

UNIVERSITY FOR DEVELOPMENT STUDIES

GOAT REARING AND FOOD SECURITY IN KUSAWGU IN THE CENTRAL GONJA DISTRICT OF NORTHERN REGION

AZIIBA EMMANUEL ASIBI

JULY, 2015.



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THE CENTRAL GONJA DISTRICT OF NORTHERN REGION**

BY

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(BSc Agriculture Technology)

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**A PROJECT SUBMITTED TO THE DEPARTMENT OF
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FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD
OF MASTER OF SCIENCE DEGREE IN INTEGRATED RURAL
DEVELOPMENT.**

JULY, 2015



DECLARATION

I Aziiba Emmanuel Asibi, hereby declare to the best of my knowledge and understanding that the originality of the findings in this project is my work and has never been presented to University for Development Studies or any other University for the award of a degree.

Signature.....Date.....

AZIIBA EMMANUEL ASIBI

SUPERVISOR

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

Signature..... Date.....

DR. SALIFU WALATA YAKUB



ABSTRACT

Livestock production in Ghana contributes greatly to the total GDP and agricultural GDP respectively. Despite efforts to improve and increase goat production, most farmers, especially the rural households still keep local breeds and are faced with high infant mortality of kids, death of pregnant does, unplanned housing systems, improper feeding and management. These undoubtedly hinder farmers in Kusawgu to improving their stock for food security. It is thus important to study why despite the numerous contributions of livestock especially the domestic goat to the socio-economic importance and to food security is still low in Kusawgu. The specific objectives of the project are to: 1. To examine the traditional ways of goat rearing, to improve food security in Kusawgu. 2. To identify the factors limiting goat rearing, to improve food security in Kusawgu. 3. To identify and propose sustainable methods of goat rearing, to increase income, access and availability of food in Kusawgu. Literature reviewed indicated that goat keeping is profitable under consideration, the risk associated is less, and has the potential of boosting food security. A cross sectional designs of participatory rural appraisal and focus group discussions were adopted randomly for data collection. Descriptive analysis and narratives were employed to answer the objectives of the project. Goat keeping experience, keeping goat as a family security asset in times of difficulty, household size, and farmer's socioeconomic and sociocultural background had a significant relationship on the keeping of goat in the community for food security. Generally, policies at improving the local breed and proper interventions and management will immensely promote food security in the community.



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DEDICATION

To my little daughters Aziiba Blessing and Aziiba Nuela.



LIST OF ACRONYMS

1. **ALRMP Arid Lands and Resource Management Project**
2. **CFSVA Comprehensive Food Security and Vulnerability Analysis**
3. **ET Epidemic Typhus**
4. **FAO Food and Agriculture Organisation**
5. **FASDEP Food and Agriculture Sector Development Policy**
6. **FGDs Focused Groups Discussions**
7. **FMD Foot and Mouth Diseases**
8. **GDP Gross Domestic Product**
9. **GFDC Ghana Food Distribution Corporation**
10. **GFDC Ghana Food Distribution Corporation**
11. **GSS Ghana Statistical Service**
12. **HS Herpes Simplex**
13. **MAAIF Ministry of Agriculture, Animal Industry and Fisheries**



14. **MOFA Ministry of Food and Agriculture**
15. **NGOs Non-Governmental Organisations**
16. **NHIS National Health Insurance Scheme**
17. **PK Pulpy kidney**
18. **PPR Peste de Petite**
19. **TBA Traditional Birth Attendant**
20. **USAID United States Agency for International Development**
21. **WADG West African Dwarf Goat**
22. **WFP World Food Programme**
23. **WHO World Health Organisation**



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CHAPTER ONE

1.0 Introduction

1.1 Livestock and Food Security

Livestock rearing or keeping represent a significant economic activity, and to some extent the livelihood of some Ghanaians, both in the rural and urban communities. Smallholder farmers especially in Northern Ghana, livestock do not only play a significant role in the socio-cultural aspects of the people, but also balance human nutrition (Adam et al 2010). Most rural farming communities in Northern Ghana use livestock as an important means to improve soil fertility. According to the World Bank Report 1992, rural women are the vulnerable households who represent half of the smallholder farmers' population in Ghana. They depend on livestock, especially small ruminants for economic sustenance (Duku et al 2011).

The Food and Agriculture Organisation (FAO 2012) estimated that the rural population in Ghana represents 62% of the total population of 24,000,000 and 77% are subsistent farmers with about 1 to 2 hectares of farmland holdings. Such subsistent farmers produce food crops and livestock using rainfall. Statistics suggest that 40.5% of Ghana's rural population manage some livestock. The data implies that about 6.02 million households partly depend on livestock for their livelihood revealed by the Ghana Statistical Service 2012. Despite such significant contribution of livestock to Ghana's economy, efforts to increase smallholder productivity and improve the traditional breeds and system of rearing are still battled with many challenges. Smallholders therefore raise indigenous livestock breeds under the traditional free range production system characterized by high mortality, high morbidity and consequently low productivity.



1.2 Goat Keeping and Food Security

The input of small ruminants' livestock especially goat to food security and poverty reduction in rural areas, vulnerable households cannot be neglected in the Northern part of Ghana. In addition, the animal provides security against deficits in household earnings, and an insurance role to overcome unforeseen necessity and needs of rural households, including settling of medical bills and school fees especially among rural folks. Human populations are growing, and creating a significant and increasing demand for additional animal protein foods. The goat can play an important role in meeting these demands. This calls for a paradigm shift by farmers to put value in their goat enterprises by shifting from subsistence production to commercial production. It is easier to increase the population of small ruminants (goats and sheep) than large stock, for instance cattle.

In economic terms the opportunity costs are low for goat production and due to the smaller average size of goat, the animals are easier and quicker to sell than larger stock such as cattle. Therefore, goat serve as a potential source of ready or liquid cash in times of financial need for farming households. Moreover, the growing market demand for goat meat (chevon) than other livestock in urban areas across the length and breadth of Ghana presents an opportunity to increase food security, income and sustain livelihoods of rural households. As in the rest of West African sub-region, the total population and spatial distribution of goats are substantially higher than that of sheep (FAO 2012). However, this varies from region to region and community to community across Ghana.

Meat production from small ruminants is very important in Africa. This is so, because these animals are more suitable for family consumption (5-10) people, than cattle owing to their comparatively small carcasses 25 to 30kg. The importance of goats is based on meat and skins.

Some of the major reasons for promoting goat production in Ghana include growing human population which has created a significant demand for goat meat. Goat rearing requires a low capital investment; local breeds are of poor quality and can be improved by selection and cross-breeding. In addition, where ranching is widespread, goats are useful in bush clearing and as well as pasture improvers in Nsubuga 1996 cited in Bwire 2008. Goat rearing is the biggest business in the Kusawgu community, even though it is at the subsistence level. It holds the greatest potential for the growth and development of Kusawgu, especially food security. In fact, the sector has the greatest potential of enhancing their livelihoods, living standards, addressing youth unemployment and sustaining livelihoods.

1.3 Food Security Situation in Ghana

According to the World Food Programme 2009 Report, about 1.2 million people, representing 5 percent of Ghana's population are food insecure. Thirty four percent (34%) of the population are in Upper West region, Upper East region with 15% and Northern region with 10%, amounting to approximately 453,000 people. About 507,000 thus (40%) of the people are vulnerable of becoming food insecure in the rural areas of Upper West, Upper East and Northern regions. Ghanaians has bumper harvest during the season followed by a sharp cut of food supply in the lean season leading to shortages.

According to the 'The State of Food Insecurity 2001' Food insecurity exists when people do not have adequate, physical, social or economic access to food. Household food security exists when all members, at all times, have access to enough food for an active, healthy life often. There are many definitions of food security that highlight different components. The Ministry of Food and Agriculture's operational definition of food security is "good quality nutritious food hygienically packaged, attractively presented, and available in sufficient quantities all year round and located

at the right place at affordable prices (FASDEP 2003). Even though the country has faced chronic food insecurity in some periods in the past, such as the prolonged draught from 1978 to 1983, the transitory food insecurity is the major problem.

According to the World Health Organization (WHO), Food security is built on three pillars:

- a.** Food availability: sufficient quantities of food available on a consistent basis.
- b.** Food access: having sufficient resources to obtain appropriate foods for a nutritious diet.
- c.** Food use: appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation.

The Food and Agriculture Organization (FAO) upgraded the three pillars to four pillars. In 1996 the World Summit on Food Security (WFS) stated that the four pillars of food security are availability, access, utilization, and stability. The Ghana Statistical Service, Ministry of Food and Agriculture and other partners, the World Food Programme conducted the second Comprehensive Food Security and Vulnerability Analysis (CFSVA) in Ghana in 2012. It states that American based USAID in collaboration with the World Food Programme, extends food aid to Ghana, particularly to the northern rural homes due to the rampant occurrence of crop failure, making them vulnerable, exposed, and challenged with food and nutrition issues leading to food insecurity. Food insecurity has over the years being an issue of public concern that governmental and non-governmental organizations have since being striving to overcome in Ghana, especially in the three northern regions. Food security is a basic determinant of a guaranteed sustainable economic wellbeing of every country. Ghana faces some challenges when it comes to agriculture, and food security at large.

In collaboration with the Ghana Statistical Service, Ministry of Food and Agriculture, and other partners, the World Food Programme Comprehensive Food Security and Vulnerability Analysis



(CFSVA) in Ghana in 2012, provides a general overview of the socio-economic and food security conditions in the country, while focusing extensively on the three most deprived and food insecure regions which were identified in the previous nationwide survey. A distinctive feature of the 2012 survey is the depth of analysis of the food security situation provided and the comprehensive picture of household food security in both rural and urban settings across the three northern regions. This is the first such survey to be conducted at district level across the three northern regions. The survey revealed that the three northern regions are vulnerable and seriously getting food insecure.

A large proportion of household food is purchased. Other sources include own production, in-kind wage, gifts and transfers, etc (Maxwell et al 2000). The importance of the different food sources vary with locality (rural, urban and agro-ecological zone), income, occupation, migration status and the gender of the household head according to Maxwell et al 2000 cited in Ghana's Food Security Module 2003.

According to Maxwell et al 2000, Households in Accra use various strategies to sustain the level of food security. Maxwell showed that the highest proportion of households (77.2%) shift consumption from expensive to less expensive food types. About 36% relied on gifts and transfers from mainly friends and relatives, 27% purchased food on credit and 19% borrowed food or money to buy. Where the means cannot be found to sustain consumption (calorie intake) the choice of reducing food intake is taken. About 66% of the households reduce the adult food intake to ensure adequacy of children. Instead of cooking at home, 65% of the households purchase cheaper street foods with the available cash. Some households reduce the portion size of meals for all members. About 36% reduce the number of meals per day and in the extreme case, 2% skip meals for a whole day.

The Food Security Module Ghana, Roles of Agriculture Project International Conference 20-22 October, 2003 in Rome, Italy states that ‘A major government strategy to enhance food security since 2001 is the operation of a buffer stock of 15,000 mt of domestically produced maize and rice. The explicit and implicit objectives of this strategy include i) to put to use some modern storage facilities located in strategic places in the country belonging to the almost defunct Ghana Food Distribution Corporation (GFDC), ii) to reduce the high post-harvest food losses, iii) to reduce the extent that producer prices collapse in the immediate postharvest periods, iv) to reduce the high consumer food prices in the periods before the next harvests’.

1.3 Problem Statement

The local domestic goat, (*Capra hircus*) is a small ruminant which most households keep in Kusawgu community to serve as income generating venture, matching grant, livelihood and for food security and other socio-cultural reasons. These productive and multipurpose farm animals are kept on free-range without proper care and management systems despite its generous contribution to the household food security. Proper feeding, housing, watering systems, skillful kid rising, mortality, diseases, and good general health care are essential yet neglected. These factors hinder the unjustified contribution of goat keeping for food security and poverty alleviation in rural Kusawgu community.

1.4 Project Objectives

The general objective is to identify the factors that will contribute to successful goat rearing to increase food security in Kusawgu.



1.5 Specific Objectives

The specific objectives for the project include:

1. To examine the traditional ways of rearing goat in Kusawgu.
2. To identify the factors limiting domestic goat rearing in Kusawgu.
3. To identify and propose sustainable methods of rearing goat to increase income, access and availability of food in Kusawgu.

1.6 Project questions

The following questions were put forward to help in the achievement of the objectives set above:

1. What are the traditional ways of rearing goats?
2. What factors limit goat rearing in Kusawgu?
3. What factors will contribute to a successful goat rearing to boost food security in Kusawgu?

1.7 Significance of the study

This project is meant to draw out the possible challenges limiting traditional goat rearing and the link between goat keeping and food security and to identify and propose or suggest sustainable goat rearing practices for the rural poor to boost food security in the community. This project will provide valuable insights for policy analysts and agricultural administrators, Non-Governmental Organisations seeking to develop specific interventions for food security in Northern Ghana for the subsistent smallholder farmers. It is also intended to improve the traditional rearing practices, reduce unemployment level in the rural communities and as such improve environmental sustainability by the use of the animal dropping in crop farming. The project also intends to make general contributions to the understanding of goat management



through the application of some important, but neglected principles that could be applied to improve goat keeping for food security in the Northern region.

1.8 Scope and limitations

This project is conducted on examining the factors that will contribute to a successful goat rearing to increase food security in Kusawgu community in the Northern region. In such a project there is bound to be several constraints to be encountered. First, there are several houses in the community and hence large numbers, every house was not necessarily contacted to source information during the project. The study was also constrained in terms of time. Cost is another issue that limited how widespread data was collected. Nevertheless, in the face of all these limitations, it is believed that the core objective of identifying the factors limiting goat rearing, and factors that will contribute to successful goat rearing for food security in Kusawgu community in the northern region is achieved with a high amount of confidence.

1.9 Outline of the project

This project is organised in six chapters. The chapter one gives an introduction to the entire project, and it covers the background, problem statement to the project, the objectives of the project and its significance.

The chapter two is literature related to livestock and goat rearing. Chapter three is the methodological approach employed and the methods used to collect data and its analyses. Chapter four is results and observations of the data gathered, and also provide a solid interpretation to the data. Chapter five and six deals with findings, challenges and problems identified during this project and the conclusion, solutions and suggestions respectively.



1.10 General description of Kusawgu

Kusawgu is a community in the Central Gonja District in the Northern region of Ghana. Its geographic coordinates are 9° 12' 0" North, 1° 3' 0" West. It shares boundaries with Kpinjipe in the South, Kalibontoh in the East, Galishegu in the North and the Kintampo-Tamale road in the West, covering a total land area of about 81.0 Km². The main methods of land acquisition identified in the community are freehold and lease hold. Average farm size is as low as 2-3 acres per farmer. The small farm sizes have negatively affected production, food security and consequently income of households.

Relative humidity is between 70% and 90% during the rainy season but is as low as 20% during the long dry season. The rainfall is seasonal and is characterized by a single maximum. The mean annual rainfall is about 1,144mm. The rainfall pattern is erratic, beginning in late April to late October. June, July and August generally record the heaviest rainfall and also the greatest number of rainy days. The irregular distribution and short duration of the rainfall are a great limitation to crops and vegetative growth threatening food security (Central Gonja District Profile 2013).

The community has a mean annual temperature of 35°C with the maximum temperature of about 40°C usually recorded around March to April. Temperatures are lowest an average 22°C, between November and January due to the influence of the North-East winds otherwise known as harmattan. Soils in the community are not too fertile for agriculture. The major tree species are Shea-nut (*Vitellaria paradoxa*), Dawadawa (*Parkia biglobosa*), Baobab (*Adansonia digitata*), Neem (*Azadirachta indica*), Mango (*Mangifera indica*), and Kapok (*Cesiba pentandra*) according to the Central Gonja District Profile 2013.

The Kusawgu community is divided into four (4) suburbs, viz Buntasi, Ewurikpa, Kawukuragura also called Bungalow and Gbanpe. According to 2014, May report of Kusawgu Health Center, the community has a total population of about 2,745 with males and females constituting (1,253) 46% and (1,492) 54% respectively. There is seasonal out-migration by the youth especially males to the southern part of the country to work, women also do so all the year round for 'kayayoo' 'Kayayoo' is combination of two languages, 'Kaya' from the Hausa language and means head porter 'Yoo' from the Ga language which means woman. In short 'Kayayoo means Woman-head potter. This migration of the labourforce partly explains the low agricultural output levels and food insecurity experienced in the community.

The population of the community is assumed to be fast growing. The community has a total of 229 houses and 241 households. The community is nucleated with compound houses. Most of the houses in the community are built using traditional methods and materials. About 75 % of the houses are built with mud and the remaining is built of cement blocks. The main roofing material is thatch and corrugated metal sheets. Most of the houses they occupy are self-owned. In the community, a house is owned by a man serving as the landlord assisted by wife(s) and other family members.

Electricity is available in the community. About 80 % of the inhabitants have electricity in their homes. The remaining 20 % without the electricity uses flash lights and lanterns.

Charcoal and firewood constitute a good percentage for cooking, and some minimal industrial processes. Continues dependence on the charcoal and firewood as a source of energy encourage deforestation leading to land degradation, soil infertility resulting in low crop yield leading to food insecurity. Basic education is available in the community. Enrollment of female is less than that of their male counterparts.

The community has one Government Health Centre. They centre attend to minor ailments and refer serious cases to Tamale Regional Hospital and other hospitals in the metropolis. Majority of the people are covered under the National Health Insurance Scheme (NHIS) according to the Kusawgu Health Centre Report 2014. Traditional Healers and Traditional Birth Attendants (TBAs) are available. The sanitation situation in the community is currently not the best, majority of the people defecate around haphazardly in the bush.

Kusawgu community is linked to the adjoining communities and regions by a number of feeder roads. Transportation is challenging because the key means of transport to and from other nearby inland communities are motorbikes and motor tricycles called motor-kings. Telecommunication services are available. The only postal facility in the community is not operating because most people sort to the use of mobile phones and the recent reliance on drivers to deliver documents to relatives and friends according to respondents. Potable water is generally scarce in the community. Several attempts to drill boreholes have failed. A borehole is made available for the populace but water supply is very low making community members to still depend on the two (2) seasonal local dugouts, which they compete with their livestock for domestic use.

It is a taboo to eat pig, monkey, and donkey, dog and horse meat in the community. Menstruating women are not supposed to go near Nambulugu (small pond) and Kejakpabore (the sacred tree) in the community. It is also forbidden to point a finger at the Community Shrine. The dominant religion in the community is Islam. Christianity and African Traditional Religion constitute fewer peoples. Gonja is the dominant tribe in the community. Other tribes include Dagomba, Mamprusi, Dagaaba and Fulani.

The people of Kusawgu undertake various income generating activities for their livelihood. The community is dominantly agricultural with majority of the community's active population

involved in various crop production and livestock keeping. Others are engaged in petty trading, services (teaching, hairdressing, sewing, food vending and credit selling), motor and motor king ridding (okada) for the transportation of goods and passengers and donkey cart (fetching water for sale) since getting potable water is a challenge in the community. The crops grown include groundnut, maize, yam, rice, cassava, millet and soybean. Farmers are always effectively occupied at their farms during the rainy season. Though farmers produce different type of crops, groundnut production has been the major crop over the past three years, using family members including children as the main source of labour by people who cannot afford to pay for hired daily laboures (by-day workers).



CHAPTER TWO

2.0 Literature Review

The increased purchasing power of people due to increased earnings will enable people to eat more meat. Local demand for livestock and livestock products is greater than local supply, but the improvements in technology that can help increase local livestock productivity are not available. With a new livestock development project funded by the African Development Fund (ADF) that is tailored towards the smallholder, the country is poised to be a self-sufficient livestock producer in the near future and rural living standards will be greatly and positively impacted.

The village system of management, with free roaming of sheep and goats and almost no health care even at kidding or lambing, is the most common system of production in Kusawgu. Sheep and goats are among small livestock kept by farmers with limited financial resources for poverty alleviation in many developing countries especially in Africa. They are a unique type of animal sector and serve as a source of revenue by (Panin 1993; Degen 2006 cited in Helela 2010) for small holder farmers who cannot afford to maintain large ruminant livestock like cattle. This is true for the disadvantaged and their families in rural areas of the sub-Saharan Africa according to (Nwakor 2004, Degen 2006).

2.1 Goat Keeping

Goat keeping is an enterprise that is both suitable for poor households who own little or no land, and is resilient to climate change. The West African Domestic goat belongs to the kingdom Animalia, Phylum-Chordata, Class-Mammalia, Order-Artiodactyla, Family-Bovidae, Genus-



Capra and Species-Hircus. The breeds are indigenous and consist of the West African dwarf breed of goats.

Traditionally, goat rearing has been a subsistence activity of resource poor rural people cited by (Kumar and Deoghare 2002 cited in Kumar 2007). This may account for the reason of goats found in rural Kusawgu. Again, rural people of higher social and economic status have shown inhibitions in undertaking the goat keeping activity due to social stigma (Kumar 2007). This may contribute to the low numbers of goats encountered.

Goats are regarded as the ‘poor man’s’ cow because of their ability to provide sufficient meat, milk and skin to the small holder farmer. However in Kusawgu, goats are mainly kept for income and as family security. It has varieties of functions and in comparison with other ruminants it displays a unique ability to adapt and maintain itself in harsh environment. Goats have mobile upper lip and very prehensile tongue, they are able to graze on very short grass and browse on forage not normally eaten by other livestock. They are inquisitive feeders, with feed ranging from herbage and tree barks.

Based on empirical evidences, it has been suggested that the medium and large sizes of goats reared under intensive system for commercial production should attain more than 25-kg body weight at the age of 6-7 months for achieving their full economic potential (Singh 2006). Therefore, the farmers need to make efforts to further improve the weight gain of their animals through better management and technological interventions.

Mortality and morbidity losses due to diseases in goats have been a major constraint in the traditional flocks (Kumar et al 2003). Malnutrition, poor growth rate and heavy worm burden have been reported in sheep and goats kept under the traditional system of production in sub Saharan Africa cited in (Kusiluka & Kamarag 1996 cited in Seth 2014). Studies by (Notifor et



al 2011) on the prevalence of gastrointestinal tract parasites in animals kept under different traditional management systems showed that prevalence were higher in tethered animals (88.7%) followed by free range grazing animals (60.9%). Animals confined in paddocks had the least prevalence (45.5%). The risk of certain diseases increases in large flocks maintained under the intensive system. This situation of the prevalence of diseases is however not different in Kusawgu.

According to (Baffour-Awuah et al 2007), helminthiasis is also a major cause of mortality among goats. He further states that goats account for more than 25 per cent of the total livestock in the country and contribute Rs 1, 06,335 million annually to the national economy. They provide food and nutritional security to the millions of marginal and small farmers and agricultural households. According to (Singh and Kumar 2007) the productivity of goats under the prevailing traditional production system is very low. It is because they are maintained under the extensive system on natural vegetation on degraded common grazing lands and tree lopping. Even these degraded grazing resources are shrinking continuously; adoption of improved production technologies/ management practices in the farmers' flock is very low. Therefore, rearing of goats under intensive and semi-intensive system using improved technologies for commercial production has become imperative not only for realizing their full potential but also to meet the increasing demand of chevon (goat meat) in the domestic market as well as international markets.

There burden lies on goat. Rising per capita income, growing urbanization and unfolding globalization are boosting the demand for high-value commodities including meat (Birthal and Joshi 2006). Due to these fast socio-economic changes in the recent past, a rapid shift has taken place in the dietary habits in favour of non-vegetarian diet. As a result, the demand for goat

meats has swiftly increased and the domestic market price for chevon has risen over the decade. Goat production is considered to be an important tool for socio-economic transformation of the rural poor. It is estimated that with the adoption of scientific goat rearing practices goat keepers will be able to achieve better levels of production leading to higher income (Veeranna 2000).

The tourist industry has expanded tremendously bringing in a new clientele of consumers often demanding prime quality and sometimes unique products. This continued expansion of the internal market provides good prospects for medium term growth in the industry by (MAAIF 2001 cited in Bwire 2008). The situation is however not different in Northern Ghana. The project thus analyses the status, economics and prospects of commercialization of goat production for food security in the country.

Dairy goats require fewer resources to maintain yet they give higher returns than cattle. They consume less fodder which helps small holder farmers to save on pasture. They also occupy less space but still produce enough milk and meat for a typical family of six members. A recent consistent effort to introduce dairy goats in Kenya was led by The Arid Lands Resource Management Project II (ALRMP) of the Ministry of Northern Kenya and Other Arid Lands (which has since ended). Its aim was to enhance food security as well as reduce livelihood vulnerability in 28 drought-prone districts in Kenya (Florian 2012). Goat rearing equally has a potential of enhancing food security of households and reducing livelihood vulnerability in Ghana. Smallholder dairy goat farming in Ghana is increasingly being promoted by development organizations, as it is perceived as an option to boost farmers' income as well as improving rural livelihoods.

Goat rearing represents a critical dimension of the livelihood and strategies of many poor and disadvantaged rural and peri-urban communities in Ghana. For many years, goat play a central

role in the social and cultural identity, lives and are a source of food, employment, food security asset. Access to quality services enhances the productivity and health of the animals and thus the income and welfare of individual households and the livestock sector as a whole. For many rural folks, it is a strategy for coping food insecurity, especially in the Northern part of the country. For instance, in the Northern part of Ghana, goats are referred to as a ‘walking bank’ and provide financial reserves, serving as a risk-coping strategy, which is a buffer during crop failures and in periods of economic stress (Goat Farmer Kusawgu).

Goat rearing however provides substantial household cash income particularly for the poor, and supports food security in many rural households. In the three Northern regions of Ghana, goat keeping serves as insurance against food deficits that occur frequently. It provides income for various purchases such as inputs for crop farming (Goat farmer, Kusawgu). Thus, a goat keeping is crucial to the optimization of the Ghanaian farmer and livelihood systems in rural Ghana. Goats are among the main meat-producing animals in the Northern Regions, which is preferred by many people and has huge domestic demand across Ghana. Besides meat, goats provide other products like milk, skin, fibre and manure to other keepers. Goats are important part of rural economy, particularly in the arid, semi-arid and mountainous regions of the country. About 1000 goats (*Capra hircus*) are kept by individual households in Kusawgu community to serve as income and family security. For that reason, these productive farm animals are kept on free-range without proper care and management systems. Goat farming is not a new enterprise; this business contributes greatly to the economy and nutrition of nations.

According to (Jollans 1959 cited in Bwire 2008), it is evident that chevon is relished in Ghana and that, it is preferred to pork, beef and mutton. Goats also constitute a greater proportion of ruminants slaughtered in government abattoirs in the urban centres. According to (Oppong 1965

and Buadu 1972) goats in Ghana are prolific, and that multiple births are common even under un-favourable management conditions. Chevon is a great source of consumable meat which is very tasty, nutritious and healthy diet. Local goats are enjoyable animals and easy to handle, and relatively inexpensive to purchase, feed, and house. Goat production offers the opportunity for profitable and sustainable diversity for a small household farming family to cope with food insecurity. A groundnut farmer in Kusawgu can use goats to clean up residue and fertilize the land, while generating revenue for the family. Proper feeding and housing procedures, medication, watering systems, controlled grazing, skillful kid rising, and good general health care are essential for success. Local goat rearing using improved management practices undertaken for maximization of returns has a potential of contributing to family financial security.

“The goat was probably the first animal to be domesticated around 7000-9000 Before Christ. This long association between goat and human indicates the variety of functions the goat can provide, stated in ‘Goat Farming as a Business: A Farmer’s Manuel to Successful Goat Production and Marketing’ 1992, by the Department of Agricultural Research and Extension, Metapos Research Station. Goat rearing has been found equally rewarding under both intensive and semi-intensive systems of management. Intensification and commercialisation of goat enterprises has recorded importance because of shrinking of resources for extensive grazing. Commercialisation would help in increasing the goat productivity and bridging the demand-supply gap. However, the use of improved technologies, particularly prophylaxis, superior germ plasm, low cost feeds and fodders and innovative marketing of the produce would be the pre-conditions for successful local goat production. There are many advantages of goat farming



business to the people of Kusawgu. Farmers explained that, they can raise goats along with other livestock.

In small ruminant 'peste des petite ruminant' (PPR), mange and internal parasites are the major diseases. Feed is a constraint to animal production. The significant fluctuations in the supply in the community are due to the erratic nature of rain fall and long drought, consequently affecting the quality of feed. Access to water is an acute problem, especially in the dry season in the community, farmers acknowledged. Extensive trekking of animals in search of water affects their weight. Unfortunately, the community has only one dugout which has been constructed for use by both humans and animals, which is almost silted partly due to lack of maintenance and partly due to neglect. Levels of husbandry are poor and there is an inevitable high mortality rate. The market for goats in the villages is fast growing during festive occasions and there is no organized marketing system available for the sale of small ruminants. It is therefore envisaged that if the management systems are upgraded, the community will not only benefit from meat production but also from food security and gainful employment, since cash from the sale of goat could be used to purchase food stuffs.

Housing is an important factor for profitable goat farming enterprise. Small scale farmers generally keep their goats with other livestock. But for business purposes, a good goat housing system is highly recommended for better production. A good house not only give shelter and protects the goats from predators but also prevent them from various types of diseases. The housing need to be always kept neat, clean and dry with proper ventilation and drainage systems. Availability of sufficient fresh water is important in this livelihood. Housing design are of various types according to the number of goat, financial condition of the farmer, available and



cost of housing materials and owners choice, a farmer explained. A simple traditional house is what is used in Kusawgu.

On the contrary, farmers in Kusawgu do not have proper housing structure for their goats, and this exposes them to several challenges, this conforms to (Lebbie 2004). Sheep and goat have various inherent production risks and benefits (Lebbie 2004). On the other hand, studies of agricultural systems in developing countries suggest that, sheep production tends to be riskier than raising goat by (Dossa et al 2008, Fakoya & Oluruntoba 2009). In addition, free range sheep have a tendency to graze and stray away from homesteads, thereby exposing them to theft or being killed, compared with goat (Dossa et al 2008). By comparison, goat is inherently less docile or more aggressive and in free range grazing systems typically graze near homesteads. Notwithstanding the increased risk associated with both animals, especially under traditional extensive systems in African countries, studies indicate that the expected returns from sheep production is higher than for goat by (Dossa et al 2008) this disagrees with (Kumar 2000), which states that keeping goats are more profitable than keeping sheep. Goat on the other hand, is more prolific in giving offspring than sheep by (Upton 1985 cited in Dossa et al 2008).



CHAPTER THREE

3.0 Research Design and Data Collection

Data for the project was collected through qualitative and quantitative research techniques. According to (De Vaus 1996) a blend of the two methods helps researchers to improve quality and consistency of data collected. Focus group discussions (FGDs), detailed discussions, Participatory Rural Appraisal (PRA) and observations were used to gather quantitative and qualitative data on the links between goat rearing and food security as well as its contribution to the household. Farmers and the entire community, personal and economic variables of food insecurity information were collected. Gender of farmers, religion, and goat production to food security views, production risk perceptions, and contribution of goat rearing to food security in the community as well as farm-related factors, including agro-ecological zone in which the animals are located were captured. In addition, the reliability of the data was checked through focus group discussions, especially information on goat contribution to food security, challenges and risks to goat rearing.

Secondary data from the Ministry of Food and Agriculture offices, District Assemblies and the internet were also valuable places where information was collected. In-depth discussions were organized with farmers and farmer groups, stakeholders and opinion leaders of the community, officials of the district assembly and the veterinary services department of the district were contacted for information. The focus group discussions and surveys covered themes on the contribution of goat to food security, the social and economic contribution of goat to the household and family, current and future plans of goat keeping, as well as their detail understanding about the prospects of goat rearing and food security, understanding of best methods and practices of keeping goats, and reasons for keeping goats, and identifiable



challenges to goat keeping. Gender issues in food security in keeping goats were taken into consideration in this project.

Ten different farmer groups were met for focus group discussions to ascertain detail understanding of goat keeping and food security. Each group numbered 15 to 25 members. Three of the groups were mixed gender and the other seven male dominant. About 20 individual farmers' households were contacted personally from each of the various subdivisions of the community to source and validate information for this project. At stage one, the subdivisions from the community were purposively selected based on the high population density of goats, this was to find out detail factors for the high numbers in those suburbs.

A simple random approach was applied to select two female farmer groups in the community; this step was taken to source information from women in goat keeping and food security in the community. Finally the Central Gonja District Agriculture Office was contacted also to validate the information from the farmers and farmer groups. Farm household's utilities were directly observed. However, such individual actions are seen through the choices they make and assumed risk perceptions and expected returns of new or potential economic livelihood activities of goat.

3.1 Research Instruments

Observations, surveys and focus group discussions were employed as the main tools in this project. Proper and detail discussions were carried out, with detail explanation to find out the contribution of goat rearing and food security in the community. The use of the focus groups discussions was to allow subjective and objective views of respondents to be sourced. It was also to allow the respondent an ample time to answer the questions and to make it participatory. Personal interactions were to allow me to have direct communication with respondents. It gives



the respondent the chance to express his/her view/s freely. It also will also save extra time of following up for questionnaires.

By the observation, it was to see and document sensitive reasons and things that contribute to goat keeping in the community and the link to food security and livelihood that the respondents may not likely comment. Furthermore, aspects of the data were physically observable and could be gathered through direct field observation, for example the housing structures used for goat. In view of this, I became convinced of the usefulness of combining different methods from both qualitative and quantitative approaches in my attempt to gather the data needed for this project.



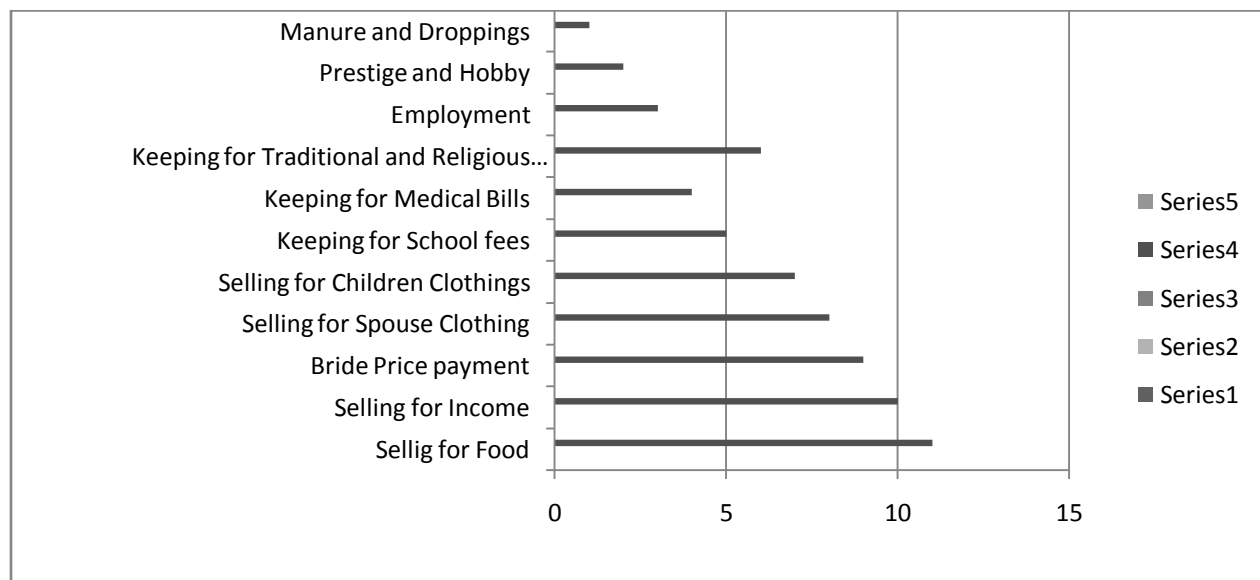
CHAPTER FOUR

4.0 Results and observations

Both quantitative and qualitative data is analyzed and presented or represented in statistical tables, charts, descriptions and narratives. Data collection methods employed were mainly (visits, focus group discussions, surveys, key informants and observations). The results are based on content analysis and interpretations.

The following reasons were ranked based on food security and reasons for keeping goats in the community during a group discussing; selling to buy food in times of food shortages, sell for income, use for the payment of bride price, employment, selling to buy wife clothing, selling to buy children needs, rearing to pay school fees, for medical bills, for traditional and religious purposes, prestige or hobby, and for manure or droppings.

Figure 1. Reasons for Keeping Goats



Field Survey, 2015





It became evident that keeping goats to sell to buy food in times of hunger topped the rest of the other reasons; the second most important reason for keeping goats in the community illustrated by the group during the discussing was for income. People described the keeping of goats as a very good and very reliable source of income or money in times of financial difficulties. Because the animal can be sold at any time anywhere, majority of the indigents in the community keep goat because they can turn their faith on and rely on it in times of hunger to serve as buffer. They describe this small ruminant as a matching grand to the family source of income. The animal is easily sold at the time of need, thus for children school fees, for medical bills and even to buy clothing for wife/s and children and also perform traditional or religious obligations during festive seasons and to honour certain religious obligations and cultural rites. The third most important reason for keeping goats in the community is for use during festivals and payment of bride prices and serves as an important grant to nearly married couple. According to the people of Kusawgu, they also keep goats to perform their various religious ceremonies. Even though they do not kill most of the animals during the Idul-fitr and Idul-Adhar, they do sell and buy sheep or exchange for sheep to perform their obligations as Muslims. After the performance or during the performance, a goat could be slaughtered as an additional source of food to the family and some distributed to friends, religious colleagues and favourites, In-laws and relatives as free will and charity, and to ask for God's favour and blessings. People keep goats in the community to help them pay or sell for cash and provide the needs of and demands of In-laws and to help them perform their religious and obligatory marriage ceremonies. Even for newly married couple and those whose marriage has become old, goat rearing in Kusawgu is such a great asset for the

young who intends to marry in the near and next future. Having goats is a sign of financial maturity for the youth.

Keeping goats for meat in the community and as a source of employment is not a priority for the people of Kusawgu, only very few of the population keep goat for these reasons. Keeping goat for traditional sacrifices and as family prestige was not also a major aim. It became evident that nobody in the Kusawgu community keeps goats for or because of the manure it provides, even though the people use it to fertilise their farms during the rainy seasons. People expressed their views that, the manure from goat is very good for groundnut cultivation; they do not keep goats for this reason and purpose. Goat keeping as a hobby or prestige and for skin or hide attracted very low interest among the participants. From the focus group discussing, people expressed that even though they enjoy these products, the rearing of goats in the community is not behind these reasons. Again people of the community do not regard the keeping of goats as a major employment activity but a supplementary venture for their leisure time for an individual, a farmer stressed. Conclusively, majority of the people of Kusawgu keep goats for food security and for family insurance reasons.

Table 1 Gender and goat keeping

GENDER	MEN	WOMEN	CHILDREN
	90 %	8 %	2 %

Field survey, 2015

The table above illustrates that, majority of the people of Kusawgu, who keep goats are men putting women and children to record lower per cent as indicated. This was noticed during a focus group discussing, that about 90% of the members of the community mostly men are



engaged. This could be the reasons that men are landlords and women and children are subordinates in the family. However, there are no known traditional, tribal and religious norms and taboos inhibiting or preventing women and children from keeping goats in the community. Even though the potential of women and children in keeping goat to serve as a matching grand to buy food in times of hunger is yet to be exploited, they are marginalized in this enterprise.

Women and children recorded 8% and 2% respectively during the group discussing. Subordination and marginalization, in keeping goats in the community is a big issue that need to be looked at to ripe the full benefits of using goat keeping to alleviate poverty and ensure food security. Traditionally, women are considered generally to be good managers when it comes to hunger and should be given the node to keep goats to bring food security to the door step of the household. Since there are no traditional and religious norm that prevents women and children to the keeping of goats, the lower numbers of women and children goalkeepers could be because of their long defined gender roles in the community.

Another reason that could contribute to the low per cent of keeping goats by women is the over reliance of women on their spouses to provide their needs and wants as the head of the household and the regard as the powerful and the final authoritarian of the household. Another reason is men or household heads determine which livestock women and children should keep in the family. The inability of women and children to exploit goat rearing as a potential poverty alleviation tool and food security strategy could account for the several reasons why women and children are still the most vulnerable in the community in terms of food security. Another reason for this is that, women are considered to have come from a different family and only married to a man and has no property ownership to own serious wealth to over-shadow the head of the house.

The traditional and primitive nature of keeping goats in the community may not also be innovative enough to attract women and children.

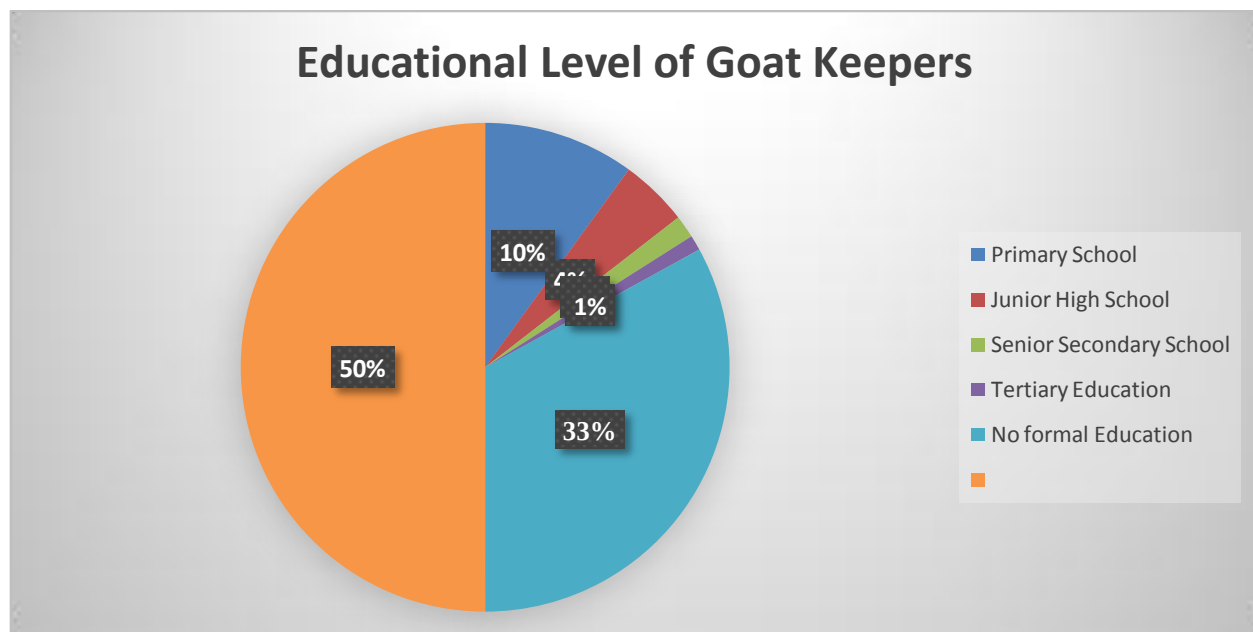
Goat keeping, despite its good economic and social prospects, for the people of Kusawgu, goat rearing is still under the traditional practices, with only a few people providing modern services and technology to the animal. High demand for goat and its products with potential of good economic returns and social benefits have been deriving many progressive farmers, businessmen, professionals, and educated youths to take up the goat enterprise on a commercial scale or an attempt to increase their stock. The emerging favourable market conditions favours the local farmers but no easy accessibility to improved goat technologies also hinders the attention of entrepreneurs to expand their rearing. Using the different methods of information collection, farmers expressed their views, that the animal has a tremendous impact on their livelihoods. Traditionally, goat rearing has been a subsistence activity of resource poor rural people in Kusawgu since time immemorial, but has only been challenged by numerous setbacks.

Farmers in the community had no good access to technical and market information, and this could also be why they still practice primitive and subsistence system of keeping the goat. A household in the Kusawgu may keep up to an average of eight goats. The landlords or men keep the majority of the goats; this could be due to the leadership role they perform as traditional heads. Women and children keep the least numbers, keeping them under the economic baseline. The head size of a household stock of larger families varies according to the number of people living in the house, and may also depend on the family norm of keeping livestock. For some families, women and children do not have to keep their own goats but rather have to take care of their husbands and father's or mother's goats respectively. Large farmers, who have better access to information, resources and market, and are well versed with the economic and social

importance of goat keeping helps in realizing the potential of goat enterprises in the community. Interestingly, the people who have their major income from businesses had taken up goat farming as their subsidiary occupation and are making more benefits than the typical resource poor farm households. These people might be able to better arrange the required capital and skills for semi-intensive and intensive systems of goat production. The popular belief is that goats can be economically maintained only under free range systems with a provision of grazing on fallow lands. However contrary to that, the goats were being successfully reared under semi-intensive system of management according to farmer's experience, because supplementary feeding and watering, medication is provided.

In the large category, most of the farmers were maintaining their goats under the free range system. Traditionally, rural people of higher social and economic status have shown interest in the goat keeping activity due to social and economic benefits. Again, it was observed that cash, housing feeing is not a barrier in commercial farming of goats in the community.

Figure 2. Educational levels of goat farmers



The pie chart above analyses the education levels of people who keep goats in Kusawgu, it came to light during a group discussing that, about half of the people in the community who keep goats for their livelihood or to improve their living and also keep goat for food security and other family security reasons do not have formal basic primary school education. This could account for the low adoption of modern technology to improve their rearing stock, due to ignorance and illiteracy. The group noted that, about 33 % of the population who keep goats have formal primary school education or have been to primary school class one, and only about 10 % and 5 % have Junior High School education and Senior High School education respectively. Regrettably only about 1 % of the farmers who keep goat had taste of tertiary level education, mainly government pensioners and people who have retired from active services or are currently working in the formal sector.

The low level of formal education of the majority of the farmers who keep goats could be one of the major reasons why goat rearing is still a subsistence activity and the low numbers of goats reared by households and individuals. The inability to take goat keeping on commercial level to fight poverty and hunger in the community, the level of adoption of different technologies by goat farmers who had received education, was found to be encouraging. However, it was evident that, the little educated farmers are able to care for their goats better than the non-educated families. This could partially explain the condition of perpetuating poverty and hunger in the families as a result of not exploiting goat keeping as a hunger and poverty fighting strategy.

The small size of an initial flock for the new entrepreneurs was observed to be an important factor for the successful start and establishment of a sustainable commercial goat-farming project. The new entrepreneurs, who start with a small flock of one or two goats without experience of managing large flocks, mostly advance and suffer little losses and some of them

even desire to improve the business. There are no commercial goat farmer in the community, all farming are of subsistence level. There are 2 well-defined breeds of goat in the community. The West African Short and the Red Sokoto breeds and other few cross breeds.

These farmers need to switch over to some suitable breeds such as Sirohi, Osmanabadi and Barbari to make their business more productive and to fight food security squarely. Because they are prolific than local breeds. Farmers acknowledged that the local breed's colour and meat of the breeds are preferred over the Sahalian by the domestic consumers. However, the cross is a good grazer and puts on flesh faster. Therefore, the local pure breed animals should be crossed with the Sahalian Boer breed for such a small gain. Such crossing may only be experimented with the non-descript animals. A major initial investment was found to be the purchase of breeding stock while construction of sheds and structures are locally made from local materials, which only fewer families practice.

Unlike the exotic breeds the traditional flocks, the expenditure on feed and fodder is not a major component of the cost of goat rearing. Closed or supplementary feeding was observed highly scarce among the farmers, particularly during the dry seasons. According to farmers, most goats female (nanny) do not kid in the dry season due to the insufficiency of feeds. It is clear that supplementary feeding should be provided during the dry season to make goats prolific all year round. Goat production under intensive system is considered unsustainable venture, because of the scarcity of feed during the dry season. The flock size may be further increased during the rainy season. Local goat farmers in Kusawgu do not treat their animals, unless there is a serious outbreak of diseases. This may account for the high mortality of flock of some of the farmers encountered, and may even entirely wiped off the flock.



4.1 Production of Kids

Kids born from the goats were the major foundation breed stock for other members of the family to start their own subsistence goat farms. There were mainly two kidding seasons: March-June and October- November. However, some goats on few farms kidded in other months also. Kid mortality was estimated to be high in the dry season than in the rainy and this could be due to the insufficiency of feed to both mother and young ones. This is contrary to the popular belief that the mortality rate in kids was negatively associated with the flock size and due to wet weather conditions. This may also be mainly due to better management, feeding and preventive healthcare provided by the farmers. The mortality rate in kids was well understood to be due to improper feeding, insufficient watering, and low milk production from the mother during the dry season. However, deaths from diseases are not negligible.

Some farmers who have seen, that goat keeping can turn the fortunes of their lives also buy male young kids from their peer farmers and fatten them for sale at the lean season and during the festival of Eid. Such special male goats prepared for Eid fetched much higher prices compared to the ones sold for meat purpose any time. The farmers had no very high level of awareness about improved technologies. There was low level of adoption of recommended package of practices and technologies of daily management practices and prophylaxis related to direction and type of shed, feeding and watering devices and mineral mixtures adopted by the farmers. The use of vaccines for Peste de Petite (PPR), Herpes Simplex (HS) and Foot and Mouth Diseases (FMD) and other medication for internal as well external parasites were least adopted by farmers for effective prevention of diseases and improved productivity. On many occasions, farmers could not use vaccines due to their non-availability in the community. Mortality and morbidity losses due to diseases in goats have been a major constraint in the traditional flocks and a big challenge



to the farming household. The risk of certain diseases increases in large flocks maintained under the free range system. The general belief that larger goat flocks are vulnerable to high disease incidence and losses was found untrue. Most of the farmers were eager to adopt improved technologies, but the absence of any support system to provide quick access to the latest information and technologies and weak input delivery system resulted in poor adoption.

4.2 Marketing Strategy of goat

A number of the local farmers had made efforts to advertise and popularize their goat farms and the quality of their goats through several means. Majority of the farmers give advertisements in the local mosque especially for sale of males during the Eid festivals. Most farmers get their orders to sell from friends and relatives, some middlemen come and extort them, they buy to sell at Tamale and other towns. These are some of the ways farmers sell their goats. This was made known during a focus group discussing. Some farmers also put hoardings at the main locations near their homes and retail to middlemen who come looking for goats to buy at market days and festive seasons.

A participant, during the discussing revealed that many of them also sell in the open market in Kusawgu and some bring to Buipe, Techiman and Tamale to sell. The farmers felt that the advertisement and publicity had increased their visibility, resulting in increased demand and better prices for their goats. Modern marketing strategies creating personal and own websites, giving details of the farm and the type of goats available for sale, advertising by e-mails, newspapers are yet to be developed by farmers. The other important mode of publicity and extension includes; the publication in graphics and organization of trainings for local farmers is not known by farmers.



CHAPTER FIVE

5.0 Challenges identified/problems noticed

Though goat farming under intensive and semi-intensive systems of management has been identified to be an effective means of goat production and has been picked up for the past couple of years, only very few of the goat population in the community has come under such production system. There has been no organised effort to develop the sector, and hence hardly any support system and required infrastructure available for encouragement to the local goat farmer in the community.

There are no NGOs and governments interventions towards promoting goat rearing in the community. In this backdrop, the local goat farmers do face a number of constraints, particularly during the initial phases of the goat farming business. The absence of proper standards of sale of live goats and specially-designed vehicles for transporting the live goats, poses challenges to the farmers under the presence of welfare of the animals during transportation of the matured stock from long distances for sale, this sometimes results in death of goats.

High mortality in goats due to PPR, diarrhoea, pneumonia, tetanus and other diseases in the beginning of the project was a major concern by the farmers. Deaths resulted to even the collapse and closure of a number of farms in the community. High mortality in goats in the initial phase was mainly due to lack of knowledge about practices of improved goat farming, poor prophylaxis, non-availability of vaccines, improper management of kids at birth, poor preparedness of the farmers, lack of personal attention of the entrepreneurs and poor access to veterinary officers and their services. High mortality and poor growth in kids was a major constraint for majority of farmers in the community.



Due to lack of management knowledge and modern technology, many of the farmers had difficulty in identifying pure breed animals. Farmers use the same progeny to mate and breed. Difficulty in getting good quality breeding animals was a major constraint. The best animals (particularly males) from the traditional flocks were sold for slaughtering to traders/ butchers and middlemen. That resulted in scarcity of good quality breeding animals to expand the local goat keeping.

The absence of organised efforts for breed improvement of goats has been compounding this problem. Since large goat flocks of different breeds under the local production are only few, the farmers had to select the breeding animals from the available traditional flocks mostly through previous experience and eye judgment and not on any critical trait analysis. Therefore it takes a long time to establish a good flock. Non-availability of vaccines, especially PPR, was another major constraint. Even the ET vaccine, which is being produced for decades, is not available for farmers to access. Non-availability of veterinary officers and limited knowledge of available veterinarians about goats was a constraint in various categories. However, large flock owners could hire a specialized veterinarian who is scarce to find in the community. The high cost complete feed was not available and not affordable by local goat producers in Kusawgu. All the local farmers required identification tags for their goats, however they did not have access to a cost effective tagging material, and this leads to loss of certain animals and theft, since animals are on free range.

Another major constraint was realization of low prices for the surplus live goats. The trade of live goats, which is unorganized and is in the hands of a large number of middlemen, traders and butchers, does not favour goat farmers in Kusawgu. The live goats were sold not on the basis of their body weight in the livestock markets, this resulted in under-estimation of the value of live

animals. Before building the reputation as a producer of quality breeding stock, farmers got very low price for their animals. Poor access to good quality breeding animals is therefore a constraint. However, with the increased awareness and linkages, the local farmers have started insisting on deciding the price of their live goats on body weight basis which is a battle between middlemen. The availability of institutional credit for the farmers to obtain credit in order to expand their production stock was not available for the local goat farmers, especially a major constraint for the small startup farmers with 1-2 goats and had limited capital for collateral security.

Goat rearing, which is the economic activity of the rural resource-poor people in fighting hunger and food insecurity has not attracted any progressive movement for a very long time in the community. The entry of resource-rich people, including cattle farmers, who have better access to financial mobility and can access technical knowledge, resources and markets, into this activity to help in realizing the potential of this enterprise in food security seems to be reluctant neglected.

It would have also encouraged the aspirant young goat farmers who do not have access to enough resources to also catch up in the business. The lack of good quality breeding stock being a major constraint in goat production, the farmers should be encouraged to become the centres of production of superior quality breeding animals. Considering good economic potential in commercializing goat production, some large industrial houses in the meat industry could enter and partner with farmers to boost the production of the local goat especially for the export market

The local goat farmers can earn best profit by producing and marketing pure breed goats and for festive sale during Eid. Small size modern slaughterhouses need to be established near the

production community to slaughter and dress carcass for the market but this is conspicuously missing in the community, this poses problems to meat hygiene and handling.

5.1 Problems encountered in feeding

Bloat is feeding leguminous feeds which are high in nitrogen content, it is the accumulation of gases in the stomach. If animals are not attended to in time they may die. Acidosis is one consequence of rapid or drastic changes to the goat's accustomed feed. Causes of acidosis include a variety of feed changes, including changing brands or types of feed suddenly. Prevention of acidosis can be as simple as making gradual changes over the course of several days to the new feed, pasture, hay or other form of nutrition, getting some amount of their accustomed feed when buying a new goat. Symptoms of acidosis include reduced feed intake, lethargy, diarrhea, salivating excessively, panting, changing position, calling out, kicking or stretching the belly or otherwise appearing in pain, uncomfortable or stressed. A bladder stone, commonly called “Water Belly,” is a urinary-tract blockage in goats. It prevents both urination and breeding in males, it is caused by improper feeding. Plant poisoning is also a problem in goat keeping. Some poisonous plants are ingested by accident, while browsing, but a major reason for the toxic poisoning of goats comes as a result of starvation.



CHAPTER SIX

6.0 Solutions and suggestions

Based on empirical evidences, it has been suggested that the medium and large sizes of goats reared under intensive system for commercial production should attain more than 25-kg body weight at the age of 6-7 months for achieving their full economic potential (Singh 2006). Therefore, the farmers need to make efforts to further improve the weight gain of their animals through better management and technological interventions by semi intensive systems.

A number of technologies are available for productivity improvement of goats. Technological and management options are the only alternatives to accelerate growth in the productivity of goats, which is low in the traditional system of production. An increased level of adoption of technologies and availability of good quality breeding stock would be essential to make the local goat farming more strategic in fighting food insecurity and making it profitable to the local folks. Mortality and morbidity losses due to diseases are serious in the community. Losses due to diseases in goats on local farms were estimated high. There should be extension of effective veterinary services to curb this incidence.

Major diseases that affected goats on farms were diarrhoea and pneumonia. The other health ailments were abortion, external and internal parasites. There should be a livestock trained community volunteer nominated by the farmers to help manage the outbreak of these diseases and ailments. The overall mortality in kids ranged high, and farmers should be trained on the management of pregnant does and kids. Adult or matured per cent death in goat equally is high in the community and this should be stopped for the farmer to relise the benefits of his labour by providing training of managements of adults goats' prior sale at festive seasons or at maturity. However, few individual farms suffered less mortality. On overall, local goat farmers in



Kusawgu suffer estimated losses due to diseases outbreaks in their stock. The relationship between losses due to diseases and the net returns from goats was negative and highly significant, indicating the importance of disease prevention for the sustainability of commercial goat production. This has implications for improvement in the productivity and profitability of commercial goat production, particularly in the short-run, through effective adoption of disease prevention and improved technologies. The average price of live goats realized by the farmers influenced the net returns positively and significantly. The reason for higher price realization by some farmers may be the effective marketing strategy and better quality of their animals (pure breed and good health).

The Kintampo Goat Breeding Station is situated at Kintampo in the Brong Ahafo Region. It was established in 1972 as sheep breeding centre under the then Animal Husbandry Department. It became Goat Breeding Station in 1992 under the Animal Production Directorate of Ministry of Food and Agriculture. The station is mandated to be the focal point for the development of the goat industry in Ghana. It is the only center in the country for breed improvement of the West African Dwarf Goat (WADG). This research station must extend their services to this community to improve the local farmers' efforts.

6.1 Management of females (does)

Young females should be mated from the age of 12 months. Good nutrition ensures that the animal grows faster and ready for mating. It also increases fertility and litter size. If young animals are mated when they are very young (less than 8months) they will remain stunted the rest of their life and will have poor reproductive performance. A well-managed female can produce kids for about eight years. Pregnancy in goats lasts between 145 –150 days (five months). A mature female can only mate when she is ready (on heat). The heat period lasts

between 24 –26 hours. During this time she should receive the male. The presence of the male in the flock triggers heat. Coming on heat also depends on the nutrition of the animal. Therefore the female should be well fed. Signs, which may indicate that the animal is on heat, include shaking of the tail and mounting other animals. Pregnant females should be separated from the main flock for close monitoring, at least two months before kidding. This also reduces the loss of kids. At this stage they will need quality feed supplements to enhance feed reserves in the body. This will ensure a healthy kid and enough milk.

6.2 Management of males (bucks)

Male goats are known to be fertile at an earlier stage than females. In such circumstances males have to be raised separately from females to avoid unplanned mating. Bucks have to be kept in good condition and fed at all times. For breeding purposes bucks with horns have to be used, so as to avoid haemophrodism and bisexual), which comes with the use of hornless/polled bucks. Bucks can be selected at an early age. A male kid born weighing about 2.5kg or more kg could be selected for future breeding. Heavier and fast growing bucks should be selected. Select bucks from twin births so as to increase the chances of getting twins. Males not suitable for breeding should be castrated or culled fattened and sold.

6.3 Health care in kids

A clean environment will reduce the incidence of diseases. A farmer should always be on the lookout for diarrhoea & for respiratory problems- coughing or nasal discharge. Make sure kids get colostrums within six hours of birth, make sure bedding is clean and dry, do not confine many kids in a small area, avoid damp conditions and excessive heat or cold, and avoid overfeeding kids with milk as this result in scours. To improve the general health of the kids



ensure the following to the whole flock: dry sleeping places, clean drinking water (about 5litres per animal per day), and adequate feeding (3-5% of their body weight per day), and control of internal and external parasites.

6.4 Predation

Ensure that the kids are housed to protect them from being eaten by jackals, eagles and other dangerous animals and do not allow kids to browse in dangerous places unattended.

6.5 Weaning

This should be done when the kids are hundred days old on average and weighing between 8-12 kilograms. The most common weaning method in goats is complete separation of the kids and the does. It is however critical to vaccinate the kids and the does against pulpy kidney (PK) just before weaning as this stresses them, making them vulnerable to PK. Weaning enables the does to be in good body condition in preparation for the next mating season

6.6 Castration

This is the severing or cutting of the spermatic cords so that the animal cannot mate with the females. Castration improves the quality of meat by reducing the characteristic smell of the entire male. Bucks not to be used for crossing and breeding should be castrated.

6.7 Fodder Production and conservation

The major constraint to livestock production is the unavailability of sufficient feed, especially in the dry season. The rangelands do not provide adequate (quantity and quality) feed throughout the year to support goat production. It is necessary to produce fodder crops for supplementary feeding during the dry season.



6.8 Fodder crops

These are crops that are grown for livestock feeding. They can be fed while still fresh or preserved. Some examples are grasses and legumes. Farmers in the community are advised to adopt this practice to improve nutrition of goats' feed.

6.9 Fodder conservation

To ensure all year round supply of good quality feed for goat, to maintain milk production and fertility in livestock, maintain good body condition and prevent deaths, to minimize stress to animals through food search.

6.10 Conservation methods

The two major fodder conservation methods used in Ghana are silage and hay making. Hay making is prominent in the community. Preservation of crop residues, especially groundnut vines is also a common practice to the smallholder. Farmers should improve it for dry season feeding.

6.11 Silage making

Silage is material produced by the controlled fermentation of green succulent crop material with a high water and sugar content in a sealed container called silo. This practice despite its importance is missing in the community. A silo can be a pit covered with plastic, a drum, a plastic bag. The silo has to be sealed completely and the contents should be chopped and well packed together so that all air is driven out and therefore fodder inside will ferment. Bacteria convert some of the sugars in the plant into pleasant tasting lactic acid which prevents spoilage bacteria or molds from making the fodder to rot. Wrongly fermented fodder rots, is unpalatable and toxic to goats.

6.12 The Plastic Bag Method

Every year before ensiling begins, the room should be checked, 15kg plastic bags are usually used and these should be clean, chop clean material (with no soil) to 15-20mm, seal the material completely in the bags so that all the acid is retained, store in a dry, place at room temperature, safe from rodents. The silage should be ready after 3 weeks. The whole bag can be fed completely once opened which reduces chances of spoilage to the remaining fodder. Bags are easily stored and portable. It also reduces the workload in comparison with the pit method. It is important to store bags of silage in a room safe from rodents and ants, empty bags must be carefully washed, dried and stored in a safe place for use the following year for goat farming.

6.13 Routine Health Management Practices

The routine health management practices include dipping, dosing, vaccination and hoof trimming; Dipping, there are quite a number of diseases that are caused by external parasites such as tick and mange mites. The most effective way to prevent these diseases is to control these parasites using acaricides. There are different methods of dipping that can be applied to goats. Pour on The acaricides comes in small containers and is poured on the back of the animal using the weight of the animal to determine the quantity to be poured. The acaricide then spreads throughout the animal as it sweats and in the process killing all the external parasites on the body of the animal. This method requires individual handling of the animal and in large flocks it becomes very laborious. It is recommended when a few animals are affected by ticks and during the dry season. Greasing involves the use of acaricides in the form of grease with tick grease being the most common. The tick grease is applied directly on the ticks usually under the tail, on



the udder and the ears. This is also commonly used when a few animals have ticks. Some tick greases are used as tick repellants.

Spraying, at times the animals pass through a spray race and the animal is sprayed throughout its body. The acaricide will be in the spray coming out through the nozzles. The only problem with this method of dipping is that sometimes the nozzles get blocked and the animals do not get sufficiently sprayed and local farmers may not be able to afford cost of machine. In some cases the knapsack can be used to spray the animals. Plunge dip, in this type of dipping the animals swim through a plunge dip with an acaricide. The whole animal's body gets in contact with the acaricide thereby killing all the parasites on the body. This is recommended in large flocks as it is not laborious and does not require handling of the animals.

6.14 Record keeping

Record keeping is of utmost importance in livestock production. Records, which should be kept, include: Mating records: These records include taking note of the female number, male number, when mated, when kidded and whether aborted or not. record the date of birth, sex and weight of kid and doe at kidding, record the date and cause of death if known, record the number of sales, costs, name of buyer, keep record of when the animals were vaccinated, dosed or given any other treatment.

6.15 General Advantages of Goat Farming

There are many advantages of goat farming to the people of Kusawgu. Farmers explained that, they can raise goats along with other livestock. Goats have been considered as poor man's cow (mini cow) because it can give regular income for the poor, landless and marginal farmers if well managed. Most of the respondents also confirmed that goats are small sized animals that can



easily be maintained and cared by women and even children. It requires low initial investment or capital to start. Goats do not require huge area for housing because their body size is comparatively smaller than other livestock animals like cattle. They are good breeders and they reach sexual maturity within their 7-12 months of age and give birth to kids within a short time. Local goat breed produces numerous kids per kidding. No religious taboo against goat farming and meat consumption in Kusawgu. There is no need of a high end housing system for goats. Goats are very suitable for mixed farming with other domestic animals. Goats are generally smaller in size but reach slaughter age faster. Goat meat has a huge demand and high price in the local markets. As goat farming business is very profitable, so as governments, Non-governmental organisations and financial institutions could provide loans for starting this business. This business requires less labour and farmers can easily use their family labour to start.

After a careful study with the farmers' goat keeping contribution to food security and household income security to buy food at hunger times is enormous. However, the technological intervention, particularly prophylaxis, superior germ plasm, low cost feeds and fodders and innovative marketing of the produce would be the pre-conditions for successful commercial goat production. Total expenditure and profit from goat farming business depends on the farming system, location, breeds, feeding cost and some other factors. By good planning and proper management farmers can easily make goat farming profitable in Kusawgu. Small scale farming requires less investment and profit can contribute to regular income and food security.

In short, goat farming is a traditional, profitable, risk-less and very easy business because of its multi utility and fast growing rate. The business can be used as a tool for food security, poverty reduction and could play an important role in the economic growth of the community. Although

some risks go with every business, proper care and good management can ensure better production and high profit for the people of Kusawgu.



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