inflation. Rearing livestock is found to be more even more profitable than saving money in a bank as net annual returns from livestock are higher than interest rates.

The contribution of livestock production to nutrition cannot be underestimated, many poor small holders would have direct access to more livestock derived items which are prime sources of easily absorbable iron, zinc and many other minerals as well as of vitamins, all essential for child growth and mental development (Neuman et al, 2003).

According to Sansoucy et al (1995), emphasis on mixed farming systems reveals that, livestock reduce the risks emanating from seasonal crop failures as they add to the diversification of production and income sources Livestock play a crucial role in process of the agricultural

intensification through the provision draught power and manure. While draught animals use is declining worldwide, this trend does not hold for Sub-Saharan Africa.

The concentration of poor people in rural areas and their predominant involvement in agriculture mean that for Sub-Saharan Africa, rural well-being is closely linked to agricultural performance. Agriculture-led development is not only fundamental to cutting hunger and reducing poverty but also, to generate economic growth, reduce the burden of food import and opening the way to a moderate expansion of export and correction of ever increasing balance of payment deficits in developing economies. Again, Livestock production has been seen globally as one of the most effective tool for poverty reduction. As a result of these benefits of the livestock sub- sector, most developing countries have capitalized of livestock to turn their economic fortunes around.

Apart from the important role of livestock for the poor in rural areas, livestock have become increasingly important to the livelihoods of the urban poor. The urban poor engaged in livestock keeping is usually as a response to limited alternative livelihood options and food security. Even though livestock keeping is usually not the main occupation of urban households, livestock often have an important role for income generation, (NRI, 2002).

2.3 Empirical literature

India's livestock exports and their products have improved from $ 90.9 million in 1980-82 to $ 469.6 million in 2002-04.Trades of animals and meat, eggs and other products recorded a significant rise in this same duration. These amounted to 72.8 %, 13.4% and 10.4 % of total livestock exports from 2002 to 2004 respectively (FAOSTAT, 2001).

India was able to reduce its import of livestock products from $ 261.6 million in 1980-82 to $ 257.4 million in 2002-04. In 1980-81 dairy products worth $ 166.6 million were imported, which contributed 63.6% of the livestock imports total (FAOSTAT)

The quest for leveling out these human miseries in rural regions is predominantly due to the increase in income generating opportunities, enablement of low income earners to benefit from new prospects and an operative safety net to ease human misery and safe guard minor of the poor (Kozel and Parker 2003).

Food crop farming is the most important source of living in rural India contributing to about onequarters of Gross Domestic Product (GDP). The contribution of the traditional sector to gross domestic product has improved considerably. However, this proportion of GDP has waned from 35.7% in 1980-81 to 24% in 2003-04. Animal farming adds approximately 25 % to the total value of the traditional sector's output, and it has been progressively reliable. In fact, the evolution in animal farming sector has constantly stayed averagely higher compared to the advancement in crop sector. Despite total worth of output from animal products have risen from 1980-81 to 199091 and 1990-91 to 2003-04, the yearly growth has slow down from 1990 to 1991 and 2003-04 for nearly all the products. The yearly improvement in pork, poultry meat and eggs is greater than the growth in milk and meat from other animals. Animal farming have been are projected to contribute around one- third of the value of total annual agricultural Output in the emerging economies and it is empirically proven that this portion has been increasing rapidly (Bruinsma 2003). Animal rearing has been increasing arithmetically in reaction to rising market for animals and their product initiating through the Growing populace, particularly those of towns and cities and escalating household income. For the past few years, the yearly growth rate of animal rearing have been estimated averaging 3.8%, matched with averagely 2.7% in crops production and the least averaging 1.2% in the nonfood agricultural sub- sector. The approximation based on empirical evidence is that, animal rearing contribute to the living standard of about 70% of the world's population who are deprived (LID 1999). The emphasis on animal rearing as a pro-poor

development strategy is necessary. It is expected that, this pro- poor development strategy will enable animal farmers to own goats, sheep pigs, poultry birds among other small stock rather than large stock. These animals adopt easily to severe weather conditions and thereby multiply faster than the large stock. Animal farming does not only produce meat, wool, egg, milk among others for sale or family nutritional needs, but also produce compost which serve as fertilizer, provides animal power for plugging and or as energy and may serve as a form of saving or backup for eventualities when they can be sold to raise the necessary cash. In many Societies livestock have ritual usages and owning livestock raise the status of the household.

However, there are many different classes and breeds of livestock and diverse livestock

Production schemes. Ways in which livestock keeping contributes to poverty alleviation, vary per the kind of production system used for the household, livestock production contributes to better nutrition. Food has been enhanced through uninterrupted intake of eggs, meats and or milk seldom, through spending of the income received through the sales of animals product to purchase other life sustaining goods and improvement in crop led agricultural sector to bring about diversified agriculture (Shapiro et al 2000, Tangka et al., 2000;Neumann 2000,).

With the contribution of livestock to nutrition which enhance human welfare, animal farming decreases the Prevalence of malnutrition. There are countless signs and symptoms of high malnutrition in the emerging economies therefore there is the need to increase human nutrition. The low quality diet in the unindustrialized countries is evidenced in the low average levels of supply of meat and dairy products.

Nevertheless, as incomes increase in the unindustrialized countries increase trades search for more varieties and improved quality of foods in their diets. Hence the demand for livestock products

increases quickly, an effect which is also driven by quite rapid growth in the number of consumers. The high rates of growth in meat supply and consumption per capita recorded in all regions except North Africa and the near East, is substantial and forms the basis of what is called Livestock Revolution Livestock production is profitable than investing in any capital asset. Livestock just like any other asset appreciate and depreciate in value. Livestock depreciate in value when the animal develops from its infancy to maturity. And depreciate in value when the livestock loses weight and reduces in its monetary value. Therefore appreciation and depreciation in value of the livestock should be taken into consideration when assessing the profitability of the livestock sector. Acquiring livestock comes at a cost and animal mortality is losses which negatively affect the livestock sector. These conditions that negatively affect livestock must be taken into consideration evaluating the profitability of the livestock rearing (Upton, 1985).

CHAPTER THREE

METHODOLOGY

3.1 Introduction

In conducting a social research like this study there are several methodological options available for a research one to use. This chapter is the methodology and contains types and source of data sampling and collection techniques and tools and finally data analysis and presentation.

3.2 Types and Sources of data.

The study relied mainly on primary data to elicited information which helped in the achievement of the objectives.

Primary data was gathered on livestock farmers in Danko community. Data information on the profile of the study area was also elicited for the study.

3.3Sampling and sampling techniques.

This study used multiple sampling techniques to get the sample size for the study. Stratified sampling technic was used to divide the livestock farmers into two strata (farmers were grouped into small and large scale livestock production). The small scale were livestock farmers who had livestock from one to thirty animals (1 - 30) and those farmers who had animals from thirty one and above (31+). Subsequently; simple random sampling was used to select respondents from the small scale farmers and snowball sampling method was used to select respondents from the large scale farmers in Danko community.

According to Taro (1970), a decisive way of choosing sample size is given as

$$n = \frac{N}{1+N(e)^2}$$

Where; n is sample size, N is the total population and e is the error margin (10%). Sample size of

100 was selected for the study.

3.4 Data collection techniques.

The study was conducted using questionnaires.

Semi Structured and structured questionnaires were employed to gather data from the livestock farmers. Semi structured questionnaire with both open and closed ended questions were employed as a tool in gathering data for the study.

Structured and personal observation were also used to gather physical information about respondents and their livestock production. Personal observation was also employed as a tool to gather all relevant physical information.

3.5 Data analysis and presentation technique.

This section deals with the tools which were used to analyze data collected and various techniques that were used to present the data graphically for clear visualization.

Tools used for the analysis. Statistical Package for Social Scientist (SPSS) descriptive statistics using and excel were the statistical software used. Frequencies and charts to analyze and present data on demographic characteristics of the respondents.

To determine the contribution of livestock production to household income, a spearman correlation model was used to measure the relationship between incomes generated from livestock production and total household income.

Pearson r = $\frac{n\sum XY-(\sum X)(\sum Y)}{\left[\sqrt{n(\sum X^2)-(\sum X)^2}\right]*\left[\sqrt{n(\sum Y^2)-(n\sum Y^2)-\left((\sum Y)^2\right)}\right.}$

]

n = number of observation

X = contribution from livestock production

Y = total household income.

Formulation of Hypothesis

H_0: there is no relationship between contribution from livestock production and other economic activities and total household income.

H_1: not H_0 there is a relationship between the contribution from livestock production and other economic activities and total household income.

To determine the contribution of livestock production to food security, a Pearson Correlation was used to analyze the relationship between livestock production and household food security.

Pearson r = $\frac{n\sum XY-(\sum X)(\sum Y)}{\left[\sqrt{n(\sum X^2)-(\sum X)^2}\right]*\left[\sqrt{n(\sum Y^2)-(n\sum Y^2)-\left((\sum Y)^2\right)}\right.}$

]

n = number of observation

X = livestock expenditure on food

Y = total household expenditure on food

To identify the challenges facing livestock farmers in Danko community, a spearman Rank test was used.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION OF RESULTS

4.1 Introduction

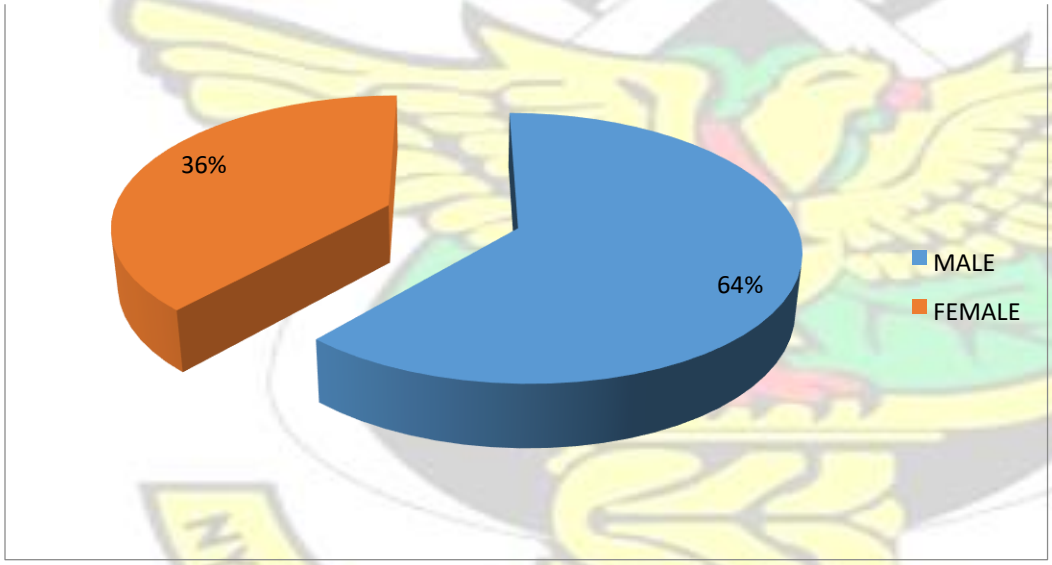
The chapter focuses on the analysis of the data collected and the deliberations on the results related to the contribution of livestock to household income and food security in Danko Community of the Upper West Region. It describes, explains and interprets the data from the field.

4.2 Descriptive analysis.

This section presents the description of the demographic characteristics of the respondents and the livestock reared.

4.2.1 Gender distribution of respondents.

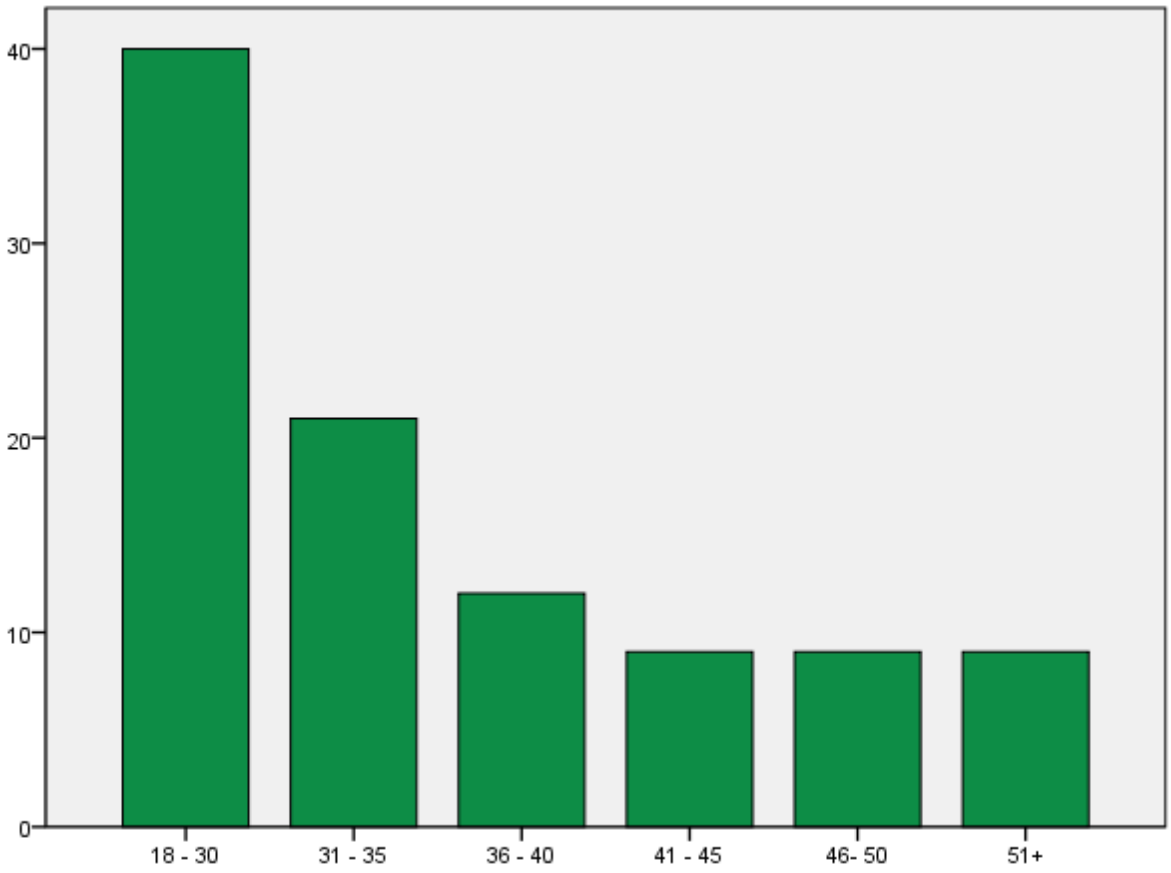
Figure 4.1 Gender distribution of the respondents.



The study revealed that the sex distribution of the respondents is made up of 64 males and 36 females representing 64% and 36% respectively. The Figure 4.1 shows the gender distribution of the respondents. This implies that males are dominant in the livestock activities in the Danko community compared to female counterparts.

4.2.2 Age distribution of respondents.

Figure 4.2 Age distribution of respondents.



From Figure 4.2, the dominant ages of respondents in the sample is between18 – 30 years and between 31-35 years representing 34.4% and 20.8% respectively. This is followed by ages between 36-40 years and 51 years and above representing 15.2% and 12.8% respectively. This indicates that the livestock sector engages the active labour force in the Danko Community.

4.2.3 Educational level of respondent.

Table 4.1 Educational level of respondents.

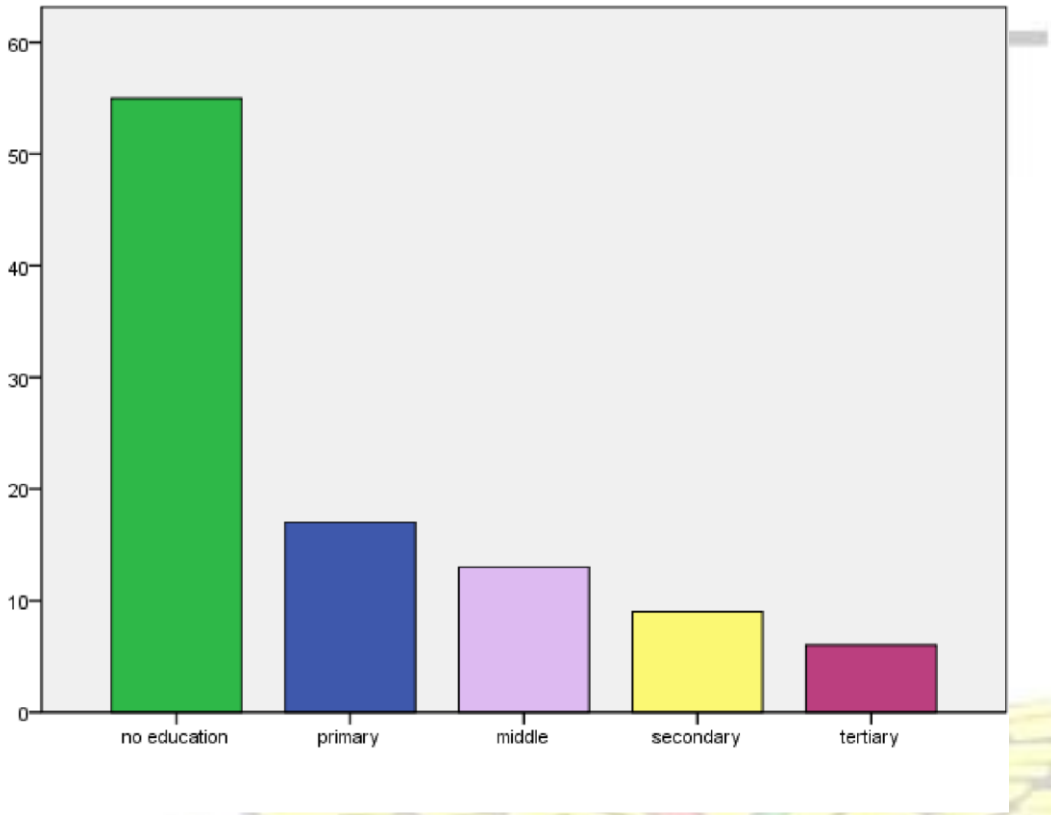
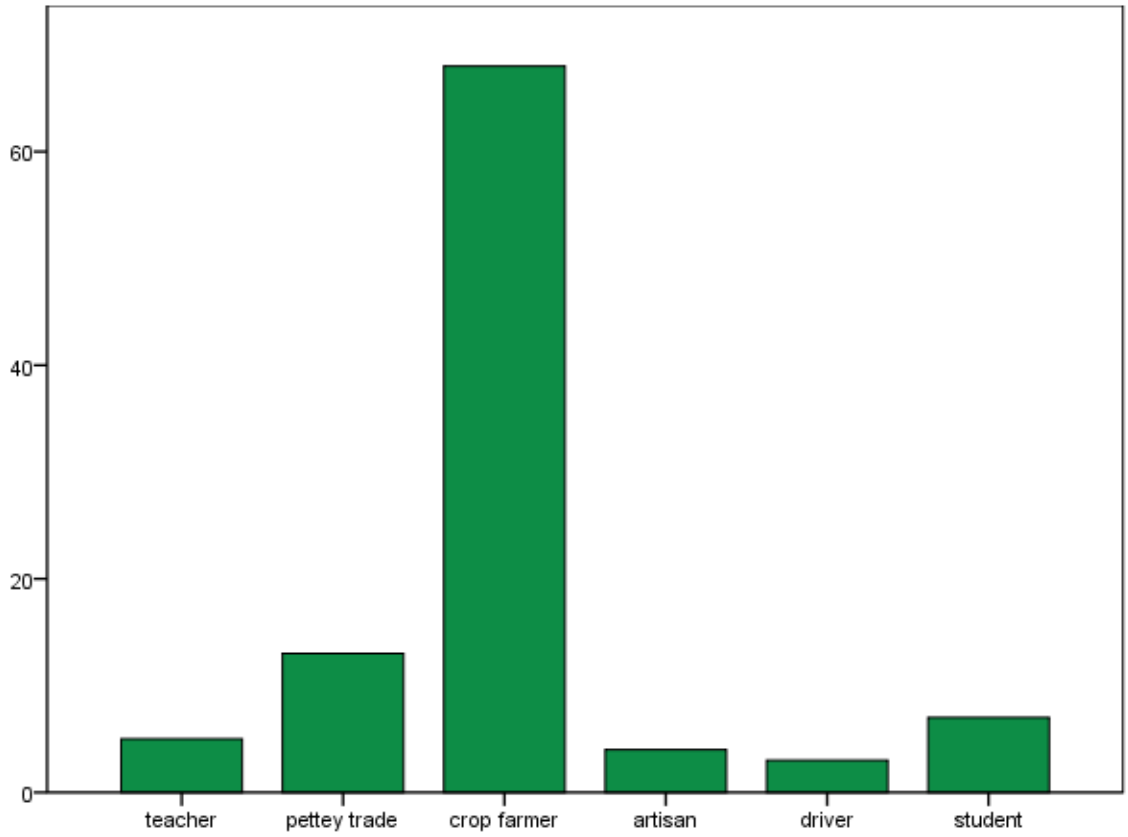


Table 4.1 reveals that 55 of the respondents representing 55% had no formal education, 17% had primary education, 13% had middle school (Junior High School), 9% also had secondary education (Senior High School) and only 6% had tertiary education. This implies that majority of livestock farmers had no formal education. However, most of the illiterate group have had some level of informal training.

4.2.4 Occupation of respondent.

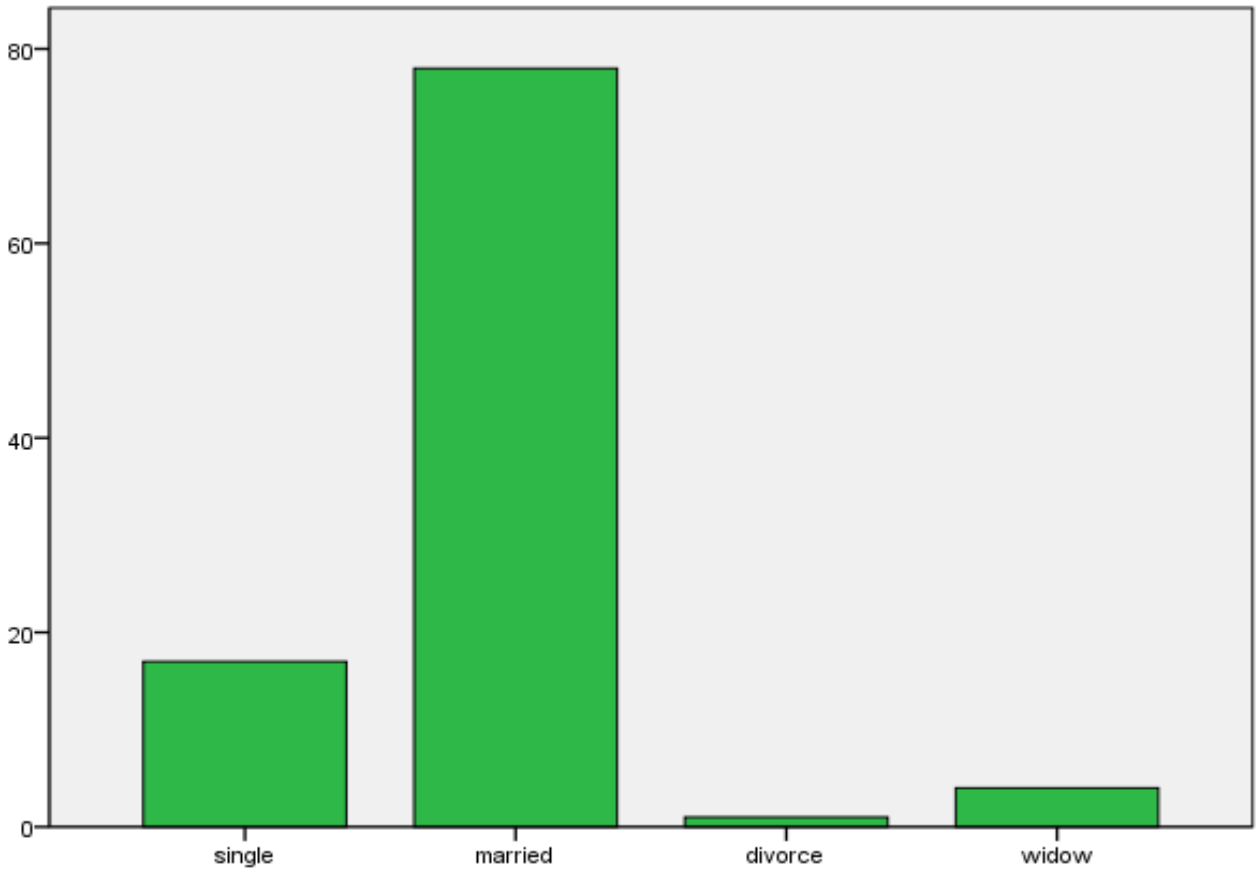
Figure 4.3 shows the occupational distribution of respondents.



The occupation of respondents is presented in Figure 4.3. The result indicates that, 68of the respondents representing 68% are crop farmers which is the major occupation in the Danko community. The petty traders are 13, 4 are artisans, 7 are students, 5 are teachers, 3 are drivers representing 13%, 4%, 7%, 5%, and 3% respectively. Though the above mentioned are their major occupation they also keep livestock of at least one kind. Therefore, livestock farmers in Danko Community are mostly crop farmers.

4.2.5 Marital status of responds.

Figure 4.4 marital status of respondents.



The marital status of the respondents is shown in Figure 4.4.The results reveals that seventy eight (78) of the respondents are married, seventeen (17) are single, four (4) are widowed and only (1) is divorced representing 78%, 17%, 4% and 1% respectively. This shows that most of the respondents are married.

4.3 Pearson correlation.

4.3.1 Correlation to show the contribution of livestock production to household income.

The correlation result is presented in Table 4.4 and 4.5.

	Total household income	Income from livestock	Income from other activities.	Pearson Correlation Sig.
Total household income	1	-	-	
livestock income	0.5933	1	-	0.00314
Income from other activities.	0.6534	0.6460	1	0.00211

The tables 4.3 depicts the correlation obtained from excel software.

From Table 4.5, the correlation coefficient value of 0.5933 shows the relationship between livestock production and total household income and that the relationship is positive. The relationship is statistically significant at 95% confidence level. This positive relation strong correlation implies that if income generated through livestock production increase by a unit, total household income will also increase by 0.5933. Inversely, if income generated from livestock production falls by a unit, total household income will decrease by 0.5933 unit. Again, the correlation coefficient value of 0.6534 shows a positive strong correlation between incomes generated from other economic activities and total household income. The correlation coefficient is statistically significant at 95% confidence level (5% significant level). This result as shown in Table 4.5 between incomes from other economic activities other livestock implies that, as income generated from other economic activities increases by a unit, total household income will increase by 0.6534 unit. And if income from other economic activities falls by a unit, total household income will also fall by 0.6534. All this being equal. This means that income from other economic activities and total household income move in the same direction though with different

magnitudes.Therefore, incomes from livestock production and other economic activities contribute significantly to total household income of residents in Darko community.

Table 4.4 Pearson Correlations: contribution of livestock production to food security.
Model summary

	Household on expenditure food.	Livestock to contribution food.	Pearson Correlation Sig. (2-tailed)
Household on expenditure food.	1	0.5812**	.0043
Livestock to contribution food.	0.6812**	1	.0043

**Correlation is significant at the 1% level (2-tailed).

From Table 4.4, a correlation of livestock spending on food and total household spending on food shows a value of 0.6812. This shows that, there is strong positive correlation between livestock contribution to total household expenditure on food. This further means that both total household outlay on food and livestock spending on food move in the same direction. When livestock expenditure on food increases, total household expenditure on food also increases and when livestock expenditure on food decreases, total household expenditure on food also decreases ceteris paribus. This strong positive correlation means that, continuous income generation from livestock

production can be a means of ensuring the continuity of household food supply in Darko community.

4.6 Common livestock kept.

The common livestock reared is presented in Table 4.2. It shows that the most common livestock kept is domestic fowl with a population of 2309, followed by goat with a population of 929. Sheep, guinea fowl, pig, cattle and turkey had the following populations of 712, 462, 104, 55 and 52 respectively.

Table 4.6.1 Common livestock reared.

	Percentage	**Cumulative percentage**
Chicken	**55.00**	**55**
Guinea fowl	**18.00**	**73**
Goat	**10.0**	**83**
Pig	**9.0**	**92**
Cattle	**7.0**	**99**
Sheep	**1.0**	**100**
Total	**100.00**	

4.4 Challenges facing livestock farmers.

The research results revealed the following as challenges facing livestock farmers in Danko community. There are outbreak of diseases, low prices of livestock, predator, high cost of feeding animals high cost of treatment, stealing poor breads of livestock and inadequate veterinary and extension officers. These challenges are grouped under various themes and summarized in Table 4.7

Table 4.7 shows the spearman Rank of the challenges confronting the livestock farmers.

	Percent (%)	Valid Percent
theft	2.0	2.0
disease infestation	9.0	9.0
low price	10.0	10.0
high cost of treatment	7.0	7.0
inadequate veterinary officers	4.0	4
poor breed of animal	60.0	60.0
predator	3.0	3.0
high cost of feeding animals	5	5.0
Total	100.0	100.0

TABLE 4.7b qualitative analysis of the challenges facing livestock farmers.

The various challenges mentioned by the livestock farmers are summarized in table 4.7

RESPONSES	**THEMES**
When you open the animals and you are Around people steal them	Theft
Every year most our animal die through diseases infestation.	Outbreak of diseases
Those who buy the animals decides on the price to pay for the animal or it product but because you are in serious need of money you have to collect it like that.	low prices for livestock

When the animals is sick you cannot get the animal doctors to treat them.	inadequate veterinary officers
Some time when they ask you buy drug so that they will inject the animal but the drug too is expensive.	high cost of treatment
Sometime in the dry season we have to buy the animal feed from the market which is expensive. So we grind some of our maize to feed the animals especially the young ones.	high cost of feeding animals
When you leave the fowls and go to farm before you come home all the young ones are taken away by hawks.	predators
The animal cannot grow bigger like the foreign ones on the market. So when the buyers give us any price we take though it is not good price.	poor breed of livestock

Field survey (2015).

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction.

The concentration of low income earners in rural areas and their predominant involvement in livestock production is usually a response to the limited alternatives livelihood options and food security. It is in the light of this that this chapter is devoted to discuss the major findings on the livestock production in Danko Community in the Upper West Region of Ghana. Also conclusions and recommendations have been given to help improve livestock production.

5.2 Summary of major findings.

This section discusses the major findings from the data collected and analyzed. These findings enabled us to draw conclusion and proposed recommendations that aimed at improving livestock production to support their livelihood.

The research revealed that most of the livestock farmers were between the ages of 18 and 30 years representing 40% of the one hundred and twenty-five (100) respondents interviewed. It also revealed that 64 of the respondents were males and 36 were females representing 64% and 36% respectively.

Out of the 100 respondents interviewed, 78% of them were married and the remaining 22% comprised single, widowed and divorced. From the study only 6% of the total respondents have attained tertiary education as the highest educational level.

The study established that 68 of the total respondents crop farmers who constitute the majority of the sample population. This represents 68% of the respondents. However, there was no full-time livestock farmers among the 100 respondents interviewed.

The study further revealed that the most common livestock kept by the respondents was chicken (domestic fowl) with a population of 2,309. This was followed by goat with a population of 929, sheep, cattle, and turkey. Also with a population of 71255 and 52 respectively.

The result from the correlation coefficients revealed that, livestock production and total household income are strong positively correlated coefficient of 0.5933 and income from other economic activities was also positively strong correlated with total household income with coefficient of 0.6534. These coefficients are statistically significant at 95% confidence level in terms of contribution to total household income. And this implies that both income from livestock production and income from other economic activities contribute significantly to total household income.

Again result of the Pearson correlation between contribution from livestock production to total household expenditure on food also strong and positive relationship. This implies that when income from livestock production increases, it contribution to total household expenditure on food also increases and when income from livestock production decrease, its contribution to total household expenditure in food decrease as well. All thing being equal.

The study also identified a number of challenges which includes stealing of the livestock, disease infestation, low pricing of the livestock and their product by the buyer, high cost of feeding the livestock especially during the dry season, poor breeds of livestock and inadequate veterinary officers and extension services. Among these challenges, poor livestock breed was the most pressing challenge with a rank of 60 followed by low livestock pricing which was ranked 10, disease infestation ranked 9 and the least rank being theft 2.

5.3 Conclusion

The main aim of the study was to determine the role of livestock production to household income and food security in Danko Community. The study mainly relied on primary data and employed stratified and simple random techniques 100 sample size was used for the study. In order to achieve the set objective, Pearson correlation was employed. The demographic characteristics of the respondents include, age, gender, marital status and education level. The common livestock reared include, fowl, sheep, turkey, goat, guinea fowl and cattle. In view of the results obtained and discussed, the study conclude that there is a positive relationship between livestock production and household income and food security in Danko community

Secondly, livestock production contributes to total household income of respondents in Danko Community in the Upper West Region of Ghana.

Again, livestock production increases food security of livestock farmers. That is as the income from livestock increases, food security will also increase accordingly.

Stealing of livestock, poor breeds of livestock, inadequate veterinary officers and extension officers among others are the challenges faced by livestock farmers in Darko community.

5.4 Recommendation

From the study, it was revealed that livestock production is a greater source of livelihood to the people of Danko Community of the Upper West Region of Ghana. This is also an indication that livestock production can become one of the booming sub-sectors in the Agricultural Sector if the necessary support and attention is given. Despite the immense contribution of livestock production in serving as a shock absorber in the period of seasonal crop failures, the livestock sub-sector has over the years received little attention as compared to food crop sub-sector in Danko community.

This is because people are still not aware of the potentials and prospects of the livestock sub-sector. Based on the result and discussion in chapter four, the following are recommended.

- Regular education on livestock production should be organized for livestock farmers since most of the farmers have no level of formal educated.
- Since livestock production contributes positively to food security, much attention should be given to the livestock sector to improve the standard of living in the Danko community in particular, Upper West Region and Ghana as a whole.
- Females in Danko community should be empowered to undertake livestock farming.
- Sensitization of the community members on how to detect livestock diseases at its early stage to prevent outbreak of diseases and death of animals should be undertaken.
- The community should be supported by government, Non-Governmental Organizations, Community Based Organizations with finance and other logistics to help them improve on their livestock farming.
- There should be improvement of high breeds to livestock farmers.
- Increase in veterinary and extension services to livestock farmers in Danko community should be an area of concern to various stakeholders in the agricultural sector.
- Price floor should be implemented by the appropriate authorities to protect the prices of livestock on the market.
- Government should subsidize the cost of drugs for the treatment of livestock in Danko community.

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APPENDIX

The trend of the production, import and consumption pattern in Ghana for the past few years (2011-2013) in Ghana shown in Table 1.1

Table 1.1 livestock production, imports and consumption trend in Ghana from 2011 – 2013.

	2011	2012	2013
Production	10,000	10,000	10,000
Imports	150,000	157,000	165,000
Consumption	160,000	167,000	175,000

Source: USDA, GAIN Report No. 1303.

Table 4.4

Table 4.3 showing the total household income, income from livestock and income obtained from other economic activities in Danko community.

Income from livestock	Income from other activities	Total household income
389	5334	5723
400	540	940
310	509	819
350	600	950
207	381	588
388	187	575
370	330	700
483	483	966
495	494	989
1010	1007	2017
903	1397	2300
320	320	640
787	1313	2100
590	1610	2200
900	1400	2300
1510	910	2420
379	400	779
770	630	1400
1002	827	1829
874	828	1702

1006	894	1900
688	782	1470

593	1007	1600
1470	635	2105
720	502	1222
716	244	960
208	289	497
1440	1410	2850
994	936	1930
609	598	1207
406	214	700
960	240	1200
399	577	976
560	335	895
564	400	946
1620	1034	2654
1093	1492	2585
540	324	864
1001	861	1862
246	257	503
661	289	950
507	614	1121
320	288	608
314	273	587
570	285	855
300	285	585
1168	1152	2320
697	746	1443
1044	1078	2122
540	414	954
2084	2485	4569
1960	1788	3748
2107	1903	4010
1800	1911	3711
263	3741	4004
2840	1723	4563
530	175	705
385	241	626
387	387	774
1426	1015	2441

420	357	777
994	846	1840
900	784	1684
856	713	1569
760	621	1381
598	609	1207
560	511	1071
806	494	1300
562	257	819
274	183	431
320	153	503
330	258	483
962	840	1220
1046	696	1886
800	840	1496
340	696	569
2640	229	4080
1640	1440	2444
906	804	183
470	924	1410
1681	474	2155
638	432	1074
448	436	884
396	488	2177
1093	1084	713
400	313	5400
2964	2436	900
500	400	1131
583	548	546
301	245	1001
640	361	1366
840	526	919
336	383	843
516	327	600
390	210	440
290	150	440
213	147	360
384	60	444
363	331	694
300	288	588
612	420	1032