

**PROSPECTS AND CHALLENGES OF LIVESTOCK PRODUCTION IN THE  
BOLE DISTRICT OF THE NORTHERN REGION OF GHANA**

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**2017**

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BOLE DISTRICT OF THE NORTHERN REGION OF GHANA**

**BY**

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**(UDS/MAN/0004/12)**

**THESIS SUBMITTED TO THE DEPARTMENT OF ANIMAL SCIENCE,  
FACULTY OF AGRICULTURE, UNIVERSITY FOR DEVELOPMENT  
STUDIES, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR  
THE AWARD OF MASTER OF PHILOSOPHY DEGREE IN ANIMAL  
SCIENCE (PRODUCTION)**

**MAY, 2017**



## DECLARATION

### Student

I, Abdulai Seidu Gong, hereby declare that this thesis is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere. All sources of information cited and assistance received in the preparation of this work have been duly referenced and acknowledged.

Candidate's Signature: ..... Date: .....

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### Supervisors

We hereby declare that the preparation and presentation of the thesis was supervised in accordance with the guidelines on supervision of thesis laid down by the University for Development Studies.

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## ABSTRACT

Livestock production in the Bole District is carried out under extensive, semi-intensive and intensive systems. However, the extensive system is the most common method practiced, especially in the rural communities. This research provides an analysis of prospects and challenges of livestock production in the Bole District. The study combined purposive and snow-ball sampling procedures. A sample size of 150 livestock farmers was selected from the three (3) agricultural zones -Bole, Bamboi and Mandari. The primary data collection tools used were questionnaires, interviews and focus group discussions. The data collected, were analysed using descriptive statistics. The results showed that there were more male livestock farmers than females. Also, majority of the livestock farmers (73.3%) had no formal education. Crop farming was the major occupation with livestock production being their minor occupation. Majority of the farmers (80%) reared both ruminants and fowls. Availability of land, water, labour and feed resources were identified as the major prospects that could boost livestock production in the district. However, these prospects were not fully utilized due to some challenges including inadequate financial resources, lack of skills in brooding, breeding as well as marketing challenges. Other challenges were ranked as follows; drought - 1, theft -2, accidents – 3, bush fires – 4, poor housing conditions – 5 and diseases -6. The major measures suggested to solve these problems included provision of credit facilities, capacity building, creation of livestock markets, offering guaranteed prices and the formation of Farmer Based Organizations (FBOs). In conclusion, the farmers maintained that if much attention is paid to the production, management and marketing prospects it would boost livestock production in the District and the nation at large.



## ACKNOWLEDGEMENT

First of all, I express my profound appreciation and gratitude to Almighty Allah for His Guidance and Inspiration throughout my academic work. I also express my genuine gratitude to my major supervisor Mr. Benjamin Alenyorege, for his constant advice, guidance, constructive and critical comments from the very beginning of this work, till the final date of submission. My appreciation also goes to Dr. Richard W.N. Yeboah for his encouragement and comments provided since the inception of the proposal till its completion. Both have contributed immensely by spending their precious time to ensure my research work was up to standard.

My heartfelt gratitude also goes to the Bole District MoFA officers especially to Mr. DeClerk Mensah, the District Management Information System Officer, the District Gender Desk Officer, Mr. Mumuni Ibrahim who is the 2008 National Best Extension Officer. I am particularly thankful to the District Community Development Officer and all the respondents especially the livestock farmers, for spending their precious time in responding to my research questions and providing me with useful information which has brought this thesis to a successful end.

I have to single out Mr. Husein Shuaib Mbelayim , for his support in the analysis of the data and other technical support and also Mr.Yakubu A. Wahab and Shaibu Abdul-Fatau for spending their time to read through this work.

Finally, I wish to extend my profound gratitude to my family members especially my wives and children for their encouragement and support throughout my research work.



## **DEDICATION**

I dedicate this to my father, Abdulai Gong, and to my lovely mother, Fulera Gong, through whom my coming to this world was made possible by God.



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## ACRONYMS

AADGS	Accelerated Agricultural Development and Growth Strategy
DFID	Department for International Development
DoA	Department of Agriculture
DoC	Day-Old-Chicks
EDAIF	Export Development and Agriculture Investment Fund
FAO	Food and Agricultural Organisation
FASDEP	Food and Agriculture Sector Development Project
FBOs	Farmer Based Organizations
FGDs	Focus Group Discussions
GDP	Gross Domestic Product
GoG	Government of Ghana
GSS	Ghana Statistical Service
IFAD	International Fund for Agricultural Development
IFDC	International Fertilizer Development Center
ILRI	International Livestock Research Institute
ISSER	Institute of Statistical, Social and Economic Research
LEISA	Low External Input and Sustainable Agriculture
LPIU	Livestock Planning and Information Unit
MDGs	Millennium Development Goals
MIS	Management Information Service
MoFA	Ministry of Food and Agriculture
MTADP	Medium Term Agriculture Development Programme
NGOs	Non-Governmental Organizations
PRSP	Poverty Rural Strategy Papers



SLF	<a href="http://www.udsspace.uds.edu.gh">www.udsspace.uds.edu.gh</a> Sustainable Livelihood Framework
SRID	Statistics Research and Information Department
UK	United Kingdom
UN	United Nations



## CHAPTER ONE

### INTRODUCTION

#### 1.0 Background to the Study

The Ghanaian economy is based largely on agriculture which accounts for 35 percent of the Gross Domestic Product (GDP), with a significant increase from 2008 to 2013 (ISSER 2015). About 60 percent of the labour force is engaged in this sector mostly operating either crop farming or a mixture of crop and livestock farming. Livestock and poultry contribute only 7 percent to the total GDP (FASDEP 2002), but their role in the rural livelihoods and food security is significant. The livestock sector contributes in direct products about 5.1 percent of agricultural GDP (GSS, 2011), excluding manure and draught power that is provided to the crop sector.

The livestock sub-sector is an important component of agriculture in Ghana. It is broadly defined to include ruminants (cattle, sheep and goats), non-ruminants (pigs), poultry (chicken, guinea fowl, ducks, turkey, ostrich,) and non-conventional species such as grasscutter, snail, rabbits, and guinea pigs, (MoFA, 2004). Animals that are kept on the farm are termed livestock (McNitt, 1983). According to Maalug and Tommie (2006), livestock generally consists of cattle, sheep and goats while Martin (2009) defined livestock to consist mainly of cattle, sheep, goats, poultry, swine, rabbits and grasscutters. In short, all domestic animals kept for food and other valuable purposes can be classified as livestock.

The livestock industry is an important and a survival enterprise for millions of people in tropical Africa (Awudu, 2005). Small scale livestock production is predominant in Northern Ghana but attracts minimum investment in housing, feeding and health care,



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although it plays a very dynamic role in the lives of both rural and urban dwellers. MoFA/DFID (2002) found that, the livestock/poultry industry serves as a ‘safety net’, providing an important source of ready cash for emergency needs. The major contribution of the livestock sector to the national economy is food security as it provides animal protein to enhance the nutritional status of the human population. It provides employment opportunities to a large part of the population particularly in the rural areas and offers prospects for wealth creation, income enhancement and improvement in rural livelihoods (Williams 2009). Manure from livestock is now an invaluable resource to crop and vegetable farmers for the maintenance of soil fertility and control of soil erosion. Most agricultural households operate livestock enterprises alongside crop enterprises. In such mixed farming systems, livestock provides manure to improve soil fertility and structure, nutrient cycling because it contains nitrogen, phosphorus and potassium (MoFA 2004).

MoFA (2004) again indicates that, animals also transform plant energy into useful work. Animal power is used for ploughing, transportation, and other activities such as milling, logging, marketing, and water lifting for irrigation. The continuous use of livestock as draft power could go a long way to save foreign exchange through reduced importation of tractors and equipment and also a decline in the use of petroleum products to power these machines (World Bank 1992).

There are other roles performed by livestock. These include: savings, credit and asset widening base, providing security, financing planned expenditure, building social capital, supplementation of food (meat, eggs, and milk). According to MoFA and DFID (2002), these types of livestock keepers are called poor multiple role livestock keepers who sell part of their stock when they have urgent need for cash to satisfy household obligations such as buying food and farm inputs, or drugs for a household





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member who is ill, hence, a “safety net” that enables households to get quick income to settle urgent financial needs. Keeping of livestock by poor households serves as cash buffer as well as cushioning shock against inflation and therefore provides income stability for the farm households (Kyomo, 1998). In Northern Ghana household income includes total remittance of (8%), crops (33%), livestock (37%) and other sources (22%) (Karbo and Bruce,2000).

Livestock production, particularly sheep, goats, and cattle is predominant in the three northern regions of Ghana (Upper East, Upper West and Northern). The three regions account for about 75% of all cattle produced in Ghana (Adzitey, 2013). Karbo and Bruce (2000) indicated that about 70% of the land in Northern Ghana is available for livestock production.

The importance of livestock to Ghanaians or the families in Bole including those outlined above can further be boosted by identifying great potentials and prospects for improvement and development. The rangelands provide the bulk of livestock feed in the northern Savannah Ecological Zone of Ghana (Oppong-Anane, 1998). Agro by-products and crop residues are also potential animal feed resource. Domestic livestock meat production is low as well as consumption. This situation still persists because in recent times the subsector’s contribution to GDP saw a decline in 2009 (MoFA, 2010). This may be due to the myriad of challenges limiting improvement of the livestock sector. The growth of the livestock sector has been impeded by several constraints such as lack of improved breeding stock, diseases and pests ( parasites), poor nutrition, inadequate stock water, poor marketing, lack of capital, high interest rates on loans, lack of grassland policy and inadequate extension services ( MoFA, 2002;). According to Oppong-Anane (1998) and AIS (1995), the rangelands which provide the bulk of livestock feed in the Northern Savannah Ecological Zone of



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Ghana are characterized by very rapid growth of grasses with feeding value only high in the early part of the wet season, declining rapidly thereafter and becoming extremely low in the dry season. Naturally grass is left to over grow and lignify, thus becoming low in nutritional value for animals. Together with huge quantities of crop residues, the grass is burnt and at a time animals have less feed options. Agro by-products and crop residues are animal feed resources, but a lot is still to be known about their chemistry. In most developing countries, access to land and other resources is constrained by cultural, traditional and sociological factors (LEISA, 2002) as it is in Ghana

The modest livestock resource base is also attributed to inadequate attention paid to the development of the sector (LPIU, 2009). The funding from the Government of Ghana (GoG), Development Partners, Non-Governmental Organizations (NGOs), the private sector and other stakeholders to the development of the livestock sector is considerably low in comparison to what goes into the crop sector (LPIU,2009). The undesirable pace of livestock growth and development in this country can be attributed mainly to ineffective, inefficient and inadequate policies coupled with ineffective and inefficient strategies for implementing policies (MoFA, 2004).

In spite of the great potentials of livestock production in northern Ghana, the industry is typically a smallholder farmer activity. It attracts minimum investment in housing, feeding and health. This situation may be due to lack of education, lack of financial support and also livestock production not considered as a serious business.

After several years of relative neglect, livestock in livelihood studies is now in the limelight, as the realization dawns that livestock is important for livelihoods and have significant potential for poverty alleviation, especially in areas where few other



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### **1.1 Problem Statement**

Livestock production is an aspect of agriculture that can be improved to reduce rural poverty in Ghana and in similar parts of the world. The growing demand for animal products in the West African region can be translated into opportunities for local producers to increase production. However, to take advantage of the current market opportunities it is necessary to first understand the range of factors that affect the livestock sector in the region (FAO, 2009).

In the Bole District, over 75% of the adult population is engaged in agriculture, farming crops and animal rearing, fishing along the Black Volta and agro processing (food processing). The livestock industry in the district remains undeveloped (Bole District Composite Budget, 2014). Total production and productivity remains low. According to MoFA (2009), total meat available for domestic consumption in Ghana as at 2008 (domestic production and imports) amounted to 189,784 metric tons, while FAO's recommended level for the whole population was 285,430 metric tons/year. This leaves a deficit of 95,646 metric tons. Pragmatic efforts are therefore needed to bridge this gap by increasing meat production and consumption. A study to identify

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the prospects and the challenges of livestock production in the district is therefore worthwhile to find solution to the demand and supply gap.

Several works have been carried out on the prospects and challenges of individual species of animals such as sheep, goats, cattle, pigs and poultry. But little has been done on the prospects and challenges of livestock as a whole particularly in Northern Region where Bole is located, hence the need for this study.

This study therefore employed location-specific assessment of the prospects of livestock production in the district, challenges of livestock production, measures to address the challenges and to assist in identifying how the prospects can be utilized while reducing the challenges to livestock production in the Bole District of the Northern Region of Ghana.

### **1.2 Research Questions**

In order to address the problem identified above, the following questions were formulated to guide the study.

1. What are the prospects for livestock production in the Bole District?
2. How can these prospects be utilized to develop the livestock industry?
3. What are the challenges of livestock production in the Bole district?
4. What measures are needed to help solve these challenges?

### **1.3 Main Objective of the Study**

The main objective of the study is to examine the prospects and challenges of livestock production in the Bole District of the Northern Region of Ghana with the view to providing recommendations for improvement of the industry in the district.



### **1.3.1 Specific Objectives;**

The specific objectives to guide the study are:

1. To assess the prospects of livestock production in the Bole District.
2. To examine effective ways of utilizing the prospects in the livestock industry.
3. To study the challenges of livestock production in the District.
4. To suggest measures to address the challenges to livestock production.

### **1.4 Justification**

This study will provide relevant information on the prospects, challenges and measures to address the challenges of livestock production in the Bole District. The results may be useful to farmers, livestock dealers and processors. Also, it will be useful to NGO's, the government of Ghana, donors and agencies involved in providing technical assistance in the planning of livestock development programmes for farmers, for increased production. This study intends to bring out concrete recommendations that would encourage people to invest more in livestock production in the district which will help increase production and as a result, farmers could raise more livestock to earn more income and reduce poverty. As more farmers are likely to go into livestock production, more meat, eggs and milk will be available in the market, which will contribute towards meeting the protein needs of the people and thereby improve nutrition in the district and Ghana as a whole. The resources obtained from rearing livestock will again motivate the youth to engage in livestock production instead of illegal mining which normally leads to a lot of environmental problems. All these would culminate in the improvement of the quality of life of the people. Finally,



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the study will add to the existing body of knowledge in the area of livestock agriculture and help transform livestock policy issues.

### **1.5 Working (Operational) Definitions of Terms**

**Access to credit:-** It refers to the available sources of loans to farmers and the ability of farmers to take such loans.

**Butcher:** This refers to an individual who engages in buying live or slaughtered animals from farmers or from other livestock dealers. They may move from farmer to farmer and buy livestock at the farm gate.

**Challenges of Livestock Production:-** This means anything that can directly or indirectly affect livestock production negatively.

**Contact with Extension and Veterinary Services:-** It refers to the linkage between farmers and extension as well as veterinary services and farmer's ability to receive services from these agencies.

**Kayaye:-** It refers to females largely teenagers who work as head porters in the streets of the major cities in Ghana.

**Livestock:-** This refers to cattle, sheep, goats, pigs, poultry ducks, grasscutters, ostriches and rabbits.

**Livestock production:-** This refers to a component of agricultural production that involves exclusively the rearing of livestock.

**Potentials for Livestock Production:-** This refers to the availability of any resource that can directly have effect in livestock production.eg. land, labour, water, feed,



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technology and skills. It also includes anything that can motivate or influence people to go into or to improve on livestock production.

**Veld Fire:** It refers to bush or wild fires that normally destroy range lands especially during the dry season.

### **1.6 Organisation of the Thesis**

The thesis is organised into five chapters. Chapter one introduces the research background, problem statement, the research questions, the objectives of the research, significance of the study and ends with operational definition of terms. Chapter two explores the pertinent conceptual and empirical literature on livestock production systems, small-scale livestock production, prospects of livestock production, benefits in livestock production, small-scale livestock production management, problems associated with livestock production among others. Chapter three consists of the methodology used for the research, sampling procedure, data sources, study instruments and analytical tools and techniques. Chapter four presents the study results and discussions of the research findings while Chapter five offers the summary, the conclusion and the recommendations based on the findings of the research.



## CHAPTER TWO

### LITERATURE REVIEW

#### 2.0 Introduction

The livestock industry faces the challenge of sustaining livestock productivity in order to improve rural livelihoods in the developing countries. Current understanding of livestock productivity is incomplete and, hence, the need to update existing knowledge. There is therefore the need to review existing information to help make proper analysis and conclusions of new findings.

#### 2.1. Livestock Production Systems

Across the world, livestock production is undertaken in a multitude of ways and provides a large variety of goods and services. At the same time while using different animal species and different types of resources within a wide spectrum of agro-ecological and socioeconomic conditions within this wide variety of ways in which livestock production is undertaken, there are certain patterns that have been categorised into various livestock production systems. Most frequently, these systems have been defined on the basis of land use for livestock and for this purpose, the distribution between grazing systems, mixed farming and industrialized (or landless) systems, have been widely accepted (Gill, 1999).

For decision-makers to address the livestock-related food safety challenges in global markets, it is useful to conceive livestock production systems as the building blocks of the livestock sector. Livestock production is undergoing rapid change, and this change is manifesting itself in the growing contribution that livestock is making to satisfy the increasing global demands for high-value food products, or high protein sources, and





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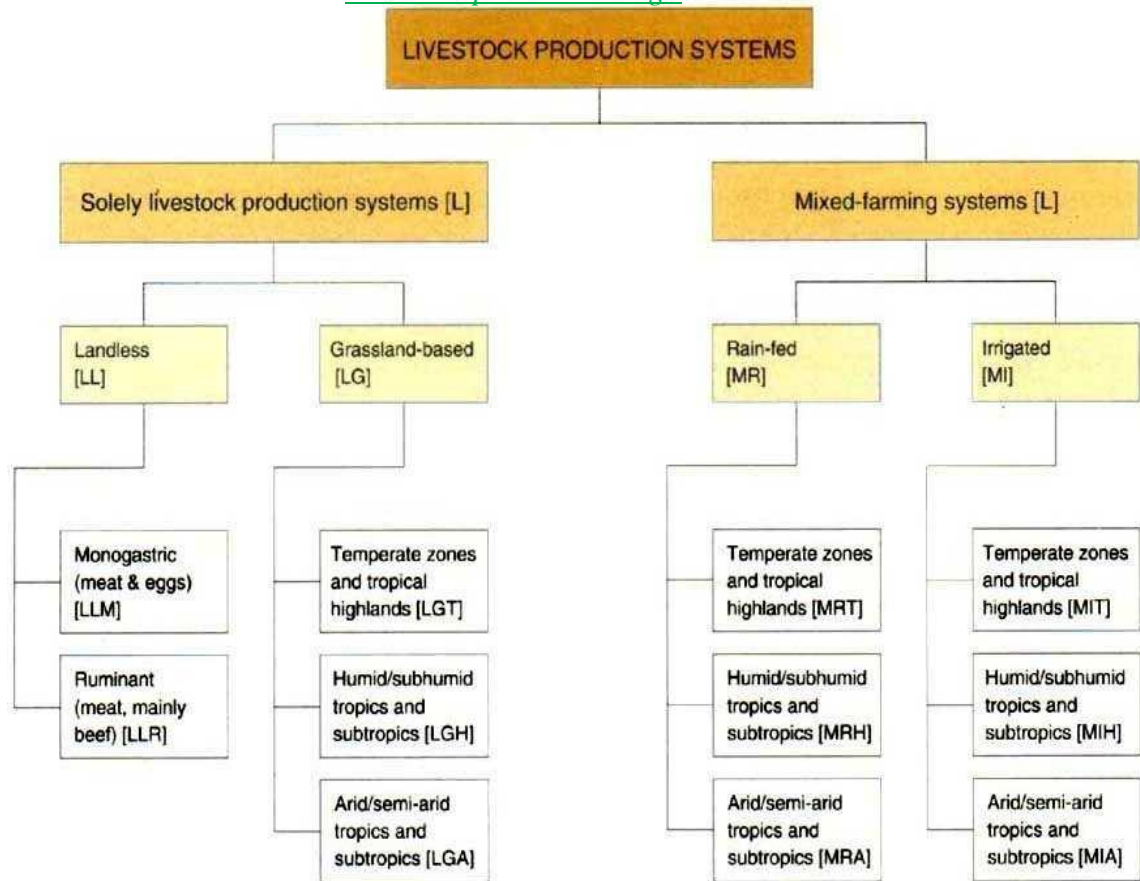
in the continuous adjustments at the level of resource-use intensity, size of operations, product orientation and marketing channels (Steinfeld *et al.*, 2006).

Gill (1999) described livestock production systems as follows:

- Grazing system: Livestock systems with a stocking rate of less than 10 livestock units per hectare and more than 10% of feed produced on the farm (animals obtain 90% or more of their feed from pasture).
- Mixed farming systems: More than 10% of feed crop residues and by-products is produced on the farm and more than 10% of the total value of production is derived from livestock farming activities.
- Industrial systems: Less than 10% of feed is produced from farm and annual stocking rate of greater than 10 livestock units per hectare of agricultural land.
- Pastoral system:- which involve the complete rearing of animals in a sedentary manner (at one point) and
- The nomadic system:- which involve the movement of livestock from one place to the other in search of feed (grasses).



Figure 2.2 depicts the different livestock production systems described by Steinfeld and Maki-Hokkonen, (1995). Mixed farming is considered to be the largest animal production system in the world (Lungu, 2002). The majority of ruminants are kept in mixed systems in the developing world with crop residues and by-products constituting an important part of ruminant diets (Gill, 1999).



**Figure 2.1: Livestock Production System**

Source: Steinfeld and Maki-Hokkonen, 1995

As regards ruminants, mixed systems are most important in Asia and Africa, with grazing systems being the most important in Latin America. However, as regards pigs and poultry, industrial systems predominate in Asia. Slightly less than half of the world's usable surface is covered by grazing systems which support 360 million sheep and 600 million goats. Grazing systems in the developing countries vary from the productive pastures of South America to the deserts in the arid regions of Africa and Asia. Livestock represents an extremely significant source of income for mixed crop-livestock farmers in many countries of the world (Makhura, 2001).



## 2.2. Small-Scale Livestock Production

There is no internationally agreed definition of small-scale livestock production. The term “small-scale livestock production” is often used interchangeably with smallholder, subsistence and family farming, or with resource poor, low income, low external input, low output or low-technology livestock keeping. Small-scale livestock keepers constitute approximately 85% of all livestock farms globally. Generic definitions for smallholders have been used, for example, dairy farmers with fewer than six milking animals, and/or less than 3 ha of land; pastoralists with fewer than 30 small ruminants or fewer than 200 poultry FAO (2009a).

Smallholder livestock keepers are characterised by the following:

They tend to operate with limited resources relative to other producers in the sector,

They have low levels of formal education and training and they keep their animals on communal, rather than private land or they may be landless.

Small-scale livestock keepers usually operate their farms as family enterprise, either subsistence production or a mix of subsistence and commercial production. The family is the major source of labour, and livestock production is often the main source of income.

They have limited access to inputs, markets, services and credit, most of their market interaction takes place in informal local markets, for which they produce local or traditional products.

They routinely face high transaction costs in respect of securing quality inputs and gaining market recognition for quality outputs (FAO, 2009a).



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Small-scale livestock keepers tend not to purchase production inputs and the majority of these inputs come from the farm itself or from local environment such as grazing land which is part of a closed nutrient cycle. These smallholder livestock keepers operate at the lower end of the production curve, where small additional inputs lead to substantial increases in productivity (FAO, 2009a).

### **2.3 Small-Scale Livestock Production in Developing Countries**

Rangelands comprise the largest land use system on earth and predominate in the arid and semi-arid areas of the world, where the majority of the poor and the vulnerable are found. Most of the world's cattle and small ruminants are found in the developing world although the distribution between countries and regions varies according to cultural, climatic and economic conditions (Gill, 1999).

As the economic level of a given population improves, so does the consumption of foods from animal source increase. Growing populations and incomes, together with food preferences, are resulting in a rapid increase in the demand for livestock products, while globalisation is boosting trade in livestock inputs and products. The global production of meat is projected to more than double from 229 million tons in 1990/2001 to 465 million tonnes in 2050, and that of milk to grow from 580 to 1043 million tons (Steinfeld *et al.*, 2006). Worldwide, the demand for livestock products is soaring because of changing food preferences, and, as already mentioned, income and population growth. This trend, which is being facilitated by the global trade in livestock inputs and livestock products, has resulted in livestock production becoming the fastest growing subsector of agriculture in many of the developing and transition countries (FAO, 2009b).



## 2.4 Drivers of Demand for Animal Production

There are several resources produced by animals that influence people to go in for animal production such as; meat, milk, income, draught power, transportation and manure.

### 2.4.1 Income to Livestock Farmers

Most households in developing countries rely heavily on income from a number of sources, including crop production, gardening, livestock production and wages. Draught, transport, meat and milk are the most significant income sources derived from livestock (Campbell *et al.*, 2002). Income from livestock sales is an important component of household income in many parts of Southern Africa, contributing over 25% of the total incomes in all the food security categories (Freeman *et al.*, 2008). The individual consumption of livestock products is closely related to per capita income. In other words, increased incomes result in people typically increasing their consumption of meat, milk and eggs until these products become fully integrated into their daily diet. The per capita consumption of meat in high income countries ranges between 80 to 130 kg per year. The economies of the developing countries achieved an annual growth of 3.8% (1.8% per capita) from 1991 to 2001, up from 2.9% during the ten preceding years. However, developing countries in East Asia have experienced extremely strong economic growth, with an annual rate of 7.4% (6.2% per capita) over the decade between 1991 and 2001, with the Republic of China leading as the world's fastest growing economy. South Asia and the near East follow, with gross domestic product growth rates of 5.5% and 4.4 % respectively over the same period. Economic expansion has been more modest in Latin America, at 2.9% annually, and, in Sub- Saharan Africa, at 2.6% ( Steinfeld *et al.*,2006).



### 2.4.2 Population Growth

In addition to higher incomes, increases in human populations contribute to the demand for animal-source food products. Each year the population in developing countries grows by 72 million, thus increasing the demand for food products (Steinfeld *et al.*, 2006). This offers an opportunity for livestock producers in developing countries to take advantage of. It is also an opportunity for the livestock producers in the study area since the high rate of population growth creates a large market for high demand (Bole District Profile, 2012)

**Table 2.1: Overview of Diet changes of People in the various Regions of the World.**

Region	Total Protein from Livestock (grams/capita)		Total Protein worldwide (in grams/capita)	
	1980	2002	1980	2002
	<b>Sub-Saharan Africa</b>	<b>10.4</b>	<b>9.3</b>	<b>53.9</b>
Near East	18.2	18.1	76.3	80.5
Latin America	27.5	34.1	69.8	77.0
Developing Asia	7.0	16.2	53.4	68.9
Industrialised countries	50.8	56.1	95.8	106.4
World	20.0	24.3	66.9	75.3

Source: Steinfeld *et al.*, 2006

It is estimated that, by 2015 approximately 45% of the world's total population will be living in the cities and large towns of the developing countries. This growing urbanisation will further amplify the growth in demand for livestock products, as urban populations generally have higher incomes than rural people. Total livestock





[www.udsspace.uds.edu.gh](http://www.udsspace.uds.edu.gh) production in sub-Saharan Africa will have to grow at an average rate of 4.2% per year in order to meet this growing demand for animal protein in the developing countries and provide an opportunity for the poor to improve their livelihoods. Within this context, sustainable increases in livestock production would, therefore, be desirable if the demands of the human population are to be met and, hence, the important role of livestock in smallholder farming systems (Swanepoel and Stroebel, 2009).

#### **2.4.3 Manure**

Farmers in Northern Ghana practice mixed farming system due to the benefits they derived from it. They get manure from their livestock in which they use to fertilize their farms for crop production. Hence livestock production becoming important due to the benefits they derived from manure as a source of nutrients for plants ( MoFA, 2004).

#### **2.5 Small-Scale Livestock Sector in Ghana**

There are two livestock production systems in Ghana, first, the mixed farming system which is more prevalent among small holder farmers and the pure livestock farming system, geared towards beef production, predominates in the three northern regions (ADF, 2001). Mixed farming system is the most dominant in Ghana. A few farmers practice the commercial farming system, which involves housing animals and feeding them with prepared feeds, and it is usually practiced in peri-urban areas. Herd and flock sizes are generally small. Cattle herds, vary in size under mixed farming system to commercial system. Cattle production is based on extensive grazing with open access to crop residue grazing after harvesting, while small ruminants are often left to roam. Pigs are usually confined and fed with prepared feed (ADF, 2001).

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The livestock sub-sector is dominated by small scale operators who are mainly crop farmers keeping livestock to supplement their incomes and/or for security purposes. There are few well-organized commercial poultry and pig operations (MoFA 2010). Livestock population statistics are generally poor in Ghana as there has been no livestock census for several decades. Research showed that the total domestic meat production increased from about 77,235 metric tons in 2003 to 101,895 metric tons in 2008, that is about 32% increase over the period. Poultry contributed the greatest proportion of total domestic meat production followed by beef (MoFA, 2009). Livestock population is concentrated in the Guinea and Sudan Savannah vegetation zones of the 3 northern regions. The remaining transitional and humid forest zones are sparsely populated with cattle because of the prevalence of tsetse flies that transmit a killer disease, trypanosomiasis. Small ruminants and poultry are more evenly distributed throughout the country, while Northern region and Upper West region have about 40% of Ghana's pigs; Southern Ghana has more of the intensively housed pig population. Domestic production of livestock has increased slowly but steadily over the last decade. Between 1991 and 2000 production levels increased by 13% for cattle, 26% for sheep, 35% for goats and 21% for pigs (MoFA, 2004). The same study further states that off take for cattle is about 11% while for sheep and goats it is about 30%. This compares favourably with 8% and 25%, respectively for cattle and sheep in purely pastoral systems of livestock production in Sub-Saharan Africa. In the year 2000, Ghana produced 20,000 tons of beef, 6,000 tons of goat meat, 7,000 tons of mutton, 9,000 tons of pork and 27,000 tons of milk. Animal skins and hides are processed in the country for the domestic and export markets. It is estimated that 2,000 tons of cattle hides and 1,000 tons each of goat and sheep skins are produced annually (MoFA 2004).





Available statistics on [www.udsspace.uds.edu.gh](http://www.udsspace.uds.edu.gh) livestock imports (Table 2.2a) which cover dressed or processed livestock, dairy products and live animals for slaughter, estimated that a high percentage of cattle slaughtered annually are imported from the northern Sahelian Countries of the West African sub-region, with the exception of poultry domestic production far outweighed total meat imports into the country during the period. Total poultry imports in 2003 (Table 2.2a), were 32,939 Metric tons. It increased to 87,889 metric tons in 2008 while in Table 2.2b domestic poultry (chicken) imports stood at 21,116 and 32, 249 metric tons respectively in 2003 and 2008 (MoFA 2009)

**Table 2.2a: Domestic Meat Production in Ghana: 2003-2008 (Metric Tons)**

	2003	2004	2005	2006	2007	2008
Cattle	1,112	2,587	6,332	10,586	162,50	13,135
Sheep	2,122	2,053	3,640	4,839	6,887	5,961
Goats	-	-	-	-	-	-
Pigs	9,882	7,756	10,287	13,291	10,552	5,487
Poultry	32,939	39,089	40,591	44,758	63,276	87,889
Total	46,055	51,485	60,850	73,474	96,965	112,472

Source: MoFA (2009)



**Table 2.2b: Meat imports into Ghana (metric tons) 2003-2008**

Livestock/year	2003	2004	2005	2006	2007	2008	%by type
Cattle	18,486	18,686	18,874	19,140	19,346	19,553	21.7
Sheep	13,568	14,004	14,450	14,913	15,390	15,831	16.7
Goats	13,884	15,308	15,300	15,588	16,364	17,180	17.8
Pigs	10,181	9,979	9,744	16,027	16,498	17,002	15.1
Poultry	21,116	22,982	22,709	27,224	29,630	32,249	29.6
Total	77,235	80,959	76,582	92,893	97,229	101,895	100.0

Source: MoFA (2009)

## **2.6. Livestock Development Policies and Strategies in Ghana**

The agriculture sector is a key to overall economic growth and development of Ghana. In the national development agenda, agriculture is expected to lead the growth and structural transformation of the economy and maximize the benefits of accelerated growth. Significant improvements in the productivity of the agriculture sector are required to raise the average real incomes of Ghanaians as a whole. The food and agriculture sector also has direct impact on the attainment of at least five of the Millennium Development Goals (MDGs). That is, eradication of poverty and hunger, achieving universal primary education, promotion of gender equity and women empowerment, reduce child mortality and ensuring environmental sustainability with livestock.

The Ministry of Food and Agriculture (MoFA) is the lead agency responsible for the agricultural sector within the context of a coordinated Government Programme. To carry out its function, plans and programmes are coordinated through policy and strategy frameworks. In this regard, MoFA facilitated the preparation of the Food and



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Agriculture Sector Development Policy (FASDEP II) and the Medium Term Agriculture Sector Investment Plan (METASIP), 2011-2015. The FASDEP II states the long term policy objectives of government in relation to the development of the agriculture sector aimed at ensuring that the sector's stakeholders are best positioned to take advantage of the emerging opportunities.

The METASIP is the investment plan to implement the medium term (2011-2015) programmes of the policy. It has been developed to achieve a target agricultural GDP growth of at least 6% annually, halving poverty by 2015 in consonance with MDG 1 and based on government expenditure allocation of at least 10% within the Plan period (2011–2015). The METASIP is consistent with the ECOWAS Agriculture Policy and NEPAD's Comprehensive Africa Agriculture Development Programme (ECOWAP/CAADP) which provide an integrated framework to support agricultural growth, rural development and food security in the African region (MoFA, 2010).

After independence, many agricultural projects have been initiated with explicit roles of livestock for economic development by various governments. Many of the financial support for livestock projects have been provided through annual national budgets. This is exemplified by activities designed as part of the Medium Term Agriculture Development Programme (MTADP, 1999) or (MTADP, 2000) and the Accelerated Agricultural Development and Growth Strategy (AADGS, 2001 – 2007). A few Non-governmental Organizations (NGOs) have also initiated projects since the late 1990's to support rural livelihood through livestock keeping. The projects initiated by the Non-governmental Organisations (NGOs) covered vaccinations of rural chicken, supply of livestock as starter stock for farmers, in-service training for veterinary staff and livestock keepers (MoFA 2002).



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The vision for livestock development in Ghana as stated by MoFA (2004) is; “A well developed, modernized, efficient and profitable livestock industry capable of responding to all the livestock needs of the nation in a sustainable manner and in consonance with supporting livelihoods to ensure poverty reduction and national economic growth” The broad goals of the policy include;

- To increase the supply of meat, animal and dairy products from the current aggregate domestic production level of 30% to 80% by 2015.
- To contribute to the reduction of the incidence of poverty among food farmers who are livestock keepers from 59% to 30% by 2015.

The specific goals for major livestock population by 2015 was outlined by MoFA (2004) as; To increase the population of cattle from 1.3 million heads to 3.2 million, sheep from 2.9 million heads to 14.8 million, goats from 3.4 million heads to 36.1 million, pigs from 310,000 heads to 5.1 million and poultry from 24.3 million to 89.2 million.

## **2.7 Constraints of Small-scale Livestock Production**

An extensive research conducted highlighted the constraints encountered by smallholder livestock farmers. These constraints are summarized below:

### **2.7.1 Inadequate Quantities and Quality of Livestock Feed and Nutrition**

The quantity and quality of feeds may be regarded as the first limiting constraint to livestock productivity in developing countries. In most areas in Ghana especially in the northern parts, quantity and quality of range grasses decline during the dry season to a point that livestock subsisting solely on range grasses are unable to maintain their body or weight ( Annor and Adongo, 1992). Under-nutrition of livestock limits the



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yields of meat and milk to a fraction of the genetic potential and increases the animals' susceptibility to diseases and parasites (Abakar *et al.*, 2002). Cattle, sheep and goats are in the tropical Africa and they depend heavily on browse species to meet their dietary requirement (FAO, 2006). Monogastrics are particularly sensitive to nutrient quality and balance, especially under intensive confinement production systems. The significant increase in monogastric meat production projected in the Livestock Revolution will depend on balanced concentrates of rations of starchy staples, proteins and, essentially, micronutrients. These ingredients are, in essence, the same as those required by humans, so there is potential competition, especially for coarse grains, with human consumers. Thus, women in the Northern and Upper East Regions make extra income from collecting and selling crop residues as fodder to livestock keepers and traders (MoFA, 2009).

With ruminants, the major constraints arise from seasonal shortages and poor digestibility of fibrous feeds, including forages and crop residues. Many tropical plants have evolved phytochemical and structural protection against pests and predators, including wild and domesticated herbivores. These anti-nutritional factors include toxins and indigestible structural materials. There has been considerable research conducted in the tropics into supply and utilisation of non-conventional feed. Nevertheless, adoption by smallholders of the resultant technologies has been limited. The reasons for this non-adoption include lack of a holistic approach linking the farmers' circumstances with alternative solutions, the lack of systematic research effort in seeking alternatives and inadequate knowledge of the physiological response of animals to seasonal fluctuations in feed supply (ILRI, 2000).



### 2.7.2 Stock Theft

Khoabane and Black (2009) reported that, livestock theft is a contributory factor to poverty. Livestock theft is mainly attributable to the increased poverty of both the unemployed and drought stricken crop farmers. It reduces the affected households' own consumption of the returns on their wealth, and, in addition, restricts the ability of households to sell their animals and use the proceeds to acquire food and non-food products. Stock theft results in subsistence farmers losing their immediate source of livelihood (Reist *et al.*, 2007). Gong (2005) and Nuhu (2004) reported that livestock theft was one of the most problems women faced in the West Gonja and the Saboba – Cheriponi Districts respectively. They attributed this to the extensive system of rearing their animals where animals are left to roam about throughout the night coupled with the illegal small scale mining operations in the district. Gong (2005), again noted that livestock theft is one of the factors that discourages women from livestock production.

### 2.7.3 Access to Water

Amede *et al.* (2009) are of the view that the threat of water scarcity in sub-Saharan Africa is very real and is a result of expanding agricultural needs, climate variability and inappropriate land use. Besides the economic benefits, increasing livestock production may also deplete the water resources and aggravate the water scarcity at both local and global levels. Insufficient understanding of livestock-water interactions tends to lead to low productivity, impede sound decisions on resource management and also undermine the realization of positive returns on agricultural water across sub-Saharan Africa.

Animals use a large amount of water to carry out their daily metabolic activities. The amount of water in animal's feed affects the amount needed by the body (Payne,



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1990). Water requirements of animals are very important because about one-tenth of the water loss from the body could cause serious disability and deaths (Karbo *et al.*, 2005), and that pregnant and lactating animals need more water to balance their body fluid and also to help produce more milk to feed their offspring.

Innovative methods are necessary in order to improve water productivity and reverse the growing trends of water scarcity, which are a cause for concern.

#### **2.7.4 Veld (bush) Fires**

Mengistu (2008) in Ethiopia, reports that, fires are started deliberately by local people for reasons like removing dry grass and initiating new flushes of grass, eradicating ticks, tsetse flies and other insects or pests harmful to livestock, clearing agricultural land and harvesting forest honey. However, this practice leads to negative impacts on the local environment, including degradation of the forest vegetation, reduction in the population of wild animals, loss of farm properties such as houses and perennial crops and a critical shortage of cattle feed until the first season of rain.

Veld fires contribute to a significant proportion of land degradation and emission of greenhouse gases to the atmosphere. Furthermore, fire destroys the resources needed for immediate use during the dry season (Nkomo and Sussi, 2009). In Ghana bush fires are rampant during the dry season especially when harmmatan sets in. These wild fires normally burn grasses and pasture plants exposing livestock to feed scarcity especially in Northern Ghana.

#### **2.7.5 Poisonous Plants**

Merill and Schuster (1978) reported that death losses from poisonous plants are caused by overgrazing. The presence of a poisonous species in a plant complex will generally not cause livestock poisoning until the relative palatability of the poisonous



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species or some other factor causes it to be consumed by the animals. Poisonous plants are classified into the following three categories, according to their palatability and toxicity relationship:

- those that are relatively palatable and comprise an important portion of the forage consumed, but cause poisoning during certain growth periods or forage conditions only
- those that are relatively palatable and poisonous at all times
- those that are relatively unpalatable and poisonous at all times.

Various poisons may be identified such as, prussic acid (galsiekte), nitrate, urea, lead and copper.

#### **2.7.6 Animal Diseases**

Animal diseases constitute one of the principal constraints to smallholder livestock production in the developing world. High incidences of diseases may dramatically reduce appetite and metabolism of body reserves, loss of weight, reduce growth rate and reduce productivity. These can lead to delay in maturity, hence postponing the sale of finished livestock (Tyler, 1990). The risk of disease further restricts investment and intensification in livestock production. Smallholder livestock keepers fail to manage livestock diseases effectively either because existing, disease control technologies are not appropriately designed or have not been made available or because the appropriate technologies are yet to be developed. Epidemic and endemic diseases continue to represent major constraints to livestock productivity in large parts of the developing world in tropical regions (Tyler, 1990).





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Diseases and pests are the main causes of deaths in livestock ( Abebrese, 2003). Several factors affect the health of animals which could be due to management and weather (Adzowu-Tsri, 2005). He added that topical breeds are said to be hardy and resistant but poor management affects their performance. According to Fordjour *et.al* (2006), adult animals should be treated for worms at the end of the raining season and just before the beginning of the rains. Apiiga (2002) stated that ethno veterinary is a traditional way in which farmers have developed to keep their animals healthy and productive at low cost. FAO (2002) reported that animal diseases constitute the major constraint to income generation and asset acquisition by the poor, as poor people have limited cash resources with which to pay for animal health.

Diseases that limit the productivity of small ruminants in Africa, especially Ghana include pneumonia, coccidiosis, contagious caprine pleura pneumonia, brucellosis among others. Individually, these diseases might not constitute serious problems, but combinations of them or their occurrence under marginal conditions could result in serious losses (Kumah, 2006).

### **2.7.7 Livestock Policy**

Too often policies and regulations actually discourage the development of sustainable livestock production systems and practices that benefit the poor. Subsidies and price controls imposed on input and output markets may favour large scale or developed country producers at the expense of smallholders in the developing countries and also urban consumers at the expense of rural livestock producers. Inadequate or inappropriate property rights and environment policies are disincentives that work against protecting the natural resource base supporting animal agriculture and, in addition, they may fail to take adequate account of the societal costs of environmental degradation. Dearth of policies and institutions that reduce risk, improve market



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access, provide credit, and encourage part investment in livestock services (feeds, health, and breeding) and support livestock research and extension deters sustainable livestock development (ILRI, 2000).

Despite the fact that livestock may make a significant contribution to alleviating poverty, livestock continues to receive scanty attention in respect of most rural strategies as exposed in the Poverty Rural Strategy Papers (PRSP). Governments do promote livestock production by promoting subsidies for the expansion of infrastructure and services. However, these measures are directed at commercial farmers only, while ignoring the plight of the poor livestock keepers in rural areas. In Ghana the livestock sector is suffering from governments neglect making the industry not attractive to many farmers.

### **2.7.8 Effects of Livestock on the Environment**

Global demand for food is expected to increase as a result of population growth (FAO, 2009). To meet this demand, the worldwide production of meat and milk is projected to have more than doubled. Unfortunately, animal production especially ruminants production comes with significant environmental cost both locally and globally (Adu, 2011). While local environmental impact is mainly associated with intensive operations that contaminate the air, land or water with nitrogenous and phosphorus compounds, the global effect is predominantly due to the contribution of both intensive and extensive systems to the emissions of greenhouse gases (Newbold *et. al.*, 2010). They again stated that the greenhouse gas (GHG) emissions from animal agriculture in developing nations such as Ghana are lower than in more developed nations owing to relatively small livestock numbers. Ruminant production systems dominate the emission of CH<sub>4</sub> from rumen fermentation, while pig droppings



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release N<sub>2</sub>O. However, as ruminant systems become more intensive, the balance of environmental impact also shifts from methane towards N<sub>2</sub>O (Newbold *et. al.*, 2010)

Increased demand for livestock products means increased pressure on the natural resources supporting livestock production, population pressure and both human and livestock needs will bring about increased competition for land use, thus resulting in pollution, erosion, degradation and the loss of plant and animal biodiversity. In the more extensive systems of grazing and mixed livestock, the competition for resources affects the crop-livestock land use choices of smallholders and increases the pressure to convert forested lands to pasture and crops (ILRI, 2000).

### **2.7.9 Global Environment**

Increasing demand for animal products in the developing countries will continue to grow in the coming years. However, as regards the conditions of international trade, global markets are not usually accessible to smallholders in developing and transition countries. The export of both animals and animal products is greatly limited by sanitary restrictions, tariffs, and non-tariff constraints on trade and, thus, smallholders are not able to compete in the international arena (MoFA, 2004). In cases of disease outbreaks, governments usually instruct all livestock farmers to kill all the animals affected without compensation. This is an unfortunate situation for smallholder livestock farmers who do not usually have insurance against such losses.

Environmental impacts, for example, the much debated global warming, leads to extreme weather events which have a major impact on poor populations, for example, desertification and water shortages are increasing in both subtropical and tropical regions (MoFA, 2004). Shortages of water and fodder render livestock production



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difficult and more expensive, and especially so for the poor livestock keepers, who are rarely able to afford to buy fodder and water.

### **2.7.10 Access to Market Information**

Once a livestock farmer has decided to earn income from livestock rather than merely produce for home consumption, the issues of market access and market conditions arise. In view of the fact that most animal products spoil rapidly and smallholders, in particular, are not in a position to expose these products to risk, they become dependent on reliable transportation, pricing and demand information.

There are a large number of informal butchers in rural areas whose activities are hardly supervised by veterinary and health inspection personnel, thus creating public health risk for their meat (Ghana Livestock Review, 2010). Additionally, there are no modern abattoirs in most parts of the country, and the existing slaughter houses lack appropriate facilities and have poor sanitation conditions. The country has few modern abattoirs located at Tema, Tamale and Kumasi (Ghana Livestock Review, 2010).

Livestock processing that occurs in the North stays within the local market, and all processing of livestock for Southern market is done in the South (AfDB, 2001). This is inefficient. Live animals are more costly to transport than meat and the animals lose condition and weight during the journey reducing their carcass weight and hence economic value. Value addition in the trade between farm gate (field purchases) and local markets (sales centre) in the North is very low compared to trade between northern and southern markets (and within the southern markets). A very small percentage of animals are fattened before sale missing out on a major opportunity to add value. Transport costs account for the majority of the difference in farm gate and



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local market prices in the north. In contrast, there is a large mark-up in sales prices for consumers in southern cities, where the price differential is not transmitted upstream to actors in northern market.

### **2.7.11 Extension and Veterinary Services**

The extension and veterinary services in many countries, especially in the developing countries, have been severely affected by public sector budgetary constraints, leaving many workers with their salaries paid but without the necessary funds to visit farmers (MoFA, 2008).

Veterinary services are no longer subsidized and smallholder farmers are unwilling to pay their fees. As a result of low patronage, vets are concentrating their activities on commercial farmers and modern poultry farms, which are willing to pay their fees but constitute only a small fraction of livestock producers in the North. The North also has a large number of para-vets trained at the veterinary college at Pong-Tamale. Some of these have set up business operations in the three Northern Regions and are providing services to emergent farmers on a fee paying basis but a large number remain unemployed. MoFA and NGOs have also trained Community Livestock Workers (CLWs), who are farmers that provide more basic para-veterinary services to other farmers at a low cost. Veterinary services, however, are not well utilized by cattle and small ruminant owners and mortality rates increased in the late 2000s (MoFA, 2008).

### **2.7.12 Drought**

United Nations (2007) stated that drought is at the core of the serious challenges and threats facing sustainable development in Africa. It further indicated that drought has far-reaching, adverse impacts on human health, food security, economic activity,





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physical infrastructure, natural resources and the environment, and national and global security. Seasonal or annual droughts spells, which are common in arid and semi-arid zones, may have serious impacts on natural rangelands and, consequently, on livestock. With decreased rangeland resources, livestock then becomes more vulnerable to disease (Wardeh, 1999).

According to Wardeh (1999), the main effects of drought on livestock include:

- A decrease in the natural feed resource base. During a drought year, animals suffer a lower rate of conception because of a tardy and incomplete return to the peak body weight during rains, and also higher rates of miscarriage and stillbirth in the subsequent period of pregnancy and calving because of the high level of stress experienced by the animals as the dry season proceeds. Accordingly, drought in one year will lead to lower calving rates in the following year. This is further aggravated by high mortality rates among the young stock.
- Milk production decreases as a result of the limited access of the female animals to the natural feed resource base and, below a certain level of intake, lactation ceases completely. This decline in milk affects both the nutritional status and consumption level of households that rely on milk from their animals to meet part of their requirements.
- Animal live weight decreases as grazing becomes scarce, thus reducing the value of the livestock as meat animals. This loss of weight also directly affects the use of animals for transport and power.

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- Mortality rate increases with the decrease in live weight and increased susceptibility to diseases. Within any particular species, very young, old stock and pregnant females are the most vulnerable.
- Sales from herds rise sharply as livestock keepers seek to salvage some value from their animals before they die and to obtain the necessary funds to buy food for their households.
- Drought affects herd-owners differently, depending on the level of their livestock wealth and their access to other resources. In general, large livestock owners suffer proportionately fewer losses than small livestock owners (ILRI, 1985).

### 2.7.13 Land Ownership

Equality of access to grazing land and water is a basic prerequisite for keeping grazing animals such as sheep, goats, cattle and camels. The control of grazing land and grazing rights, however, is frequently not in the hands of poor livestock keepers, families or villages, but in the custody of wealthy farmers, tribal chiefs, urban residents, or the government. Accordingly, poor, landless farmers are forced to graze their animals on marginal land (roadsides, remote grazing land) (Reist *et al.*, 2007). In other parts of Africa the loss of rights and access to resources is an important factor affecting smallholder livestock keepers (Gura, 2008)

In developing countries, especially Asia and Africa, most pastures are used as common property and this further complicates attempts to intensify production (Steinfeld *et al.*, 2006). In addition, there are no rules or institutions to govern the allocation or management of natural resources.



## 2.8 Benefits of Livestock Production

Livestock keeping is critical for many of the poor in the developing world, often contributing to multiple livelihood objectives and offering a way out of poverty (Stroebel *et.al.*, 2010). In addition, in smallholder systems, the benefits from livestock are derived from products or activities usually not sold on the market. Various researchers have referred to these benefits as; *inter alia*, non-market functions, intangible goods and Z-goods; These reasons include, producing food, generating income, providing manure, producing power, serving as financial instruments and enhancing social status (FAO, 2009b). It is important to take these non-market values into account when comparing the value of different livestock production systems within the livestock sector because, otherwise, the value of smallholder livestock production and local breeds will remain under represented.

Researchers, including Van Rooyen (2008), Pell *et al.* (2010), and Vandamme *et al.* (2010), support the concept that livestock production fulfils a multipurpose role in developing environments. From an economic perspective, livestock contributes to food supply, cash income, traction and fertilizer. Furthermore, livestock constitutes a valuable asset portfolio and investment opportunity while, from a social perspective, livestock builds relationships, addresses gender imbalances and allows the distribution of benefits. The natural environment becomes increasingly relevant, as livestock owners are expected to fulfil an important stewardship role in sensible resource utilisation.

Randolph *et al.* (2007) highlighted the fact that the livestock systems of the poor reflect the resource constraints which they face – financial access to information and services and landlessness – as well as their diverse reasons for keeping livestock. The benefits of livestock production to households could be discussed as: providing food





and nutritional security, [www.udsspace.uds.edu.gh](http://www.udsspace.uds.edu.gh), serving as financial instruments, generating income, providing manure and enhancing social status.

### **2.8.1 Providing Food and Nutritional Security**

The livestock kept by the poor produces a regular supply of nutrient-rich animal source food that provides both a critical supplement and diversity to staple, plant based diets ( Ndlovu, 2010). These animal source foods are obtainable only when animals became sick or unproductive or for exceptional occasions such as ceremonies or hospitality. ILRI (2003, cited in MoFA, 2004) reported that animal food products, such as meat and milk, are concentrated sources of high quality proteins as well as certain vitamins and minerals which when children consume even modest amounts of these products help alleviate poor growth, poor mental development and general ill-health.

### **2.8.2 Serving as Financial Instruments**

Livestock offers an alternative for either savings or accumulated capital in the form of a “living savings account”. Although not without risk, this “living savings account” provides a reasonably robust hedge against inflation (Swanepoel and Moyo, 2010). Accordingly, livestock keeping is considered as an alternative form of insurance, providing the family with assets that may be sold in times of crisis. Reist *et al.* (2007) reported that poor rural livestock keepers refer to their livestock as a ‘bank account on legs that pays interest in the form of products such as milk, meat, dung, wool, leather and draught power’. The growing demand for animal products represents an opportunity for poor farmers to increase their bank accounts and earn more interest.



### 2.8.3 Generating Income

Freeman *et al.* (2008) reported that livestock is kept mainly as a “safety net”, and sold during times of hardships. In addition, livestock plays an important role in managing risks (McDermott *et al.*, 2010). Many households reported that they often sold livestock to meet emergency cash needs. The income from livestock sales is an important component of household income, making a greater contribution to the income of lower income farmers as compared to higher income farmers (Gill, 1999). Animal traction services become additional income for farmers (Kumwenda, 1999). Also, small ruminants industry provides employment and income for many people; it enhances farmers’ income and improves their livelihood (Avoka, 2007). Furthermore, income diversification is found to contribute greatly to food security thus, household that have diversified source of income are better off than those who do not have (Yarig, 2004). Finally, animals provide strategic source of cash which can be called on as required to purchase other essential farm inputs and food during critical periods of the year. Hence help to alleviate household poverty and food security (Yidana *et al.*, 2006)

### 2.8.4 Providing Manure

In Africa in particular, but also in Asia and some countries in Latin America, livestock also makes a major contribution to food production, through increasing crop yields (Pell *et al.*, 2010) where the actual increase in crop yield due to manure is highly variable, dependent on the basic nutritional status of the soil, the type of soil, and the way in which the manure is collected and applied (Gill, 1999). In certain areas, dung is also used as fuel. The utilisation of dung as fertilizer and building material is considered an important motivation for keeping animals in the developing countries (Steinfeld *et al.*, 2006).



### **2.8.5 Enhancing Social Status**

The issue of social status is based mainly on the size of a family's livestock holdings, or in their sharing of livestock with others and may strengthen social bonds. Small ruminants also play an important role in human relation, they are often offered as payment of social dues (dowry), festivals, gifts and sacrifices ( Dzoegbe, 2002). In addition, small ruminants have a social function of gift given and in wedding, funeral and religious ceremonies (LEISA, 2009). Higher social status may, in turn, translate into access to or authority over, broader base resources in the community (Stroebe *et al.*, 2010). Smallholder livestock keepers have developed strategies to help them survive and make the best use of their environment. They often keep mixed herds of cattle, sheep, and goats of several breeds. (Gura, 2008). For many poor farmers owning livestock means, not only possessing assets, but also enjoying social recognition and being culturally anchored. These people strive to obtain as many large animals as possible (Reist *et al.*, 2007) although this often results in the over exploitation of the natural resource, termed “the tragedy of commons”.

### **2.9 Livestock Production as a Source of Livelihood and Poverty Alleviation**

The main objective of small-scale, communal cattle farmers is a sustainable livelihood. Small animals require minimal investment on the part of poor livestock keepers because such animals are kept either in the vicinity of the house or on common land and are fed with the residue from agricultural production. In the developing countries, crop failures are common and many farmers depend on livestock in order to survive. Worldwide, 29% of all cattle and 46% of all sheep and goats are found in these developing countries (Campbell *et al.*, 2002).

Reist *et al.* (2007) indicated that, the potential of livestock to reduce poverty is enormous based on the fact that livestock contributes to the livelihoods of more than





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two-thirds of the world's rural poor and also to a significant minority of the peri-urban poor. Despite the fact that the very poor often do not own livestock, if they are able to acquire animals, their livestock may offer a way out of poverty.

An understanding of poverty is crucial if poverty is to be reduced in a sustainable way. ILRI (2003, cited in MoFA, 2004) defines poverty as pronounced deprivation in human well-being, encompassing not only material deprivation but also poor health, illiteracy, poor nutrition, vulnerability to shocks and changes, and little or no control over key decisions. A widely accepted gauge of poverty is being forced to live on an income of less than the equivalent of US\$1 per day, something which is endured by an estimated 1.3 billion of the world's poor (ILRI, 2003, cited in MoFA, 2004).

Campbell *et al.* (2002) maintained that rural poverty is a result of a combination of interacting social, economic and environmental factors and processes operating at the following range of scales:

- a. adverse biophysical conditions, resulting in low agricultural potential and disastrous declines in livestock numbers
- b. insufficient high-quality land; labour scarcities, economic remoteness with its concomitant higher transaction and input costs, and few investments because returns on investments are low compared to other areas
- c. lack of credit market as a result of little or no collateral;
- d. few employment opportunities and low level of education and skills
- e. low incomes and, hence, inability to purchase certain basic needs, poor macroeconomic conditions and

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- f. low level of empowerment.

The finding maintained that vigorous and intensified livestock production can be a remedy to these problems.

## **2.10 Prospects for Reducing Rural Poverty**

Increasing production alone does not provide adequate prospects to reduce poverty, particularly of the non-commercial livestock keepers. The prospects for reducing poverty when livestock production increases are partly the following:

- Already existing market for meat, particularly, goat in ‘chop bars’ throughout the country
- Good or premium prices for non-conventional livestock produced predominantly by the rural poor
- Livestock interfaces positively with poverty. Poor people who own livestock have shown to cope with poverty. Livestock offers opportunities for moving out of poverty and widen their asset base (MoFA, 2004)

### **2.10.1 Prospects from Poultry and Pigs**

Poultry and poultry products provide a preferred form of animal protein for many people because it tastes well and there are fewer religion and social taboos associated with their consumption (Koney, 2004). In the short term, there are prospects for livestock keepers to increase poultry and pigs production because of the following:

- Existing high human capital
- Potential for developing good breeds
- Potential for manufacturing good quality and adequate feed



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- Potential for reducing feed cost that is linked to industrial efficiency in their operations
- Potential for feed manufacturers to efficiently produce and distribute adequate feed over a wider area.
- Availability of drugs and vaccines
- Availability of credit
- Huge domestic market, including demand for processing (MoFA, 2004).

The multiple livestock keepers deal mainly in poultry and small ruminants, and to a small extent non-conventional livestock (grass-cutter, rabbit, and snail).

The potentials to increase the production of ruminants are due to the following:

- Potential to move from free range system of production and provide supplemental feeding of animals;
- Potential of developing a system that will be environmentally sustainable – reducing pollution and land degradation, better meat quality, etc.
- Many NGOs and international agencies promoting the production in rural communities, particularly, sheep, goats and poultry (MoFA, 2004).

The potential for increasing the production of the non-conventional livestock (grasscutters, rabbits, snails) are due partly to the following:

- Increasing interest of the rural and peri-urban populations to raise these animals



- Many NGOs and [international agencies](http://www.udsspace.uds.edu.gh) promoting the production of these animals in the rural areas.
- Fast growing, prolific, shorter generation intervals.
- Simple and available feeds
- Require less land
- Low initial financial outlay (MoFA, 2004)

## 2.11 Small-Scale Livestock Management

Small-scale livestock management is a very important aspect of livestock production. The activities to manage include; breeding, routine operations (dehorning, identification, castration etc.), and pasture or grazing management.

### 2.11.1 Breeding Management

Breeding management consists of selecting breeding animals, mating control, the removal of unwanted animals from the herd through culling or selling, and decisions as to how many animals are needed to cover all the females. Animals belonging to different owners mix up during foraging, and more so small ruminant farmers without males in their flock depend on the males from other flocks to cross their animals. This result to ineffective breeding and lead to direct negative impact on flock productivity and improvement (Gyamfi, 2006). Animals reared under extensive system have higher degree of inbreeding as they are mated to themselves. This results in loss of hybrid vigour, increase deleterious traits, loss of heterozygosity for which most breeders try to avoid, as it is a major constraint to effective breeding of small ruminants ( Darwin, 1868)



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FAO (2009b) reported that poor farmers do not have the same concept of an ideal animal as exists in formal breeding societies. Instead, they seek to maintain an optimal herd composed of different lineages representing continuous functional traits and of course, as many as possible animals, regardless of quality. However, breeding goals are more concerned with adaptive traits than with productive traits and, in most instances, breeding goals are guided by aesthetic preferences, religious requirements and behavioral characteristics such as good nature, good mothering ability, herd ability to walk long distances and loyalty to the owner.

### **2.11.2 Routine Operations**

Routine operations such as record keeping, castration, dehorning and identification are all practiced in livestock management systems, but with varying degrees of modification and adaptation. Castration is carried out mainly to ensure docility in oxen and is usually carried out on animals of up to two years and sometimes older. The most commonly used method of castration involves crushing the vas deferens with a burdizzo.

Dehorning is not a practice that has been widely adopted. In most cases dehorning is carried out at the age of less than six months old (FAO, 2009a). Vaccinations and inoculation are important health practices for protecting animals but, in most developing countries, programmes of vaccination and inoculation are less used as a result of the exorbitant cost, as well as the lack of animal health technicians to assist in implementing such programmes.

### **2.11.3 Grazing Management**

Grazing management is an important tool in the efficient utilisation of the pasture resource. Appropriate choices of stocking or height of grazing and rotational or







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continuous stocking are critical to the success of a grazing system (Sollenberger *et al.*, 2009).

Grazing management refers to the utilisation of a specific area of pasture by grazing animals in order to achieve specified objectives. However, the vast majority of grazing animals in the tropics are managed extensively on native pastures with limited inputs to intensify production. Forage in the tropics is utilised in a wide variety of ways, for example, cut and carry systems, animals being penned and never choosing their own feed; tethering on roadsides, under trees or in fields by day and in pens at night; grazing in the day only and confined to pens at night (many parts of Africa); grazing throughout the day and the night (Australia, the United States of America, Southern Africa and South America (Jones and Jones, 1997). Supplementary feeding is not a very common practice although in some households common salt or salt of another type may be provided during the dry season with young animals not being allowed to graze out until they are three to four months of age (Sulemana, 2012).

Overgrazing is a common problem leading to the rapid degradation of natural resources. The main purpose of managing forages on communal grazing land is to ensure grazing persistency as well as to maintain or improve grazing quality in order to provide better nutrition for the livestock. In essence, effective fencing, proper grazing management and current carrying capacity are all necessary. However, both overgrazing and management of communal grazing land are complex issues as they involve farmers where cooperation and commitment to forage management are vitally important (Chin, 1995).

Insufficient feed supply in terms of both quantity and quality is the major cause of poor livestock production in the communal area. Winter or dry season is the time

when the feed is in shortest supply. After harvesting, animals are allowed to forage randomly on crop residues in the arable areas (Chin, 1995).

However, in Northern Ghana, especially Bole, most farmers are practicing the extensive system of housing, in which animals are allowed to fend for themselves. So pasture management is not done. Agro by-products are normally given to livestock during lean seasons as feed supplements.

## **2.12 Conclusion**

The literature considers livestock to include sheep, goats, pigs, rabbits, grass cutters, cattle and poultry. It limits the production of the livestock to small-scale farmers who are the majority livestock producers in the District. The prospects, challenges and the management systems of the livestock production were reviewed. The information obtained from the literature will help give a broad picture about livestock production in general, in Ghana, in Northern Region as well as the Bole District. This will give an informed knowledge that will be used as basis for drawing conclusions during discussions.



## CHAPTER THREE

### STUDY AREA AND RESEARCH METHODOLOGY

#### 3.1 Introduction

This chapter focuses its discussion on the study area and the methods of data collection and analysis of data.

#### 3.2 The Study Area

The Bole District is situated within, latitudes 8°10.5N and 09S; and longitude 1.50E and 2.45W with Bole being the capital. It is located at the extreme south -western part of the Northern Region of Ghana and bordered to the North by the Sawla-Tuna-Kalba District, to the West by the Republic of Cote D'ivoire with the Black Volta being the boundary between the two neighboring countries, to the East by the West Gonja District, to the South-East by the Kintampo -North District and the South-West by the Wenchi Municipal in Brong-Ahafo Region. The Bole District covers an area of 6,169.2 square kilometres that is, 9 percent out of the area of 69,766.2 square kilometers of the Northern Region.

The district has 148 communities, one town council, five area councils and a few semi – urban centres; Bamboi, Maluwe, Tinga, and Banda-Nkwanta. The households are predominantly male-headed. The district has a heterogeneous population, with the major tribe being Gonja and the others Vagla, Brifor, Safalba, Mo, Dagaaba, Choribas and the Pantras. Settlement creation in the district is largely near and around the farmland, and controlled mainly by the desire of people to stay on ethnic clan basis which has resulted in scattered communities dotted all over the district.



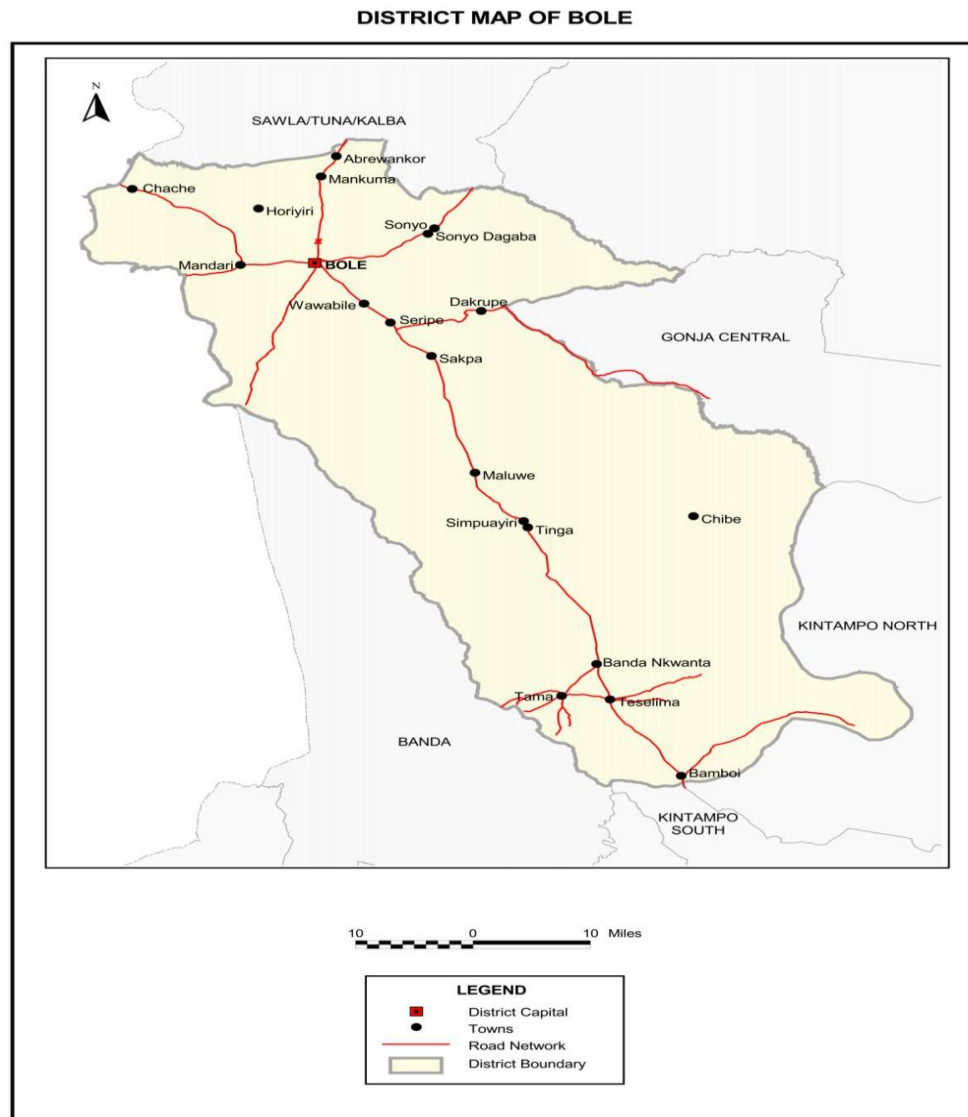


Figure: 3.1 District map of Bole

Source: GSS (2010)

### 3.2.1 Population Size and Distribution

From the 2010 census, the Bole District has a population of 61,593 comprising 51.4 percent males and 49.6 percent female. The population is sparsely distributed with a density of 10.0 persons per square kilometre compared to the regional population density of 35.2 persons per square kilometer.



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The sex structure of the population in the district has higher proportion of males (51.7%) than females (48.3%) in the age group 0 to 14 years. Further cumulative computation reveals a rather reversed situation with females between ages 15 to 64 years being more (50.5%) than males (49.5%). This situation maintained itself for persons 65 years and older, thus, more females (52.7%) than males (47.3%), (Ghana Statistical Service, 2010).

### **3.2.2 Vegetation**

The vegetation of the district consists of savannah wood land, with scattered economic trees such as shea, dawadawa, teak, kapok and mango which support the socio-economic lives of the people when they are processed.

### **3.2.3 Water Availability**

The water and sanitation (safe water) status of the district is poor. Over the years not much has been done in terms of providing facilities in the communities and with an ever increasing population, the few facilities cannot sustain the demand by the population. The safe water sources available in the district are boreholes and wells. Much is required to boost the water coverage in the District.

### **3.2.4 Economy**

The district has an agrarian economy which is indicative of the large quantity of agricultural produce every year. With a favourable environment, suitable intervention measures can result in the area being a food basket of the region. A wide variety of crops are cultivated such as maize, yam, cassava, guinea corn, and groundnuts as well as cashew plantations.

Marketing of agricultural produce is quite a problem in the district. Inter-district trade with the neighboring districts such as the Sawla/ Tuna/Kalba, Wa and the southern



parts of the country is [quite encouraging](http://www.udsspace.uds.edu.gh). Petty trading is concentrated at Bole, Bamboi, Mandari and Tinga.

Agriculture plays a vital role in the socio-economic development of the district. The agricultural sector comprises crops, livestock, fisheries, agro forestry and non-traditional commodities (Bole District Composite Budget, 2014).

The 2010 Population and Housing Census reported a total of 6,260 households engaged in agriculture in the Bole District. Out of this number, 11.8 percent were in the urban areas and 88.2 percent in the rural areas. The proportion of urban households engaged in agriculture is 30.9 percent while the rural is 71.1%. About 95 percent of households engaged in agriculture are in crop farming. Rearing of livestock is the second most important agricultural activity after crop farming with a little over 48 percent of the agricultural household in livestock rearing. The proportion of agricultural households engaged in livestock rearing is a little higher for the rural locality (49.0%) than the urban (41.4%). A small proportion of households are engaged in tree planting (1.1%) and fish farming (0.1%). Administratively, the district has three (3) agricultural zones and ten (10) operational areas. Agriculture in the district covers food crops (maize, millet, sorghum, rice, groundnuts, cowpea, bambara bean, yam, cassava), cash crops (cashew, shea, mango, dawadawa), livestock (cattle, sheep, goats, pigs, guinea fowl, local and exotic fowls), fisheries and bee keeping with emphasis on mechanization, value addition and organized marketing GSS (2010).

Livestock production in the Bole District is done on subsistence basis (small-scale). Transportation and Marketing of livestock is not yet developed as they are not designated markets for the sale of livestock in many parts of the district. Butchers are the only business men who go to the hinter lands to purchase animals from the





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farmers. These butchers lack modern skills to transport the animals, hence the welfare of these animals is not observed.

### **3.3 Research Methodology**

The challenge of this study was to select the appropriate research methods. Given the fact that there is a strong desire to ensure that the practical and theoretical outcomes of the study are grounded in the interests of the research participants, it is realized that participatory research methods would best suit this study. This led the researcher to adopt both qualitative and quantitative methodologies.

Patton (2002) defines qualitative methodology as a naturalistic approach that seeks to understand phenomena in context-specific settings, such as a “real world setting where the researcher does not attempt to manipulate the phenomenon of interest” (Patton, 2002:94). Qualitative research techniques, therefore, are essential in exploring peoples’ values, beliefs, attitudes and behaviours. It is particularly important when dealing with sensitive topics, and the approach also provides a great insight and understanding of people’s lived realities, through dialogue between the researcher and the respondent (Maguire, 1987). Quantitative research on the other hand, can be broadly defined as, any kind of research method that produces findings through statistical procedures or other means of quantification (Patton, 2002).

#### **3.3.1 Sampling Procedure**

Two main sampling techniques are prominently used in various researches. These are probability and non-probability sampling (Twumasi, 2001). Probability sampling gives every item in the universe an equal chance of inclusion in the sample. Non-probability sampling technique such as purposive sampling (Bernard, 1998) procedures are also used. According to Preston (2002) applying purposive sampling

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can yield insights and in-depth understanding rather than empirical generalisations. In this sampling procedure, the researcher purposively choose the particular units of the universe to constitute the sample on the basis that the small mass that they so select out of a huge one will be typical of the whole (Yin, 1993). The judgment of the researcher plays an important part in this sampling technique.

According to Punch (2004), selecting a sample that adequately reflects the variation in a given population is quite challenging and calls for an appropriate approach. Miller (1991) indicated that, a researcher needs to select only few items from the universe for the study purpose and that an ideal sample is often preferable to larger sample or interviewing a larger number of people saying the same thing. The size of a sample should neither be excessively large, nor too small. It should be optimal (Karma, 1999). This however should be to the discretion of the researcher. Saunders *et al* (1997) argued that while deciding on the size of a sample, the desired precision should be determined by the researcher and also an acceptable confidence level in carrying-out estimates in quantitative research.

The research was conducted using a combination of purposive, snowball and simple random selection processes to select livestock farmers. The term “selection process” was used rather than a “sampling” because no data exists on the total population of small-scale livestock farmers in the district, including the research communities. Without information on the total population size, it was not possible to determine a sample frame on which to base our sample size. The only option was to determine the size of the research population which combined purposive and snowball selection or sampling techniques.





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In purposive sampling, “the sample units are chosen because they have particular features or characteristics which will enable detailed exploration and understanding of the central themes and puzzles which the researcher wishes to study” (Maguire, 1987). The major advantage of purposive sampling is that the researcher employs predefined selection criteria and an estimate of his/her envisaged sample size. This process permits a speedy collection of research data. Information from Key informants who provided information were some chiefs, assembly members, district MoFA officers, chairman of Export Development and Agriculture Investment Fund (EDAIF), Poultry Farmers Association and some heads of departments from the Bole District Assembly. The term “key informant” refers to anyone who can provide detailed information and opinion based on his or her knowledge of a particular issue and seeks qualitative information that can be narrated and cross checked with quantitative data (Law *et al.* 1998).

Administratively, the district has three (3) agricultural zones and ten (10) operational areas. The zones are Bole, Bamboi and Mandari and the operational areas are Bole East, Bole West, Mankuma, Mandari, Seripe, Maluwe, Banda Nkwanta, Bamboi, Chibrinyoa, Tinga and Chache. The study covered all the ten (10) operational areas.

In each operational area 2 communities were chosen. In each of the communities 7 or 8 respondents were selected using the snowball method to identify livestock farmers hence, in each operational area 15 respondents were selected. These selected farmers were then interviewed. Thus, a total of 150 respondents were interviewed.



**Table 3.1: Summary of Zones, Operational Areas and Sampling Size**

Zones	Operational Area	No. of Communities Visited	Sampling Size
Bole	Bole East	2	15
	Bole West	2	15
	Sirepe	2	15
	Maluwe	2	15
Bamboi	Bamboi	2	15
	Banda Nkwanta	2	15
	Tinga/Chibrinyoa	2	15
Mandari	Mandari	2	15
	Mankuma	2	15
	Chache	2	15
<b>Total</b>	<b>10</b>	<b>20</b>	<b>150</b>

Snowball sampling can be defined generally as a technique used for finding research subjects. According to Patton (2002), the term snowball describes using one contact to help you recruit another contact who in turn can put the researcher in touch with someone else. The initial contact may be a friend, relative, neighbour or someone from a social group or formal organization. As the term implies, through this method, recruiting gains momentum or “snowballs” as the researcher builds up layers of contacts. For example, when a respondent was interviewed in each community this participant was asked whether s/he knew of anyone else with livestock. This participant's recommendation led to the addition of another research participant. This





approach was particularly [www.udsspace.uds.edu.gh](http://www.udsspace.uds.edu.gh) useful, given the non-availability of existing data on livestock keepers, particularly in the rural communities.

### 3.3.2 Sources of Data

Generally, there are two main sources of data (Miller, 1991). These are primary and secondary data sources. In deciding on the source of data, one must bear in mind the category of people being dealt with, the nature of the social situation, the mood of the social environment and the psychology of the people (Grady, 1998). In view of the discussion above, data for the study was collected from primary source. Primary data was collected from the respondents ie livestock farmers, Key informants, and focused group discussions. Field assistants were recruited and trained to produce accurate administration of the questionnaires given to them. Data gathered from respondents were duly assessed with the feedback from some of the respondents. Ten (10) focus groups discussions were organized, that is one from each operational area.

### 3.3.3 Method of Data Collection

It is useful for the researcher to use more than one method in data collection. The methods were selected to complement each other and to allow for triangulation. Triangulation “reflects an attempt to secure an in-depth understanding of the phenomenon in question. It is a strategy that adds rigor, breadth, complexity, richness and depth to any inquiry” (Denzin and Lincoln, 2000). In the light of this, data was elicited from primary sources through the combination of interviews, focus groups, and questionnaires. Information was also obtained mainly from documented materials like books, MoFA reports, magazines, journals, internet and other previous works on the topic under discussion.

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According to Grady (1998) in making a decision for data collection, the researcher needs to have in mind the social situation and the type of people he is dealing with so as to help minimise negative tendencies. This was taken into consideration in choosing the data collection methods. Data collection was done in 3 steps; (1) Focus Group Discussion (2) Questionnaire administration and (3) key informant interviews.

**Focus Groups Discussion:** “A focus group discussion (FGD) is a planned, facilitated discussion among a small group of stakeholders designed to obtain perceptions in a defined area of interest in a permissive, non-threatening environment” (Campbell, 2008: 3). “FGD demands a focus on subject area, interest groups, the use of the experiences and/or opinions of group members, and the generation of intense debates on the area of focus” (Millar and Apusigah, 2004:31). Focus groups typically consist of 6-10 people drawn from a population that the researcher is interested in. To allow for perfect interaction, homogenous groups are recommended in FGD. Open-ended questions, checklists, are used to guide the discussion, taking notes and recording the session so that the information could be analysed later (Campbell, 2008).

A group of farmers were used in each of the ten operational areas of the district MoFA staff comprising of both men and women to elicit in-depth information on the prospects and challenges of livestock production. This was conducted using a checklist (see Appendix III). FGD was employed in this study. It comprised of 7-10 participants in ten groups (see Appendix I). Themes, hunches, interpretations and ideas generated from the focus groups were analysed. Issues from the focus groups were compared and contrasted. The content of the discussion were analysed by looking at the trends and patterns within and among the various groups.



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**Questionnaire:** The choice of using a questionnaire is influenced by a variety of factors including size of the sample required for analysis, type of questions needed to collect data and number of questions needed to collect data (Saunders *et al.*, 1997). As a tool for data collection, the questionnaire represents an efficient tool to collect statistically quantifiable information. It is an efficient tool in the sense that many respondents can be reached within a short space of time (Twumasi, 2001).

For this study the questionnaire comprised of closed and open –ended questions including Likert scale type of questions (see Appendix II). Two separate questionnaires were used; one each for the farmers. The questionnaires were pre-tested in a purposively selected community, to determine their appropriateness in collecting the desired data. It was also to test for clarity, suitability, logical flow of questions, ambiguity and vague meanings. Issues that came up during the pre-testing were used to refine the questionnaires. The data was collected with the help of field assistants who administered the questionnaires to individual interviewees.

**Key Informant Interviews:** The term “key informant” refers to anyone who can provide detailed information and opinion based on his or her knowledge of a particular issue and seeks qualitative information that can be narrated and cross checked with quantitative data, a method called “triangulation” (Law *et al.* 1998). Key informants were selected from the District to elicit in-depth qualitative information to complement the findings from the qualitative data. They included; chiefs, assembly members, MoFA staff, women group leaders (district gender desk officer) and Bole District Community Development Officer.



### 3.3.4 Data Analysis

According to Yin (1993), in analysing data, a number of closely related operations are performed with the purpose of summarising the data collected and organising them in such a manner that they answer the research questions. In so doing appropriate analytical tools are used.

Data gathered with the questionnaires were coded and analysed using mainly descriptive statistical analysis such as frequencies and percentages. Ranking was also used to analyse the challenges. Simple quantitative data from questionnaires were tabulated and processed with the help of Statistical Package for Social Sciences (SPSS) version 17. The outputs were presented in the form of graphs/figures and tables. The qualitative data analysis was done alongside the data collection process and after the overall data was collected.

Both open and closed-ended questions were coded and sorted for interpretation. Ranking method was applied for responses on the suggested measures that can be used to solve the challenges of livestock production in the study area. This was done by scoring from highest to lowest.



## CHAPTER FOUR

### RESULTS

#### 4.0 Introduction

This chapter presents the findings of the study. First it presents descriptive statistics of the socio-economic characteristics of respondents (livestock keepers) including age, level of education, sources of income, religion, ethnic group and years of experience in livestock keeping. Results of the prospects, how to utilize the prospects, challenges and measures to address those challenges in relation to the development of livestock production in the study area, have been presented.

#### 4.1. Demographic Characteristics of Respondents

**Table 4.1 Age and Gender of Respondents**

AGE GROUP	GENDER					
	Male		Female		Total	
	Freq	Percentage	Freq	Percentage	Freq.	Percentage
21-30	7	4.7	3	2.0	10	6.7
31-40	60	40.0	6	4.0	66	44
41-50	35	23.3	14	9.3	49	32.6
51-60	17	11.3	5	3.3	22	14.7
61 +	3	2.0	0	0.0	3	2.0
Total	122	81.3	28	18.7	150	100.0

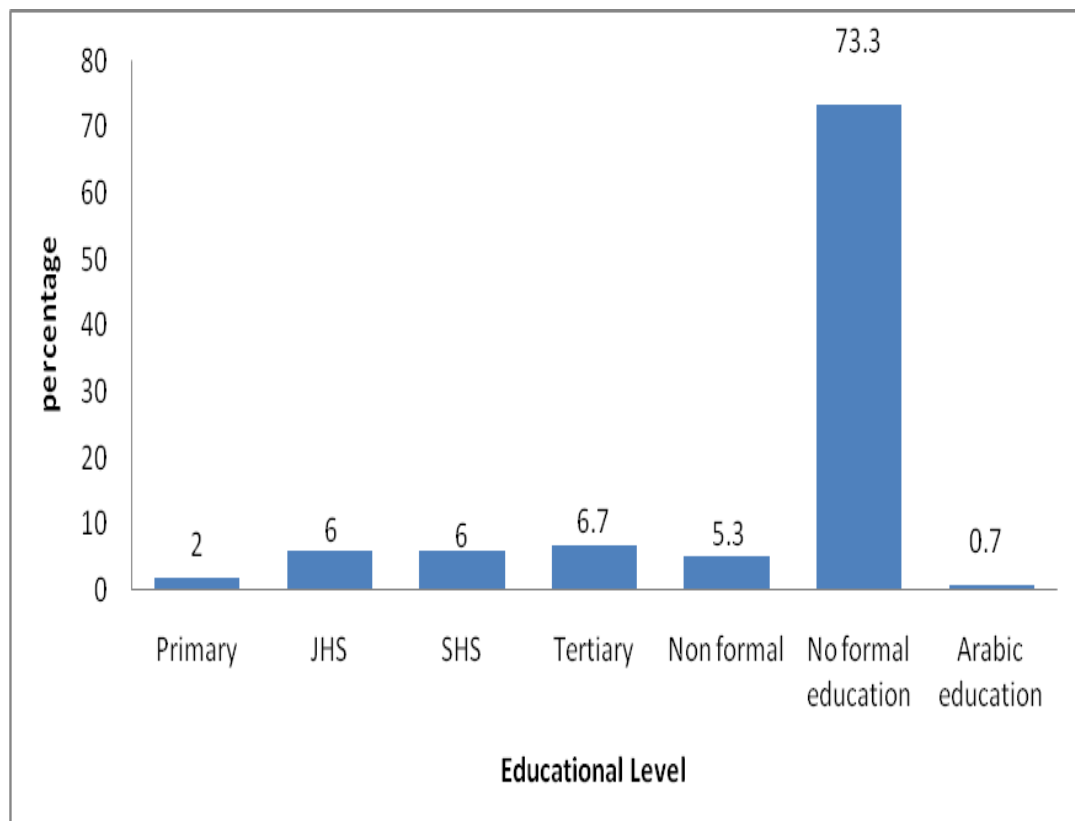
As shown by Table 4.1, there were more male livestock farmers (81.3%) interviewed than female livestock farmers (18.7%).



Age is significant in determining the productivity of labour force. From Table 4.1, few, (6.7%) of the livestock farmers were between ages 21 and 30 while 44% were between the ages 31 and 40 years. Ages 41 and 50, 51 and 60 as well as above 61years were 32.6%, 14.7% and 2% respectively. This implies that majority of livestock farmers in the district are middle aged (i.e.; 31 to 50).

#### 4.1.1 Level of Education

In terms of education, majority of the livestock farmers (73.3%) had no formal education. However, 8% had basic education, 6% had secondary education and 6.7% had tertiary education as shown in Figure 4.1.



**Figure 4.1: Level of Education of Respondents**

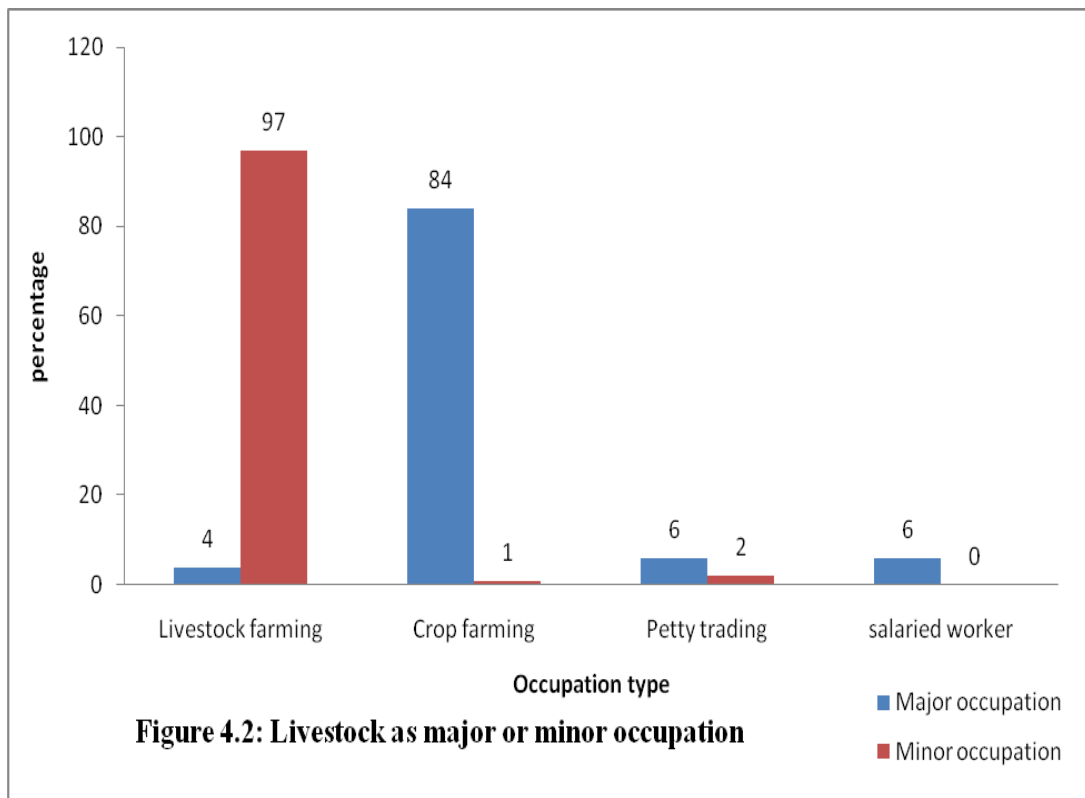




#### 4.1.2 Occupation of Respondents

In terms of occupation, majority of the respondents (84%) were engaged in crop farming as their main occupation with only 4% engaged in livestock production as their main occupation.

On the other hand, 97% engaged in livestock production as their minor occupation and only 1% engaged in crop production as their minor occupation.



**Figure 4.2: Livestock as Major or Minor Occupation**

#### 4.1.3 Years of Experience in Livestock Production

Respondents were asked the number of years they have spent in livestock production. Table 4.2 shows that 91% of the respondents have been keeping livestock for three to seven years. Only 6%, have been keeping livestock for two years with 3% having 8, 10, and 15 years respectively in livestock rearing.



**Table 4.2 Years of Experience in Livestock Production**

Experience ( in years)	Frequency	Percentage
2	9	6.0
3	22	14.7
4	37	24.7
5	40	26.7
6	27	18.0
7	10	6.7
8	2	1.3
10	2	1.3
15	1	0.6
<b>Total</b>	<b>150</b>	<b>100.0</b>

**4.1.4 Ethnic Group and Religion of Respondents.**

Results from Table 4.3 indicate that majority (63.3%), of the respondents was Muslims and 36% were Christians. Majority of the respondents were Gonjas (55.3%) followed by Mo (14.7%) and Vagla (10%). The least ethnic group interviewed was Brifor (2.6%)

**Table 4.3 Ethnic Group and Religion of Respondents**

Ethnic Group	RELIGION							
	Islam		Christianity		Traditional		Total	
	Freq	%	Freq	%	Freq.	%	Freq	%
Gonja	80	53.3	3	2.0	0	0	83	55.3
Vagla	5	3.3	10	6.7	0	0	15	10.0
Dagare	1	0.7	5	3.3	0	0	6	4.0
Lobi	4	2.7	5	3.3	1	0.7	10	6.7
Safalba	1	0.7	9	6.0	0	0	10	6.7
Brifor	1	0.7	3	2.0	0	0	4	2.6
Mo	3	2.0	19	12.7	0	0	22	14.7
Total	95	63.3	54	36.0	1	0.7	150	100.0



## 4.2 Prospects of Livestock Production in the Bole District

In this section analysis of the prospects of livestock production were made and the results presented in tables and figures.

### 4.2.1 Species of Animal Reared

Analysis was made on the species of animal reared. Table 4.4 shows that majority (80%) of the farmers kept ruminants and poultry. Only 13.3% kept poultry and pigs and no farmer kept pigs only. This means that in the Bole district almost all the livestock farmers kept more than one species of animals. Also, analysis was made on individual species of animal reared. From the table (4.4), almost all the farmers (96.7%) reared fowls, followed by sheep (48.7%), goats (42%) and pigs (13.3%). The least animals reared were guinea fowls (2.7%), ducks and turkeys (1.3%). Only few (8.7%) of the respondents kept cattle. This means majority of the respondents kept fowls and small ruminants.

**Table 4.4 Species of Animals Reared**

Category of animals reared	Freq.	Percentage	Animal Reared	Freq.	Percentage
Ruminants only	3	2.0	Sheep	73	48.7
Poultry only	5	3.3	Cattle	13	8.7
Pigs only	0	0.0	Fowl	145	96.7
Ruminants & Poultry	120	80.0	Guinea fowl	4	2.7
Ruminants & Pigs	2	1.3	Goat	63	42.0
Poultry & Pigs	20	13.3	Pig	20	13.3
<b>Total</b>	<b>150</b>	<b>100.0</b>	Turkey	2	1.3
			Duck	2	1.3



#### 4.2.2 Production Prospects

This sub-section focused on variables that could affect output and productivity of livestock directly. Land and land tenure policies may be restrictive or conducive towards keeping domesticated animals as well as availability of water, feed and labour. Socio-economic conditions may have profound influence on the amount, type and quality of animal products produced. Based on the literature the study considered certain key variables that can influence livestock productivity.

#### 4.2.3 Sources of Water Supply for Livestock

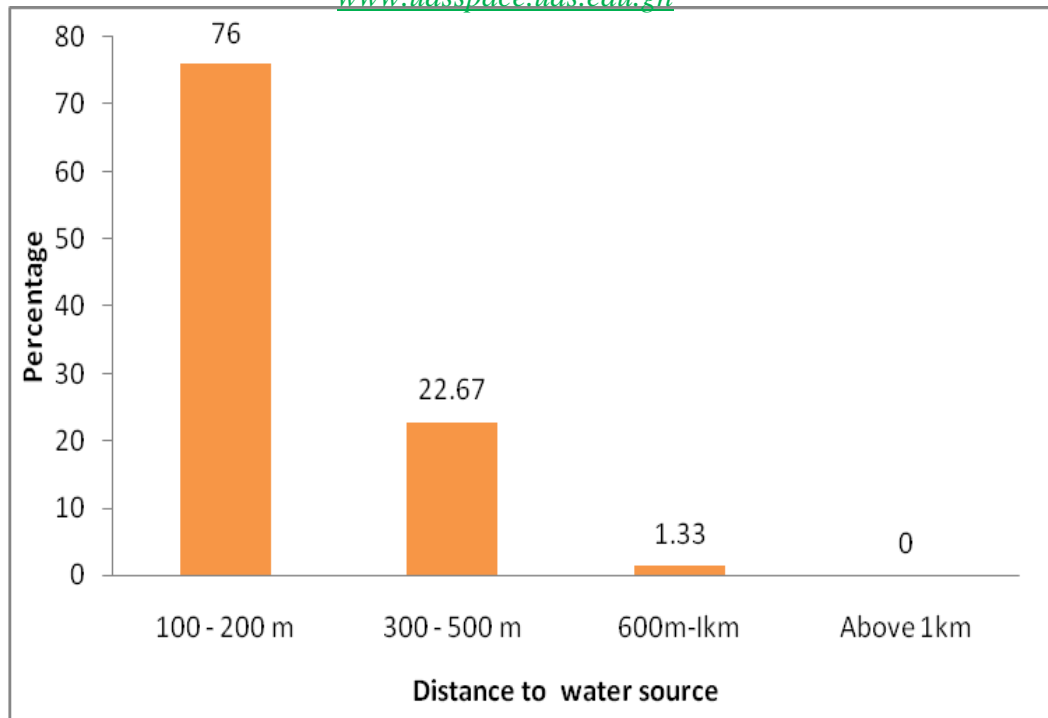
The respondents were asked to indicate the sources of water for their animals. Table 4.5 shows that 36.7% of livestock farmers had borehole as their main source of water supply, 32% had dam water and 31.3% from dugouts.

**Table 4.5 Source of Water Supply for Livestock**

Main Water Sources	Frequency	Percentage
Borehole	55	36.7
Dam	48	32.0
Dugout	47	31.3
<b>Total</b>	<b>150</b>	<b>100.0</b>

On the whole the average distance to the sources of water for livestock in the study area was between 100 to 200 metres away from their homes or where the livestock were reared as shown by 76% of the respondents (Figure 4.3). This shows that access to water for animals is not a big problem in the Bole District.





**Figure 4.3: Distance of Source of Water**

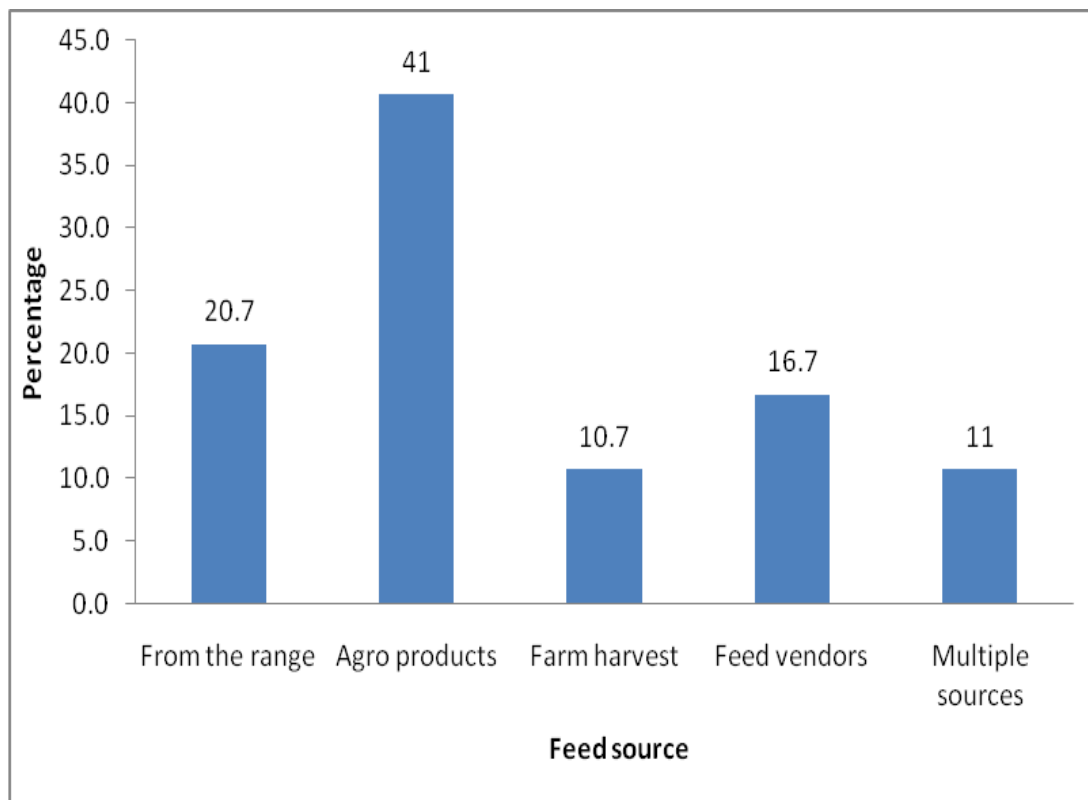
**Table 4.6 Source of Breeding Stock and Housing System**

Category	Type(source/system)	Frequency	Percentage
Source of breeding stock	Purchase from colleague farmers	149	99.3
	Breeding/research station	1	0.7
	Total	150	100.0
Livestock housing systems	Intensive	1	0.7
	Semi-intensive	3	2.0
	Extensive	146	97.3
	<b>Total</b>	<b>150</b>	<b>100.0</b>

Almost all the farmers (99.3%) purchased their breeding stock from colleague farmers while only one got his/hers from a research/breeding station.



The data on the management systems of livestock suggest that 97.3% of the farmers practice extensive system of housing, but still provide the animals with feed supplements. The main sources of feed supplements were agro by-products, harvest from the wild, commercial feed vendors, from farm harvest and multiple sources. From the study, majority (41%) of the livestock farmers obtain their feed supplements from agro by-products while few, (10.7%) get their feed from farm harvest (Figure 4.4). This implies that, animal feed supplements are readily available for livestock production in the Bole district which is a great potential to livestock production.



**Figure 4.4: Source of Feed Supplements**

There was virtually no medication provided to the livestock from veterinary medication. This is because almost all the livestock farmers (98.6%) did not have any access to medications for their animals (Table; 4.7.).

Availability of land is one of the major factors that contribute to livestock production as found in the district. Table 4.7 indicates that 97.3% of the livestock farmers use family land for rearing their animals. Also, from the focus group discussions it was established that farm lands are available and are usually transferred from generation to generation. They added that urbanization in the district is slow as compared to Tamale, Accra, Kumasi among others, and so acquiring land for agricultural use is not a big problem (FGD).

Table (4.7) indicates that 98.6% of respondents used family labour to carry out their livestock activities. This may be due to the fact that agriculture is the main occupation in the district.

**Table 4.7 Production Prospects of Livestock**

Variable	Response	Frequency	Percentage
Use of Animal vaccines	Yes	2	1.3
	No	148	98.6
<b>Total</b>		<b>150</b>	<b>100</b>
Labour used to keep animals	Family	148	98.6
	Hired	2	1.3
<b>Total</b>		<b>150</b>	<b>100</b>
Landownership	Personal	4	2.6
	Family	146	97.3
<b>Total</b>		<b>150</b>	<b>100</b>



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From the results above, it can be concluded that, the greatest potential of livestock production in the Bole District lies in the availability of land, water, labour and feed for animals.

#### 4.2.4 Marketing Prospects

Majority (68%) of the farmers said there was no designated animal market in the district while 32% agreed that market was available for their products. Farmers who were based at Mankuma, Bole, Bamboi and Mandari and their surrounding communities said they have access to the markets whilst those who were far from these towns said they did not have easy access to the market centre's for the sale of their stock. Despite the non-availability of designated marketing points for livestock and livestock products in the remote areas, the farmers agreed that they have marketing agents (butchers) who come to purchase their livestock.

Table 4.8 shows how animals are priced, which indicated that most of the farmers (83%) use prevailing market price which is on average the price that any other livestock keeper would sell their livestock while penetration (bargaining power) is the least (4.7%). However, the farmers are not satisfied with the existing pricing techniques for their livestock. This is because 62.7% of the respondents concluded that the prices they were getting for the livestock were not satisfactory.

Interestingly butchers (animal dealers) are the major customers to the livestock farmers, since 62% of the livestock farmers sell their livestock to them.

The results also showed that the points of sale for the livestock are farm gate as indicated by 67.3% of the farmers, while 30% sell on community market days with only 2.7% selling on days that there are social gatherings like funerals, festivals,





naming and wedding ceremonies and so on. This goes to confirm the earlier assertion by the farmers that there is lack of animal markets in the study area.

The question of profitability was posed to the farmers and more than half (54%) of the livestock farmers agreed that the livestock business was profitable while 46% said no.

**Table 4.8 Marketing Prospects of Livestock Production**

Variable	Response	Frequency	Percentage
Availability of Animal Market	Yes	48	32.0
	No	102	68.0
Pricing Technique used	Prevailing price	125	83.3
	Bargaining	7	4.7
	Customer offer	18	12.0
Is price ok	Yes	56	37.3
	No	94	62.7
Major customers	Households	4	2.7
	Butchers	93	62.0
	Food vendors	27	18.0
	Restaurants	26	17.3
Sales Method	In the house	101	67.3
	At Markets	45	30.0
	Social gathering	4	2.7
Whether production of Livestock is profitable	Yes	81	54.0
	No	69	46.0
<b>Total</b>		<b>150</b>	<b>100.0</b>



### **4.3 Utilisation of Prospects in the Bole District**

In this sub-section the study focused on how the prospects identified in the district could be utilized to increase livestock production. Several focus group discussions, personal interviews as well as key informants interviews were held to identify or suggest measures to utilize these prospects to improve livestock production in the Bole District. They include; low incidence of diseases which can lead to expansion of livestock production, labour availability which can be engaged in vibrant livestock production especially in the dry season when the youth is redundant, feed availability which makes production of livestock low which can lead expansion of livestock production and availability of water. The details on the findings are discussed in chapter five.

### **4.4 Challenges to Livestock Production**

In this section analysis of production, management, marketing and growth challenges in the livestock industry in the Bole District is presented. A general analysis was also made on other factors inhibiting livestock production which include drought, diseases, bushfires, theft, accidents and housing challenges. With regard to the production, management and marketing challenges, respondents were asked to indicate their level of agreement with the challenges they face in their livestock business. Frequencies, percentages and bar charts were used to present the results.

#### **4.4.1 Levels of Agreement to Livestock Production Challenges**

The results on production challenges are presented in table 4.9. Respondents were asked to indicate their level of agreement with statements regarding challenges in raising of livestock. As can be seen indicated in Table 4.9., majority (94%) of livestock keepers strongly agreed that it was difficult raising livestock.



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Overwhelming number (97% and 96%) of the farmers agreed to the statements that they find brooding and breeding of livestock respectively difficult in the rearing of livestock in the Bole District.

In addition, 99% of the respondents agreed to the statement that land for livestock is readily available in the district for use.

Also, 94% of the respondents strongly disagreed with the statement that they apply best livestock practices in their operation. The results from table 4.9 also showed that majority (62.7%) of livestock keepers face scarcity of feed during the dry season. This finding therefore suggest that the major production challenges facing livestock farmers in the study area are brooding, breeding, inadequate input support, scarcity of feed during the dry season, where the vegetation is normally dried up and sometimes burnt.



**Table 4.9 Level of Agreement with Production Challenges**

Variable	Strongly agree		Agree		Disagree		Strongly disagree		Total	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
It is always difficult to raise young animals	141	94	7.0	4.7	1	0.7	1.0	0.7	150	100
I find it difficult to brood my poultry	4	3	146	97	0	0	0	0	150	100
I find it difficult to breed my animals	1	1	144	96	4	2.7	1.0	0.7	150	100
I get enough input/service support from government	0	0	0	0	1	0.7	149	99.3	150	100
There is enough land available	2	1	148	99	0	0	0	0	150	100
I am applying the best practices in managing the animals	0	0	2	1.3	7	4.7	141	94	150	100
Feed is scarce in the dry season	94	62.7	55	36.7	1	0.7	0	0	150	100



#### 4.4.2 Management Challenges

Using frequencies and percentages, the results of the level of agreement with the hypothesis were presented in Table 4.10. Livestock keepers do not keep proper records on their livestock business. This is because 98.7% of the respondents strongly disagreed to the statement that records of livestock are well kept.

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An overwhelming 99.3% of the livestock farmers indicated that the maintenance of livestock infrastructure is not adequate. This exposes animals to dirty environments as well as harsh weather conditions, which may affect their health, productivity, and growth (focus group discussion).

The farmers also do not spend enough time on the livestock since 88.7% of the respondents disagreed that the time spent on livestock is adequate.

Taking care of or providing medication for sick animals was another major challenge among the livestock farmers. According to the farmers, they have no access to veterinary services and medicine as well. Majority, (95%) of the respondents disagreed with the statement that they are able to provide the necessary healthcare for their sick animals. Inadequate knowledge about feed formulation was another important factor that affected farmers' ability to manage and maximize productivity from their livestock. This was because 62.7% of the respondents stated that feed formulation was one of the major management challenges they encounter in livestock production. This might be the reason why almost all the livestock keepers practiced the extensive system in the district.



**Table 4.10 Level of Agreement with Management Challenges**

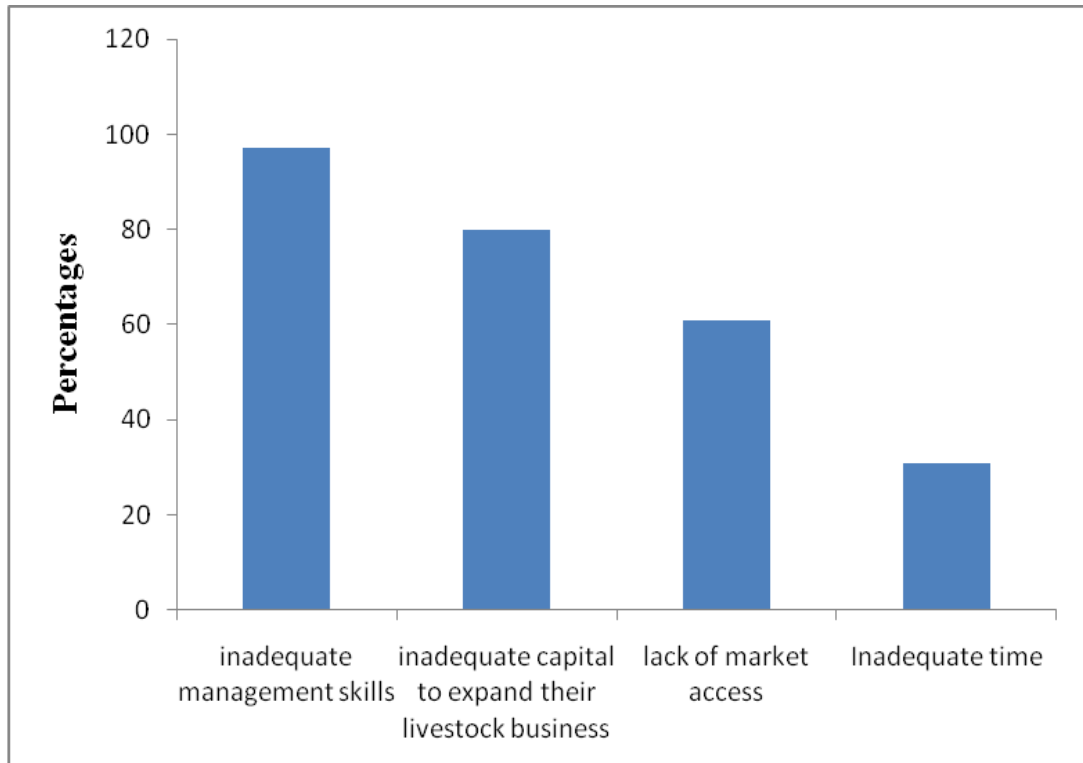
Variable	Strongly agree		Agree		Disagree		Strongly disagree		Total	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Records of livestock are well kept	1	0.7	1	0.7	0	0	148	98.7	150	100
Cleaning& maintenance of infrastructure are difficult	0	0	1	0.7	0	0	149	99.3	150	100
There is enough time spent on my livestock	5	3.3	12	8	102	68	31	20.7	150	100
Taking care of sick animals is a difficult task	0	0	7	4.7	57	38	86	57.3	150	100
I don't have knowledge in animal feed formulation	34	22.7	60	40	24	16	32	21.3	150	100

#### 4.4.3 Challenges to the Development of Livestock in the District

There were four major challenges identified by respondents with respect to expanding their livestock businesses. These included inadequate capital, inadequate time to manage and control large size of livestock, inadequate management skills and the lack of competitive market in the study area. Figure 4.5 shows the magnitude of the challenges illustrated in frequencies and percentages. Overall, inadequate management skills was the most significant among the challenges as 97% of respondents reported that they have inadequate skills to manage large size of animals (cattle), 80% did not have adequate capital to expand their livestock, 61% did not



have market access while 31% had inadequate time for daily management of large species (cattle).



**Figure 4.5: Growth Challenge of Livestock**

#### 4.4.4 Other Challenges of Livestock Keeping

Table 4.11 presents the statistics of challenges as reported by respondents. Majority, (98%) of the respondents did not see drought as a constraint to livestock production. The threat of diseases to livestock was not alarming because 57% of respondents reported that the incidence of livestock diseases is low or very low or it is not a threat at all. However, theft cases happen to be worrying to the livestock farmers. Majority, (91%) of them complained that stealing of animals is rampant in the area whereas 92% did not see losses due to road accidents as a problem which may be attributed to the lack of major and busy roads in the Bole District as compared to other townships in the Northern Region. The animal housing facilities in the district are also



inadequate. Majority of the livestock farmers (69%) had reported that poor animal housing was a major challenge to expansion of production. They are unable to put up structures to keep their livestock due to inadequate capital. This normally exposed their animals to bad weather conditions, predator attack, theft, and general loss of livestock products (eggs), which go to affect productivity (focus group discussion).

**Table 4.11 Other Challenges of Livestock Production**

Variable	Level of Constraint or Magnitude of Constraint									
	Very High		High		Low		Very Low		Total	
	Fre	%	Fre	%	Fre	%	Fre	%	Fre	%
Drought	110	73.3	37	24.7	2	1.3	1	0.7	150	100
Disease	10	6.7	54	36	67	44.7	19	12.7	150	100
Bushfire	98	65.3	34	22.7	17	11.3	1	0.7	150	100
Theft	79	52.7	57	38	13	8.7	1	0.6	150	100
Accidents	78	52	24	16	40	26.7	8	5.3	150	100
Poor housing	54	36	49	32.7	39	26	8	5.3	150	100



#### 4.5 Farmers’ Suggested Solutions to Challenges of Livestock Production

The respondents gave suggested solutions regarding the major challenges facing livestock production in the study area. These suggestions seek to address the



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production, management, marketing and other challenges related to livestock production and expansion. The results are presented in table 4.12.

Respondents hoped that some form of credit facility which is an important possible solution to the production and growth challenges should be made available. Majority of the respondents (86.7%), considered the provision of credit facilities as the most critical in expanding their livestock and the least (37.5%) suggested solution is the provision of proper watering system. Under the management challenges, 93.3% thought they must be given capacity building training to improve upon their management techniques to become efficient. The creation of livestock markets (95.3%), offering guarantee prices (76.7%) and the formation of FBOs (57.3%) for livestock farmers were suggestions offered by respondents to address the marketing challenges confronting livestock producers in the district. With regards to other challenges facing livestock production in the district, the suggestion given by farmers were constant monitoring of animals (96.7%), partnership with Government and NGOs (80.3%), and community policing to guard against animal theft (64.7%).



**Table 4.12 Possible Solutions to Livestock Challenges**

<b>Type of Challenge</b>	<b>Possible solution</b>	<b>Number of responses</b>	<b>Percentage</b>
Production	Provision of credit facilities	130	86.7
	Capacity building	118	78.7
	Creation of Pastures	95	63.3
	Provision of animal vaccines	60	40
	Proper watering system	56	37.5
Management	Capacity building	140	93.3
	Formation of FBOs	129	86
	Better waste management	98	65.5
	Consulting experienced farmers	80	53.3
	Better feed formulation skills	62	41
Marketing	Creation of livestock markets	143	95.3
	Guaranteed prices	115	76.7
	Formation of FBO	86	57.3
	Affordable Transportation	68	45.3
	Consulting other farmers	50	33.3
Others	Constant animal monitoring	145	96.7
	Gov.t/NGO Partnership	120	80.3
	Community Policing	97	64.7
	Construction of dugouts	62	41.3
	Livestock investment Initiatives	55	36.6



## CHAPTER FIVE

### DISCUSSIONS

#### 5.0 Demographic Characteristics of Respondents

In this section the study analyzed the characteristics of livestock farmers based on gender, age, occupation, religion, level of education, number of years spent in livestock rearing and ethnic groups. The results were presented in Table 4.1 and the level of education presented in Figure 4.1. As seen in Table 4.1, there were more male livestock farmers than female livestock farmers. This means livestock farming is dominated by males in the district. The respondents stated that people from the north practice the patrilineal system of inheritance hence land is transferred to sons, also ownership of large ruminants was dominated by men.

The finding about the age of respondents agrees with Nuhu (2004), who observed that majority of livestock farmers in the Saboba-Cheriponi District in the Northern Region of Ghana are predominantly middle aged and thus fall under the economically active age group of the population. This may be attributed to this age group seeing livestock production business as a lucrative and profitable business component of agriculture and decided to go into it.

This finding however, disagrees with earlier reports by Gong (2005), Abdulai (2001) and Uwankah (1979), in the West Gonja, Savelugu-Nanton districts and Eastern Nigeria respectively who observed that livestock farmers in rural areas are predominantly old. They attributed this to rural urban migration of the younger generation to seek for white collar jobs or to work as porters popularly called “Kayaye”. However, ages 21 and 30 are not attracted to livestock production. They



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rather engaged in small-scale mining activities (galamsey) whilst some drift to the south as “kayaye” as mentioned by the respondents.

In terms of education, majority of the livestock farmers had no formal education as shown in Table 4.1. This finding is consistent with earlier findings of Nabila (1981), Nuhu (2004) and Gong (2005). The large percentage of illiterates could therefore be a limitation to the understanding and use of innovative information for livestock production by farmers. Nelson and Phelps (1966) noted that education enhances one’s ability to receive, decode, and understand information, and that information processing and interpretation is important for performing or learning to perform many jobs, hence educated farmers may have advantage in animal rearing.

In terms of occupation, livestock production is taken as a secondary business by farmers in the Bole District. This can be attributed to the fact that livestock businesses are not all that opened up in the district as compared to crop farming, hence the farmers take crop farming as their primary occupation. The farmers also mentioned that the district is still resourced with natural vegetation where they hunt for bush meat. This could also be one of the reasons why they do not pay much attention to livestock production as a source of meat. One of the respondents stated

*“I can go to my cassava farm and before I come home the traps I set can trap a rabbit or grasscutter and sometimes a squirrel”.*

Regarding experiences in livestock production, majority of the respondents have three to seven years experience in rearing livestock. Only few have two years experience in rearing, with 3% having 8, 10, and 15 years experience respective



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The predominant religious practice among the livestock farmers was Islam. This is evidenced from Table 4.3 which points to the fact that 63.3% of the respondents were Muslims. This may account for the low production of pigs in the study area and high patronage of sheep and goats especially during Eid celebrations. The Muslims maintained that they taboo pork due to health grounds as stated in the holy Quran. That pork contains some worms which are harmful to human health; hence they should not eat pork. This is found in *Suratul Bakara* in the holy Quran (FGDs).

### 5.1 Production Prospects

In this sub-section the study focused on variables that could affect output and productivity of livestock directly. Land and land tenure policies may be restrictive or conducive towards keeping domesticated animals. Socio-economic conditions may have profound influence on the amount, type and quality of animal products produced. Based on the literature the study considered certain key variables that can influence livestock productivity. These include; land, labour, feed, water and animal healthcare.

The study showed that majority of the farmers kept more than one species of animals, so 80% of the farmers kept poultry and ruminants and 13.3% kept poultry. The ruminants included cattle, sheep and goats while poultry included fowls, guinea fowls, ducks and turkeys. Majority of the farmers kept ruminants and poultry because of their socio-economic and religious importance.

Majority of the respondents kept domestic fowls because of the eggs and meat which serve as food for household consumption. They also indicated that fowl rearing serves as a source of income, source of employment, manure, as well as cultural purposes. This confirms the findings of Dei *et. al.*, (2006) who observed that, poultry (fowls and





guinea fowls) serves as a [ready source of animal protein](http://www.udsspace.uds.edu.gh) (meat and eggs) and income, for welcoming guests or visitors on occasions such as funerals, festivities, for gratification, sacrifices and payment of dowries.

The farmers also kept small ruminants such as sheep and goats for reasons of; income, meat, source of employment, manure, as well as availability of feed locally.

Those who kept small ruminants indicated that they easily obtain their feed through their agro-byproducts. Most of the small ruminant livestock farmers also indicated that they use the extensive system of keeping animals where the animals are allowed to search for feed. This finding is consistent with Williams (2009) who observed that, livestock production provides secondary job opportunities to a large part of the population particularly in the rural areas and offers prospects for wealth creation, income enhancement and improvement in rural livelihoods. The researcher also observed that manure from livestock is an invaluable resource to crop and vegetable farmers for the maintenance of soil fertility and control of soil erosion. The study again confirmed the work of Kyomo (1998) who observed that keeping of livestock by poor households serves as cash buffer as well as cushioning shock against inflation and therefore provides income stability for the farm households. Those who reared fowls also stated that the management of fowls is easier in terms of feeding and housing. They use semi-intensive system of keeping the fowls. The advantage of this system is that the farmer spends less on housing materials as well as feeding. One of the fowl keepers added “ *I only need to feed my fowls in the morning and leave them to search for food on their daily routine for feed*”.

Only few farmers in the study area reared pigs and either poultry or sheep in addition. None of the respondents kept only pigs. This is due to the dominance of Muslims in

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the area who taboo the eating of pork. They indicated that there is low patronage of pork as compared to poultry and ruminant products and it is difficult to transport pigs to other places to sell. Pigs are reared in intensive system where much is spent on feeding and housing of the pigs. One of the pig keepers lamented:

*“there is low patronage of pork in the area and housing and feeding of pigs are very costly”.*

This could mean that pig production is not all that lucrative in the study area.

Few farmers kept cattle, however they indicated that they employ the services of Fulani herdsmen due to lack of time to take care of their stock. This notwithstanding, the farmers indicated that there are prospects for rearing cattle due to the availability of land and natural pastures. They indicated that they get milk and meat from cattle, as well as dung for fertilizing their crop farms. A focus group discussion also revealed that cattle production serves as a source of employment, income, and power to till their land and carry farm produce from their farms to market centers. This finding agrees with that of MoFA (2004), that the dung produced by animals can be used for nutrient cycling because it contains nitrogen, phosphorus and potassium. In addition, animals also transform plant energy into useful work. The same finding points out that, animal power is used for ploughing, transportation, and other activities such as marketing, and water lifting for irrigation. This finding is also consistent with the statement by World Bank (1992) that, livestock provides draft power for tilling the land especially in small-scale farming. This suggests that the continuous use of livestock as source of draft power could go a long way to save foreign exchange through reduced importation of tractors and equipment and also a decline in the use of petroleum products to power these machines.



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The research further reveals that guinea fowls, ducks and turkey rearing are not developed (very common) in the study area because only few farmers reared them. For the guinea fowls, the farmers revealed that when they are hatched and their feathers are fully grown they easily fly in to the bush and mix with the wild ones due to the extensive system used and also most of the communities are just close to the bush where these wild guinea fowls are easily found. This makes it difficult for farmers to have access to the birds when needed, hence discouraging them from rearing guinea fowls. The researcher however recommended to the farmers to adopt the intensive system of housing their guinea fowls during the focus group discussions. Despite this challenge the farmers maintained that there are benefits in rearing guinea fowls which includes meat, eggs, income, employment and use for cultural purposes like gifts to important visitors. However, in a focus group discussion the researcher wanted to know whether farmers in the district are aware that feathers of fowls can be used for pillows and aesthetic value, of which they said no. This confirms earlier findings made by Djang-Fodjour *et. al.*, (1998) that guinea fowls are very important in the Northern part of the country. The finding is not consistent with that of Apiiga (2002) who reported that in some areas in Northern Ghana, the feathers of guinea fowls are used in making pillows and for aesthetic purposes in the homes, restaurants and hotels. In the case of ducks and turkeys, the farmers said the production of these birds was new in the district, they were not used to them. One of the respondents mentioned that:

*“you hardly see one using a duck or a turkey to perform naming ceremony or to offer sacrifice to any god”.*





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This implies that the farmers considered turkeys and ducks as non-traditional to them. They however maintained that there are prospects in rearing turkeys and ducks as they are good brooders and can be used to hatch fowl and guinea fowl eggs.

The average distance to the source of water was also analyzed in Fig.4.3. On the whole the average distance from the sources of water for livestock in the study area was between 100 to 200 meters away from their homes or where the livestock were reared as indicated by 76% of the respondents. This shows that access to water for animals is not a big problem in the Bole District and that weak/sick animal as well as young ones can walk to and from the water source to drink. Livestock such as ruminants can drink from the water source and return to their pens and the chances of getting lost are minimized. This finding is contrary to the finding of similar study in the Savelugu/Nanton District where dry season water shortage was key constraint (Dei *et al.*, 2014). In the Bole District water is a good potential since the dams hardly dry up during the dry season and are augmented by the boreholes (FGDs).

Availability of land is a good prospect for livestock keeping in the district. The results indicated that 97.3% of farmers had land for animals from their family members hence land acquisition is not a major problem for them. The district agriculture Management Information Service (MIS) Officer confirmed that livestock farmers hardly have land issues. Also, from the focus group discussions it was established that farm lands are usually transferred from generation to generation. This finding disagrees with LEISA (2002) who observed that, ownership and release of land in Ghana for animal production is complex. This could however be true for farmers who do not have family lands.



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In northern Ghana small-scale livestock production largely depends on family labour (Benneh, 1998). The results confirmed that the Bole District is not an exception. Table (4.7) indicated that 98.6% of respondents used family labour to carry out their livestock activities. This may be due to the fact that agriculture in the district is operated as family enterprise. Labour as a factor of agricultural production is generally of overwhelming importance (Cleave, 1974). The type of labour normally associated with traditional food farming in Ghana is family labour where members of a family operate as a production unit to cultivate small scattered fields with simple tools (Benneh, 1998). This goes to confirm the results of this study about source of labour for livestock activities in Bole District as well as an earlier study by (Dei *et al.*, 2014) that, household or family labour was averagely 70% available per year in all communities in Northern Ghana. This contributes to reduce the cost of small-scale livestock production in the Bole District as compared to hired labour.

Almost all the livestock farmers (98.6%) did not administer medication to their animals (Table; 4.7.). This was due to the absence of veterinary services and high cost of veterinary drugs for which farmers could not afford, as mentioned by the respondents. Disease problems were minimal in the Bole District probably due to the high resistance of the local breeds as well as favourable environmental conditions (FGDs). The houses were also sparsely built, so this could minimize the spread of diseases among animals. The implication is that livestock farmers in the district would rather save income as a result of the low incidence of diseases. FAO (2002) reported that animal diseases constitute the major constraint to income generation and asset acquisition by the poor, as poor people have limited cash resources to pay for animal health.



## 5.2 Marketing Prospects

Most of those who do not have access to the markets were in the remote areas far from the district capital. Despite the non-availability of designated marketing points for livestock and livestock products in the remote areas, the farmers agreed that they have marketing agents (butchers) who come to purchase their livestock.

The researcher observed that most of the butchers were ignorant about the welfare of the animals, as they could tie these animals as well as keep them in cargo trucks coupled with bad road networks and transported the animals for long distances to market points without any rest stop. These improper handling of animals normally lead to, bones breaking, bruising, and sometimes death of such animals. The result of bad handling offers butchers the opportunity to purchase the animals at low prices. These could also affect the quality of meat of these animals, affect consumer acceptance of such meats and reduce profits. This finding is consistent with earlier reports by (Adzitey *et al.*, 2011), who found that poor pre- slaughter handling prior to killing will have adverse effects on meat quality, affect consumer acceptance of such meats and reduce profits of farmers, meat processors and all stakeholders in the livestock business. The same researchers observed that, carcass and meat quality defects such as pale soft exudative, dark firm dry meats, skin blemish, bruising, broken bones and deaths, may occur from improper handling of animals.

Table 4.8 suggests that most of the farmers (83%) use prevailing market price which is on average the price that any other livestock keeper would sell their livestock while penetration (bargaining) is the least (4.7%). The farmers are not satisfied with the existing pricing methods for their livestock. This is because 62.7% of the respondents concluded that the prices they get from the sale of livestock were not satisfactory. Most of the respondents, who stated that they did not have bargaining (penetration)





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power, were from the remote communities where transportation of livestock to market centres was difficult. However, the farmers maintained that there are prospects since the situation was perceived to change in future when the roads are worked on to ease transportation (FGDs).

Interestingly butchers (animal dealers) are the major customers of the livestock farmers, since 62% of the livestock farmers sell their livestock to them. This implies that the farmers have difficulty in getting better alternative markets (buyers) for their animals, since it is only the butchers who mostly go to them to buy. Most of these farmers are small-holder livestock keepers who lack information on marketing and pricing of livestock, allowing the butchers to offer them any price. This finding is consistent with the observation of Small Stock in Development (2012) that improved market access may secure better incomes and promote the welfare of smallholder livestock producers who lack experience and the necessary skills for negotiating contracts hence they are forced to accept whatever terms that are offered because of their inability to negotiate a good offer.

The results also showed that the points of sales for livestock are the premises or the places where the livestock are produced (farm gate). Proper selling points (market centers) needs to be created in the district as this can help boost production, create competition for livestock and their products, open up the district livestock business, as well as improve the prospects of the livestock industry in Ghana as a whole.

The question of profitability was posed to the farmers and a little above half of the livestock farmers agreed that the livestock business was profitable while few said it was not profitable.

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Despite some marketing challenges, the farmers still maintained that the livestock business was profitable because there is increasing urbanization in the district, changing food preferences among the growing urban dwellers thus the demand for livestock and livestock products is increasing. This trend, facilitated by the growing urbanization, can result in livestock production becoming one of the fastest growing subsectors of agriculture in the district (focus group discussion).

### **5.3 Taking Advantage of Prospects of Livestock Production in the Bole District**

In this sub-section the study focused on how the prospects identified in the district could be utilized to increase livestock production as found from several focus group discussions, personal interviews as well as key informants

#### **5.3.1 Utilisation of Production Prospects**

Through the interview and focus groups discussions, the farmers indicated the advantages they have over the animals' health. One farmer indicated that the incidence of diseases on the animals is very low. He added, "*Hardly do I call veterinary officers to vaccinate the animals*". In the focus group discussions, the participants pointed to the fact that their animals seem to have developed resistance to the tropical diseases in the district. Some of them pointed that they have taken advantage to intensify their production and make livestock production their main occupation. Others also indicated that they have rather paid more attention to providing housing structures for them so as to enhance their shelter during the rainy season, especially the small ruminants.

Thus, livestock farmers in the district would save money due to the low incidence of diseases. They have taken advantage of low expenditure on animal health to expand





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production. Already some of the poultry farmers in the district have established intensive commercial poultry production.

Another advantage in the Bole District is that small-scale livestock farmers do not hire labour. The farmers indicated that family labour is the main source of labour for livestock production. However, it is found out from the FGDs that some households hand over their cattle to the Fulani care-takers in return for a piece of land for cultivation. This contributes to reducing cost of small-scale livestock production in the Bole District. Despite the use of family labour, a substantial amount of the communities' labour force drifted to cities and towns, for educational and engagement in formal and informal sector jobs as well as small-scale mining activities (galamsey) within some parts of the district. The reason is that the major agricultural occupation is crop production which is mainly rain-fed. During the long dry season most of the labour force in the district (particularly the youth) becomes redundant. This means that a vibrant livestock production in the district could take advantage and pull the labour force to livestock production which can be carried out throughout the year in the district (FGDs).

The housing system of livestock in the Bole District suggests that majority of farmers practice extensive system of housing but still provide the animals with feed supplements, in the dry season. This is due to the availability of land and pasture for the animals as mentioned by the respondents.

The main sources of feed supplements were agro by-products, harvest from the wild, commercial feed vendors, from farm harvest and multiple sources or combination of any of these sources. The common feeding practice was open grazing in the dry season for small ruminants and cattle in the natural pasture and harvested crop

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residues. Supplementary feeds offered to the animals included yam peels, cassava peels, maize bran, dawadawa (*Parkia biglobosa*) pulp and crop residues like groundnut haulms, beans (*Phaseolus vulgaris*) vines, rice (*Oryza sativa*) straw, cowpea (*Vigna unguiculata*) pods and hay, naturally occurring browses, fresh leaves of early harvested cereal crops like maize (*Zea mays*) and millet (*Pennisetum* spp) residue, and Pigeon pea (*Cajanus cajan*) residues. All poultry such as chicken, ducks and guinea fowls were given supplementary feed in the form of grains in addition to scavenging during the day and then housed at night.

From the FGDs, the respondents identified some potential feed resources that were presently underutilized for ruminant production as given below:

1. Shea *Vitellaria paradoxa* tree leaves, flowers and fruits, corn husks,
2. Tree planting as browse plants such as *Ficus sycamorous*, *Leuceana leucocephela*, *Sesbania grandiflora*, *Acacia albida* and *Gliricidia sepium* and other local trees such as *Pterocarpuse vinacelus* and *Afzelia sp*

The main reason given by the respondents for the under-utilization of the above feed resources was availability of comparatively good feed resources in the rangelands. In the case of shea fruits, farmers especially women use it for shea butter extraction to generate income. Some farmers have recognized this and have identified fodder crops planting as potential feed sources for ruminants. This finding is consistent with the finding of Oppong-Anane (1998) who observed that, the rangelands provide the bulk of livestock feed in the northern Savannah Ecological Zone of Ghana and further stated that agro by-products and crop residues are also potential animal feed resources. The finding also confirmed Sulemana (2012), that the annual production of cereal crop residues (maize,sorghum,millet) meets the feed requirements of ruminants



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during the dry season. He added that crop residues available during the dry season have the potential to increase availability of fodder to ruminants. The finding confirmed FAO (2006), that browse plants contribute vital components in livestock productivity. It maintained that cattle, sheep and goats in tropical Africa depend heavily on browse species to meet their dietary requirements

### 5.3.2 Utilisation of Marketing Prospects

Ghana imports live animals (especially ruminants) from neighbouring countries and meat from Europe and America (MoFA, 2009). This means that local supply is less than demand, therefore livestock farmers can increase their production level and still find markets. In terms of markets, there is an inter-district trade with the neighbouring districts such as Sawla/Tuna/Kalba, Wenchi, Damongo, Wa and the southern parts of the country which is encouraging. These markets can serve as great potentials to boost the livestock industry in the Bole District. Livestock producers need to organize themselves into groups so as to take advantage of the inter-district trade by getting specific points in the districts for selling specific animals, as this can link them up to other districts in the nation and the world at large (FDGs). These specific sale points should have comparative advantage in the livestock that are produced (FDGs).

In all, the farmers maintained that making use of these prospects will have a multiplier effect on them because improvements in livestock production will create many jobs for the people from production, marketing up to processing of feed and meat. This agrees with Khor, (2006), that only 23% of the country's agricultural produce is processed within Ghana. Hence, there is a significant potential and scope for expansion in processing livestock products and feed.





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Khor (2006) argued that the satisfactory enhancement in consumption of chicken meat in Ghana (to a level still less than half of Africa's average) could be achieved in enlarged broiler production and various multiplier effects. This could lead to higher level of feed milling activity, increased demand for feed ingredients, increased field crop demand, expanded hatchery activity for the production of day-old-chicks (DOC) and savings on scarce foreign exchange. DFID/MoFA (2002) study estimated the market value for DOC as US\$31.9 million, which could greatly support employment and income, especially in rural areas as well as enhanced utilization of the otherwise under-utilized capital of hatcheries and feed mill activities. The equivalent broiler feed need would be 195,802 tonnes with a market value of US\$56.7 million. This would utilize 117,481 tonnes of maize, 58,741 tonnes of vegetable proteins, 29,370 tonnes of wheat bran and 11,748 tonnes of fish meal that would lead to positive cyclical effects to boost the feed mill industry and the figures could double by 2016.

DFID/MoFA (2002) also maintain that maize is a significant ingredient in poultry feed manufacturing and it is one of the most widely grown crops in almost all the regions in Ghana. The Ghana National Association of Poultry Farmers estimate shows that for every 20,000 tons of feed, market for 13,000 small-scale maize farmers in Ghana is ensured. At 1996 stock levels, the poultry industry consumption of 25% of the country's maize created direct employment for 85,000 maize farmers. FAO (2009b) confirmed that, worldwide, the demand for livestock products is soaring. This trend, which is being facilitated by the global trade in livestock inputs and livestock products, has resulted in livestock production becoming the fastest growing subsector of agriculture in many of the developing and transition countries.

The multiplier effects as a result of proper utilization of livestock production potentials in the Bole District will be a great potential.



## 5.4 Challenges of the Livestock Industry in the Bole District

In this section analysis of production, management, marketing and growth challenges in the livestock industry in the Bole District is presented.

### 5.4. 1 Production Challenges

Overwhelming number of the farmers stated that they do not have enough time for their livestock. This can be attributed to the fact that livestock production was taken as a secondary occupation, and so they spent much of their time on crop farming. This can affect records keeping as most of the farmers practiced extensive system of rearing, hence leading to the lost of animals through theft (FDGs)

In addition, the respondents stated that brooding of poultry was difficult because they normally experience early mortalities. Most of them mentioned that they lose their chicks and keets at the brooding stage (at the point when the young ones begin to develop wing feathers) with the brooder hen due to predators, as well as exposure to bad weather conditions. This is because most of them used the extensive system of livestock production in which these animals are exposed to predators, bad weather, accidents, theft as well as loss of eggs. The farmers suggested that they can adopt the intensive system or semi-intensive system in order to minimize or prevent these brooding difficulties and make good use of the available prospects.

Majority of the farmers indicated that they have breeding problems in the District. Most of the respondents practiced the extensive system of rearing, which allows the animals mate indiscriminately. Animals reared by this system have uncontrolled mating, hence improper breeding method leading to inbreeding. If there is undesirable trait in the animals that trait can pass on to future generations which may lead to inbreeding depression. One of the respondents stated



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*“I have been rearing my sheep for the past ten years but I have never brought in any new animal from elsewhere to mate or to be mated than those I started with”.*

This finding agrees with MoFA (2002) that, the growth of the livestock sector has been impeded by several constraints such as lack of improved breeding stock, diseases and pests (parasites) as well as poor nutrition. The farmers however maintained that they select good ones and sell to other farmers as breeding stock.

The results from Table 4.10 also showed that majority (62.7%) of livestock keepers face scarcity of feed during the dry season where grasses are completely burnt. This finding agrees with Nkomo and Sussi (2009) who observed that, bush fire destroys the resources needed for immediate use by livestock during the dry season.

In conclusion these findings suggest that the major production challenges facing livestock farmers in the study area are brooding, breeding, theft, accidents, drought, diseases inadequate input support and scarcity of feed during the dry season, where the vegetation is normally dry and easily burnt.

#### **5.4.2 Management Challenges**

According to Asafo-Adjei and Dantankwa (2001), most livestock owners, particularly cattle, in the northern part of the country practice a sedentary management system and some cattle owners’ handover the daily care of their cattle to Fulani herdsmen whilst children between the ages of five and fifteen years take care of majority of the cattle population (Husein and Dei, 2013). Small ruminant producers tend to keep their animals close to the homestead under the supervision of younger family members. Husbandry practices are generally the same as that of cattle except that small ruminants may be washed often with soap and water to remove ticks (Asafo-Adjei and Dantankwa 2001).



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Based on the findings of Asafo-Adjei and Dantankw (2001), the discussion of management challenges were centered on records keeping, maintenance culture of livestock infrastructure, time farmers spend on livestock, animal healthcare, feed formulation and scarcity of feed. Using frequencies and percentages, the results of the level of agreement with the statements were presented in Table 4.11. Livestock keepers do not keep proper records of their livestock business as indicated by 98.7% of the respondents who strongly disagreed with the statement that records of livestock are well kept. The farmers mentioned that they do not have records on production, management, as well as marketing. Record keeping is one of the vital components of livestock production because it goes a long way to tell the farmer about the performance of the animals in the farm as to whether the farmer is making profit or not, shows information on individual animals in terms of feeding, breeding, medication, sales and so on. Inability of the farmers to keep proper records can be attributed to the extensive production system they practice, farmers do not spend time to observe their animals in order to record events. In addition to these, majority (73.3%), of the farmers in the study area had no formal education, hence may not have knowledge on proper record keeping.



An overwhelming 99.3%, of the livestock farmers indicated that the maintenance of livestock infrastructure is poor. This may expose animals to dirty environments as well as harsh weather conditions, which may affect their health, productivity, and growth (focus group discussion). This poor infrastructure also accounts to the poor records keeping.

It came to light during FGDs that if the farmer does not visit his or her livestock regularly, he/she cannot keep accurate records which will go a long way to affect the management and productivity of the animals.

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Taking care and providing medication for sick animals are other major challenges to livestock farmers. According to the farmers, they have no access to veterinary services and medicine as well, due to the absence of veterinary officers and livestock medicine stores in the District.

Majority, (95%) of the respondents disagreed with the statement that they are able to provide the necessary healthcare for their sick animals. The Chairman of EDAIF Poultry Farmers Association and 2008 National Best Agric Extension Officer gave the reason as due to the absence of veterinary officers and inadequate knowledge of farmers on veterinary medicines such as drugs and vaccines. Also the District MIS Officer stated, *“the animal vaccines are very costly to be purchased by individual farmers, besides farmers do not have knowledge in handling these vaccines”*.

Inadequate knowledge on feed formulation was another important factor that affected farmers' ability to manage and maximize productivity from their livestock. This was because 62.7% of the respondents stated that feed formulation was one of the major challenges they encounter in livestock production. The farmers revealed that they still face problems with the use of some of the agro by-products that are available; including the browse plants because their chemical composition are not known. This agrees with earlier reports by Oppong-Anane (1998) who observed that agro by-products and crop residues are animal feed resources, but a lot is yet to be known about their chemistry. The lack of knowledge in feed formulation may be the reason why almost all the livestock keepers practice the extensive system in rearing.

There were four major challenges identified by respondents with respect to expanding their livestock businesses. These included inadequate capital, inadequate time to manage and control large size of livestock, inadequate management skills and the lack



of competitive market in [www.udsspace.uds.edu.gh](http://www.udsspace.uds.edu.gh) the study area. Figure, 4.5 shows the magnitude of the challenges illustrated in frequencies and percentages. Overall, inadequate management skills was the most significant among the challenges as 97% of respondents reported that they have inadequate skills to manage large stock of animals, 80% did not have adequate capital to expand their livestock, 61% did not have market access while 31% had inadequate time for daily management of large livestock. These were mentioned as growth (expansion) challenges to the farmers in livestock production.

The farmers indicating that they have inadequate skills in livestock management could be the reason why livestock production is taken as a secondary occupation. The ability of any farmer to do well in livestock production depends on the knowledge and skills that are applied in managing the animals. These include proper selection and breeding techniques, proper feeding and watering, good sanitation practices, proper pests and disease control measures, good marketing systems as well as proper husbandry practices. All these practices must come to play in order to have a livestock producer thriving well but the majority of the farmers maintained that they are not well versed in these mentioned practices.

The farmers stated that lack of or inadequate capital was one of the reasons why majority of them adopted the extensive system of rearing their animals (FGDs). They maintained that the initial capital outlay for constructing housing facilities as well as purchasing feed for the livestock was not available, hence adopting to the extensive system.

Access to market was another constraint found to affect the growth of livestock production in the study area. This is attributed to the farmers far from the district



capital where market is [found](http://www.udsspace.uds.edu.gh), so transporting livestock and their products was difficult. The reasons the farmers gave were difficulty in getting vehicles to transport these animals and bad road network. Due to the above problems, butchers were found to be the main people to whom these farmers sold their animals because; they could travel to the remote areas to purchase the animals and these buyers offer them any price as stated by the respondents.

### 5.4.3 Marketing Challenges

Value chain analysis is essential to understanding how markets work; their relationships, the participation of different actors, and the critical constraints that limit the growth of livestock production and consequently the competitiveness of smallholder farmers. Access to markets and distribution of risks and gains along different steps of the livestock value chain varies also according to the socio-economic characteristics of producers (e.g. rights to income generated from livestock); processors (access to processing technologies and information); market agents (access to transportation, safe market spaces and overnight accommodation), and according to the economies of scale (bringing the farmers together to improve their market position). According to IFAD (2007) traditional marketing channels with ad hoc sales are being gradually replaced by coordinated links among farmers, processors, retailers and others. In this context, the question is not whether, but how to include the different actors in the value chains, applying a balanced approach that takes into account both competitiveness and equity issues.

The study analyzed the basic relationships between different categories of customers of livestock producers' vis-à-vis the periods or occasions when highest sales or orders are made. Responses from the FGDs indicated that butchers are the main customers. This limits the bargaining power of the farmers, particularly those in the interior

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communities that are not closer to the main roads. They also lamented that it is during only festive seasons they receive higher sales, eg. Eid and Christmas. This points to the fact that the butchers buy a lot from them during Muslim Eid celebrations and Christmas. However, individual farmers indicated that they sell their livestock to chop bar operators, individuals and institutions. Another inference could be that consumers of livestock and livestock products prefer to buy from middlemen especially butchers than directly from livestock keepers due to transportation difficulties. From this discussion, it may be concluded that the livestock value chain is not properly developed in the Bole District for effective small -scale livestock producer gain.

#### **5.4.4 Other Challenges of Livestock Production**

Respondents were asked to indicate other challenges facing livestock production in the study area. Key among them was drought, diseases, bushfires, theft, accidents and lack of housing. The responses were based on the level of a specific challenge (1 = very high, 2 = high, 3 = low, 4 = very low and 5 = no constraint). Table 4.11 presented the statistics of challenges as reported by respondents. Majority (98%) of the respondents said drought which is normally caused by inadequate rainfall is one of the major constraints which affect livestock production in the District. Prolonged drought can affect water bodies and range lands which will end up lowering livestock feed availability. This finding agrees with Wardeh (1999) who observed that, seasonal or annual drought which are common in arid and semi-arid zones, may have serious impact on natural rangelands and, consequently, on livestock. Despite the threat of drought to livestock production in the district, some of the livestock farmers maintained that during such periods most of the animals graze on valleys and sometimes along the banks of the Black Volta where there are fresh grasses (FDGs). This was mentioned by farmers whose communities are not far from the Black Volta.





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The results showed that diseases incidence was low in the study area which is a great prospect. The farmers attributed the low incidence of diseases in the area to the presence of high quality breeds (hardy breeds) of animals that are resistant to the local diseases in the area. Some also maintained that due to the non- humid nature of the area the prevalence of diseases is low. This finding is consistent with the findings of Adzowu-Tri (2005), who reported that several factors that affect animal health could be due to weather and management. He added that the tropical breeds are said to be hardy and resistant to diseases but poor management affects their performance. Prevalence of diseases can affect the growth and productivity of livestock at a particular area. The low incidence of diseases in the study area can lead to the expansion of livestock production by the farmers which will increase their income levels, hence reducing poverty (FDGs). This finding agrees with that of FAO (2002), who reported that animal diseases constitute the major constraint to income generation and asset acquisition by the poor. The farmers also maintained that the low incidence of diseases in the study area reduces the cost of production and attributed that to the presence of traditional farmers who assist in treating their animals with herbs. In one of the FDGs, one of the farmers stated that he uses the leaves of pawpaw to deworm his animals. This finding agrees with that of Apiiga (2002), who reported that ethno veterinary is a traditional way in which farmers have developed to keep their animals healthy and productive at low cost.

However theft cases happen to be worrying to the livestock farmers. Majority, (91%) of them complained that stealing of animals is rampant in the area. The farmers maintained that livestock theft was rampant due to “galamsey” operations in the area, which leads to the high patronage of meat in the area. Also, most people who reared cattle mentioned that they normally handover their cattle to Fulani herdsmen to keep



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for them and some of these herdsmen steal the animals. They also said the extensive way of keeping their animals promoted theft. The farmers stated that stock theft affects their productivity and can create poverty. This finding is consistent with earlier reports made by Khoabane and Black (2009), who reported that, livestock theft is a contributory factor to poverty. Stock theft also reduces the affected households' own consumption of the returns on their wealth, for example milk, and, in addition, it restricts the ability of households to sell their returns on their wealth in the market place and use the proceeds to acquire other food and non-food products.

An overwhelming number (92%), had no threat about the killings of animals through accidents which may be attributed to the lack of major and busy roads in the Bole district as compared to other townships in the Northern Region like Tamale, Yapei, Buipe, Savelugu and others which have more busy roads. Animal housing facilities in the district are also inadequate. Majority of the livestock farmers (69%) had reported that poor or absence of animal housing was a major challenge confronting them in expanding their livestock. They are unable to put up well furnished facilities to keep their livestock due to inadequate capital. This normally exposed their animals to bad weather conditions, predator attack, theft, and general loss of livestock products (eggs), which affect productivity (focus group discussion).

### **5.5 Suggested Solutions to Challenges of livestock Production in the Bole District**

The respondents gave suggestions regarding the major challenges facing livestock production in the study area. These suggestions seek to address the production, management, marketing and other challenges related to livestock production and expansion. The results are as presented in Table 4.12.



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Respondents hoped that some form of credit facility which is the most critical possible solution to the production and growth challenges should be made available. Approximately eighty seven percent considered the provision of credit facilities as the most critical in expanding their livestock. The farmers maintained that if credit facilities are made available they will get money to purchase improved breeds of animals to cross with their own to improve on the existing traits. In addition, credit facilities could also assist them to construct common structures to house their stock against bad weather conditions as well as purchase commercial feeds for supplementary feeding as stated in the FDGs. Capacity building was also mentioned as one of the factors that can help solve production challenges as 78.7% of the farmers interviewed thought capacity building in the form of in-service training on livestock production can improve their skills. Creation of pastures for stock was stated as a way of solving production challenges. According to the farmers (63.3%) suggested that, control burning ( early burning of grasses) can be adopted to ensure that pasture or grasses are available in the dry season for their livestock. Respondents again suggested provision of animal vaccines and the provision of proper watering systems as some of the measures that can be used to solve the production challenges.



Under the management challenges, 93.3% thought they must be trained through capacity building to improve upon their management techniques so that they can be efficient. The farmers added that such training could be in the form of capacity building on general management and productivity of livestock. The creation of livestock markets (95.3%), was also mentioned to be one of the measures that can be adopted to reduce or solve marketing challenges. The farmers suggested that livestock markets should be created at vantage points for animals and their products to be sold. This will enable the farmers to be opened- up to many livestock dealers in order to

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create competition for their livestock and their products so that they can now have bargaining power to make livestock business to become lucrative in the Bole District (FGDs). Offering guaranteed prices (76.7%), was also said to be a way of boosting farmers morale against marketing challenges. The farmers thought government should come in, and institute a policy of guaranteed pricing of their stock so that they can always make reasonable gains from their livestock production. The formation of FBOs for livestock farmers was suggested by the farmers to be of great importance in solving their marketing challenges. The farmers maintained that they should form groups to have “one voice” in order to have uniform way of pricing their animals. They maintained that this will offer them the opportunity to enable government and other interesting organizations to come to their aid by offering them guaranteed prices on their animals.

With regards to other challenges facing livestock production in the district, the critical suggestions given by farmers were constant monitoring of animals (96.7%), partnership with Government and NGOs (80.3%), community policing to minimize or stop animal theft (64.7%), construction of dugouts (41.3%) and livestock investment initiatives (36.6%). Constant monitoring of animals will give the farmer the opportunity to spend some time with his or her stock. They mentioned that such monitoring will offer them the opportunity to take good records of their stock and reduce animal theft. The farmers suggested that forming partnership with government and NGOs will offer them the opportunity to have access to skill training on improved methods of rearing animals. Community policing was also suggested to be a measure that can be adopted to solve problems in livestock production regarding animal theft. The farmers suggested that communities can be zoned into areas for members to be assigned to police the areas at night on daily basis in order to control animal theft in



the District. Construction of [dugouts](http://www.udsspace.uds.edu.gh) for stock water and creation of livestock investment initiatives in the district were the least suggested solutions respectively.



## CHAPTER SIX

### CONCLUSION AND RECOMMENDATIONS

#### 6.1 Introduction

This chapter gives an overview of the research showing the main purpose of the study and the kind of analysis employed. It highlights the summary and conclusions drawn from the analysis. The chapter concludes with recommendations that will help strengthen livestock production in the Bole district in particular and the country as a whole.

#### 6.2 Summary and Conclusion

The main objective of the study was to examine the prospects and challenges of livestock production in the Bole District of the Northern Region of Ghana. The specific research objectives were to assess the prospects of livestock production in the district, to help identify challenges in livestock production, to suggest solutions to the challenges and to identify effective ways of utilizing the prospects in the livestock industry in the district.

The study revealed that livestock keeping is mostly carried out by the youth majority of who were males. The demographic characteristics of respondents also revealed that majority of the livestock farmers had no formal education. A high proportion of the respondents were engaged in crop farming as their major agricultural activity. This suggests that the people in the Bole district are mainly crop farmers with livestock production as a minor occupation.



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The study also revealed that the major animals reared by people in the Bole district are sheep, cattle, fowls, goats and pigs. These farmers purchased their breeding stock from colleague farmers.

The extensive management system was practised by almost all the farmers. The production and marketing potentials of these animals were investigated. The greatest potentials included: availability of land, labour, water and feed for animals. In terms of the marketing potentials, market for cattle, fowls, sheep and goat was fair to producers. However the market for pigs was poor because majority of the people in the district are Muslims.

Overall, livestock farmers in the Bole district were not satisfied with the prices that they got from their livestock and their main customers are butchers who normally visit them at their farms to purchase the livestock. Only a few of the farmers sell their livestock on market days. Despite the lack of access to animal market, respondents maintained that one of the greatest prospects of livestock in the district was the high demand for livestock and livestock products due to urbanization ( FDGs).

The study also investigated the production and management challenges of livestock. Overwhelming number of the livestock keepers strongly agreed that it was difficult raising livestock especially with regards to brooding and breeding coupled with feed scarcity during the dry season. They do not also apply the best practices in production and management of their livestock due to lack of skills in livestock production.

Majority of livestock producers do not keep records. Another challenge facing livestock production in the Bole district is the non availability of medication or vaccines for animals. As a result they are unable to provide the necessary healthcare for their sick animals.



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Inadequate capital, inadequate time to manage and control cattle, inadequate management skills, lack of competitive market in the study area, theft and lack of housing facilities for animals, were the challenges identified.

Respondents stated that provision of credit facility to them will be a possible solution to the production and growth challenges.

Farmers advocated the creation of livestock markets, guarantee prices and the formation of FBOs for livestock farmers were most critical suggestions offered by respondents to address the marketing challenges confronting livestock producers in the district.

### **6.3. Recommendations**

The recommendations are usually conclusions that respondents have identified during the research.

- Women involvement in livestock production should be encouraged.
- Farmers, Government and NGOs should take advantage of the prospects of livestock production in the District and go into serious livestock production.
- The capacity of livestock farmers should be built in animal healthcare, brooding, breeding and feed formulation.
- Marketing of livestock and livestock products (value chain) is one of the main problems livestock farmers in the district face, well organized livestock and livestock product market centres should be established in the study area.
- Improved access to credit and basic livestock inputs is needed. Government through the Ministry of Food and Agriculture and other stakeholders in





agriculture should assist livestock keepers to acquire business loans at concessionary rate to expand their businesses.

- Livestock farmers should form groups to champion their interests.



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**APPENDICES**

**APPENDIX I**



FGDs with the chief of Tumbuyiri and some of his people



FGDs with some women group at Mandari



Interview with the 2007 National best Extension Officer



Interview with the Bola district MoFA MIS Officer



**QUESTIONNAIRE**

**SCHOOL OF GRADUATE STUDIES**

**UNIVERSITY FOR DEVELOPMENT STUDIES**

**TAMALE**

***Research Topic***

*Prospects and Challenges of livestock production in the Bole District of the Northern Region of Ghana*

*This instrument is designed to elicit responses from livestock producers in the Bole district. The instrument is aimed to assist in identifying the potentials of livestock production in the district, to identify effective ways of utilizing the potentials in the district, to assess the challenges of livestock production, and to identify measures to address the challenges of livestock production in the district.*

Name of Enumerator.....Tel.....

Community; ..... Agricultural Zone.....

**SECTION A**

Demographic characteristics of Respondents (Enumerator to tick appropriate age group)

1. Age: (a) 21-30yrs (b) 31-40yrs (c) 41 – 50yrs (d) 51-60yrs (e) 61& above
2. Gender: (a) Male (b) Female
3. Level of education: (a)Primary (b) JHS (c) SHS (d) Tertiary(e) Non- formal education (f) No-formal education (g) Arabic Education
4. Main occupation (tick as applicable) (a) Livestock farming (b) Crop farming (c) Petty trading (d) Salaried worker (e) Weaving (f) Agro Processing (g) Artisan (h) Other (specify) \_\_\_\_\_
5. Minor occupation (tick as applicable) (a) Livestock farming (b) Crop farming (c) Petty trading (d) Salaried worker (e) Weaving (f) Agro Processing (g) Artisan (h) Other (specify) \_\_\_\_\_





6. Religion (a) [www.udsspace.uds.edu.gh](http://www.udsspace.uds.edu.gh) Islam (b) Christianity (c) Traditionalist (d) other(specify).....
7. Ethnic group (a) Gonja (b) Vugla (c) Lobi (d) Safalba (e) Breffu (f) Dagati (g) Moi (h) Other (specify).....
8. How long have you been in livestock production? .....

## SECTION B

Prospects of livestock production in the Bole district

Q9a. What type of animals do you keep?  a) ruminants only  b) poultry only  c) pigs only  d) ruminants and poultry  e) ruminants and pigs  f) poultry and pigs

Q9b. Which animal do you keep?	Tick	Why do you keep each of these animals
Sheep		1.....
		2.....
		3.....
Cattle		1.....
		2.....
		3.....
Fowls		1.....
		2.....
		3.....
Guinea fowl		1.....
		2.....
		3.....
Goats		1.....
		2.....
		3.....
Pigs		1.....
		2.....
		3.....
Turkey		1.....
		2.....
		3.....
Ducks		1.....
		2.....
		3.....

Q10. Where did you obtain your breeding stock?

Purchased from other farmers	1	Other sources (please specify below): ..... .....
From breeding/research institutions	2	
From butchers	3	
From the markets	4	
As gifts	5	

Q11. What type of system do you adopt?

	1	Intensive
	2	Semi-intensive
	3	Extensive

Q12. Do you provide supplementary feed for your animals?  Yes  No

Q13. How do you get the supplementary feed you give to your animals?

- |                              |               |
|------------------------------|---------------|
| (a) Harvest from the wild    | (d) Both a&b  |
| (b) From my agro by-products | (f) Both a&c  |
| (c) From my farm harvest     | (g) Both b&c  |
|                              | (h) all a,b&c |

Q14. How difficult is it in getting feed for your animals?

Not difficult at all	1
Difficult	2
Somehow difficult	3
Very difficult	4



Q15. Is feedstuff readily available for your animals?		<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
Q 16. Is there medicine available for your animals?		<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
Q17a How do you get the medicine? .....		<input type="checkbox"/>		<input type="checkbox"/>	
Q 17] Is labour available for your animal farm? (a)Yes (b) No		<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
Q17 b. What is the source of labour a.Self b. family c.hired		<input type="checkbox"/>		<input type="checkbox"/>	
Q 18. Is land available for your animal farm?		<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
Q18b. What type of tenure do you have? Personal land Family land Group owned used land		<input type="checkbox"/>		<input type="checkbox"/>	
9. Do you have market for your animals?		<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
10. Do you have the right price for your animals?		<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
11. Is water available for your animals all year round?		<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
12. What is your main source of water supply? (select one)					
Borehole	1	Dugout			4
Well	2	Well water			5
Others	3	Other (specify).....			
13. How far is the source of water supply from your animal farm?					
Less than	100m	1			
	100m	2			
	200m	3			
	1km	4			
Above	1km	5			

4. How do you water your animals?	<input type="checkbox"/>	In a container at home	<input type="checkbox"/>	To the well or borehole to drink	<input type="checkbox"/>	To the dam to drink
	<input type="checkbox"/>	Both in the home and in the dam 5.to the river				
5. Is water for your animals a problem?	<input type="checkbox"/>	1	Yes	<input type="checkbox"/>	2	No
	<input type="checkbox"/>	1	Seriously serious	<input type="checkbox"/>	2	Moderately seriously
	<input type="checkbox"/>	3	Very serious			



27. Do you have adequate labour services for your livestock activities?  
(a) Yes[ ] (b) No [ ]
28. Who takes care of your animals?  
(a) myself [ ] (b) my children [ ] (c) myself and children [ ]  
(d) with the Fulani herdsmen [ ] (e) other(specify).....

Q29. What facilities/opportunities are available to increase your livestock production?			Very Good	Good	O.K	Bad
Facility/opportunity						
Land	1					
Forage and feed	2					
Water	3					
Veterinary services	4					
Ready market	5					
Profitability	6					

30. How do you sell your animals?
- (a) In the house [ ] (b) In the nearest market [ ]  
 (c) In the market in this community [ ]  
 (d) Other (specify).....
31. Who do you normally sell to?
- (a) Consumers (b) Butchers (c) Restaurant operators (d) Middlemen  
 (e) Other (specify).....
32. How do you fix price for your animals
- (a) I ask other livestock keepers (the prevailing market price)  
 (b) Prices are a little below other livestock keepers'  
 (c) Depends on cost of production (cost-plus margin pricing)  
 (d) Other (specify).....
33. Do you normally get good prices? (a) Yes (b) No
34. Is there any animal market in your community? (a) Yes [ ] (b) No [ ]
35. How far is the nearest or nearby market?
- (a) Less than 100m [ ] (b) 100m [ ] (c) 200m [ ]  
 (d) 1km [ ] (e) Above 1km [ ]
36. Do you think there are prospects for livestock production in this area?
- (a) Yes [ ] (b) No [ ]





37. What are the prospects?  
.....  
.....
38. Would you want to expand your livestock? (a) Yes (b) No  
Why .....

### SECTION C

#### Challenges of livestock production in the Bole District

##### Production challenges

39. Is always difficult for me to raise young animals (calves, kids, lambs chicks,) to adult ones.  
Strongly agree [ ]    agree [ ]    disagree [ ]    strongly disagree [ ]
40. I find it difficult to brood my poultry.  
Strongly agree [ ]    agree [ ]    disagree [ ]    strongly disagree [ ]
41. I find it difficult to breed my livestock.  
Strongly agree [ ]    agree [ ]    disagree [ ]    strongly disagree [ ]
42. I am knowledgeable in livestock feeding, brooding in poultry, breeding of animals and other livestock practices.  
Strongly agree [ ]    agree [ ]    disagree [ ]    strongly disagree [ ]
43. Feeding of animals is always a major challenge.  
Strongly agree [ ]    agree [ ]    disagree [ ]    strongly disagree [ ]
44. Please indicate the following feeding challenges in order of magnitude ( eg. 1=highest, 2=higher, 3=high)
- |                                       |     |
|---------------------------------------|-----|
| Lack of knowledge in feed formulation | [ ] |
| Feed scarcity                         | [ ] |
| High cost of feed                     | [ ] |
45. There is enough space or land to cater for my present and future livestock production  
Strongly agree [ ]    agree [ ]    disagree [ ]    strongly disagree [ ]





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46. I get enough support in terms of inputs and others services from government or elsewhere with reasonable terms and conditions

Strongly agree [ ]    agree [ ]    disagree [ ]    strongly disagree [ ]

47. Are there any restrictions on land use in this area? Yes [ ]    No [ ]

48. If yes what are these restrictions?

(a) Some land are earmarked for crop farming

(b) Some are earmarked for residential purposes

(c) Some are earmarked for industrial activities

(d) Other (specify).....

49. Which of the following constraints is/are challenge(s) to livestock production in this area?

Constraint	Tick	Level of severity (Tick)			
		very high	high	Low	very low
Drought					
Disease					
Epidemic					
Bush fires					
Theft					
Accidents					
Poor housing facilities					

Other (specify).....

50. What are the causes of animal mortalities?

.....

.....

51. Do you have access to veterinary officers? (a) Yes [ ] (b) No [ ]



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52. Do you have access to extension officers? (a) Yes [ ] (b) No [ ]
53. Do you buy drugs or vaccines for your animals? (a) Yes (b) No
54. If your answer to question (53) is No, why?
- (a) Drugs/vaccines are not available
- (b) The drugs/vaccines are costly
- (c) I don't have knowledge in livestock drugs/vaccines
- (d) Other (specify).....
55. What problems do you think are affecting you to expand your livestock business?
- .....
- .....

**Management challenges**

56. Records on the production and sale of my livestock are available and up to date. Strongly agree [ ] agree [ ] disagree [ ] strongly disagree [ ]
57. Taking care of sick animals is the most difficult aspect of livestock management to me
- Strongly agree [ ] agree [ ] disagree [ ] strongly disagree [ ]
58. Cleaning and maintenance of the kraal, pen, hencoop, etc are difficult in the livestock business
- Strongly agree [ ] agree [ ] disagree [ ] strongly disagree [ ]
59. There are available records on (tick as applicable)
- |                          |                                  |
|--------------------------|----------------------------------|
| <input type="checkbox"/> | Births                           |
| <input type="checkbox"/> | Mortalities                      |
| <input type="checkbox"/> | Home consumption                 |
| <input type="checkbox"/> | Sales                            |
| <input type="checkbox"/> | Mating days /dates of mating     |
| <input type="checkbox"/> | Quantities and type of feed used |
| <input type="checkbox"/> | Drugs used                       |
| <input type="checkbox"/> | No records at all                |

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60. Approximately how many hours do you spend on livestock keeping in a day?  
 (a) 8 hours [ ] (b). 6-7 hours [ ] (c). 4-5 hours [ ] (d). . 2- 3 hour [ ]  
 (e). 0 - 1 hours [ ]

**Marketing Challenges**

61. Do you receive orders from your customers? Yes [ ] No [ ]
62. If your answer to (65) is yes, which of your customers makes the highest order?  
 .....

63. Rank the following occasions according to the level of sales made (from 1 to 5; 1 = highest and 5= lowest)

- On local market days [ ]
- During seminars and workshops by institutions [ ]
- During funerals and other social gatherings [ ]
- During “Sala”or Muslims festivities [ ]
- During Christmas [ ]
- During Easter [ ]

64. Please indicate the challenges or problems you face in marketing your livestock .....

65. Please mention any five general problems you face in livestock production?

- (a).....
- (b).....
- (c).....
- (d).....
- (e).....



**SECTION D**

Measures to solve the challenges or problems in livestock production

66. What are you doing currently about the challenges which are categorized into production, management and marketing challenges

Production Challenges.....

.....

Management Challenges .....

.....

Marketing Challenges .....

.....

67. What can you do to help solve these challenges?

Production .....

.....

Management Challenges.....

.....

Marketing Challenges.....

.....

68. What can the community do to solve these challenges?

Production.....

.....

Management Challenges .....

.....

Marketing Challenges .....

.....

69. What else do you think can help solve the challenges?



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Production challenge

(a) .....

(b).....

(c) .....

.....

Management Challenges

.....

.....

Marketing Challenges

.....

.....



**FOCUS GROUP DISCUSSIONS GUIDE**

1. Land, water, labour and feed availability seemed to be identified as the major prospects of livestock production in the district. What are your comments?
2. How do you think these prospects could be utilized to improve livestock production in this district?
3. What do you think are some of the challenges that hinder the effective utilization of these prospects to improve livestock production?
4. What are some of the measures that can be put in place to improve livestock production in the district?
5. What do you think are the benefits you derive from rearing livestock?

