

# Sheep Production System, Marketing and Constraints in Ethiopia

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## Abstract

This study reviews the sheep production and marketing systems with the aim of delivering summarized and synthesized information for the beneficiaries and users. In Ethiopia, more than 80% of the human population depends on agriculture for their livelihoods and usually keep livestock as pastoralists or in mixed crop livestock systems. Sheep production is one of the main enterprises in mixed-crop livestock system in Ethiopia. Sheep production provides food, cash income and manure to the smallholder farmers. Sheep have greater environmental adaptability, shorter production cycles and faster growth rates, ease of management, low investment capital and low feed requirements as compared to large ruminants. In Ethiopia, sheep production is of subsistence nature with little or no market orientation. Efficient marketing system enhances the commercialization of the smallholder system and it also increases animal productivity and income of the producers. Sheep productions are highly influenced by feed shortage, disease and parasites, severe water shortage and high shortage of labor. There are opportunities to increase sheep production like several development partners involved in higher learning; research and development are currently committed to sheep development. Depending on this review farmers should improve management systems and use healthy control mechanisms, marketing system should be modernized which means use body weight scale to sell and buy sheep, it is important to increase and use different opportunities that improve sheep production, and extension service should give training to farmers how to improve sheep production performance by giving supplementary feed and vaccination for different diseases.

## 1. Introduction

### 1.1. Background

In Ethiopia, more than 80% of the human population depends on agriculture for their livelihoods (Azage, 2005) and usually keep livestock as pastoralists or in mixed crop livestock systems. Ethiopia has one of the largest livestock population in Africa with the estimated domestic animal number of 57.83 million cattle, 28 million sheep, 28.6 million goat, 1.23 million camels, 60.5 million poultry, 2.1 million horses, 0.4 million mules and 7.88 million donkeys (CSA,2016). Livestock play an important role in providing export commodities in a form of live animals, hides and skins (FAO, 2009).

Small ruminants are playing an important role in the economy of farmers in the high lands of southern mixed farming system of Ethiopia (Getahun Legesse, 2008). Attempts to improve the performance of small ruminants under the prevailing condition must take into consideration their specific purpose in the production system and their potential under varying management levels (Otte and Chilonda, 2003).

Sheep production is one of the main enterprises in mixed-crop livestock system in Ethiopia. Sheep production provides food, cash income and manure to the smallholder farmers. Smallholder farmers rear sheep mainly for two purposes: for cash income and slaughter for home consumption during festivals. Small ruminants provide about 48% of the cash income generated by livestock production (Kassahun et al., 1991) and local per capita consumption of mutton and goat meat is estimated to be 2.8 kg (Belachew and Jemberu, 2003).

Sheep have greater environmental adaptability, shorter production cycles and faster growth rates, ease of management, low investment capital and low feed requirements as compared to large ruminants (FAO, 2002). They are important protein sources in the diets of the poor people, help to provide extra income and support survival for many farmers in the country (Solomon, 2008; Markos, 2006). In pastoral and agro-pastoral areas sheep are important components of the farming system, which benefit small holder farmers in generating cash income as well as meat. The traditional production systems under which the local sheep are kept are complex and diverse. However, sheep provide meat in all parts of the country contributing towards human nutrition and the economic requirements of communities (Ewnetu et al., 2006).

According to Gizaw S. et al. (2008) funding sheep production system in Ethiopia is classified into five sub systems, out of which highland cereal–livestock system, lowland crop–livestock system (agro-pastoral) and pastoral systems are predominant in eastern Ethiopia. Afar and Black Head Somali (BHS) sheep, which are the dominant sheep breed in eastern Ethiopia, has special merits in export market and fetches premium prices (Solomon G, 2010). However, productivity and the levels of foreign exchange earnings from small ruminants are much lower than would be expected, given the size of the population (Berhanu G., 2007). In Ethiopia, sheep production is of subsistence nature with little or no market orientation.

Efficient marketing system enhances the commercialization of the smallholder system and it also increases

animal productivity and income of the producers. According to Belachew and Jemberu (2003), a relatively huge number of exportable surplus livestock, proximity to the export market especially to the Middle East countries and other factors give the country a comparative advantage in livestock trade. The country has 1.02 million heads of surplus and exportable sheep annually. Poor marketing system affects the country's foreign exchange earnings.

Livestock production and productivity and producers' benefits from livestock production are far below expectations. There are also variations in the performance of different breeds of sheep in Ethiopia. The lack of up-to-date and location specific information on production and marketing systems is often a major limitation to productivity and production improvement endeavors in sheep in Ethiopia (Ayele et al., 2003). Understanding the performance of sheep under farmers' management, production characteristics, identifying constraints and opportunities and designing workable production strategies are required in order to improve livestock productivity and market success of producers. There are a number of challenges limiting the profitability of sheep production in Ethiopia. Therefore, a comprehensive review on the sheep production in the country seems to be appealing. There is a need for reviewing the production system, production performance, marketing, constraints and opportunities of sheep production. Moreover, information's on either weak sides or the success stories of sheep production including its socioeconomic contributions could be used by beneficiaries.

## 1.2 Objective

### 1.2.1 General objective

- To review on production performance, marketing, challenges and opportunities of sheep production in Ethiopia.

### 1.2.2 Specific objectives

- To review on sheep production systems in Ethiopia
- To review on production performance of sheep in Ethiopia
- To review on constraints of sheep productions in Ethiopia
- To review opportunities of sheep production in Ethiopia

## 2. REVIEW

### 2.1. Sheep production systems in Ethiopia

Livestock production system and the relative importance and potential for increased production by livestock species in varied areas differ markedly due to differences in resource endowment, climate, population, disease incidence, level of economic development, research support and government economic policies (Beets et al., 1990). In Ethiopia, sheep are maintained under two broad production systems (EARO, 2000).

#### 2.1.1 Mixed crop-livestock farming system

In a mixed crop-livestock production system, which is prevalent in humid, sub-humid and highland agro-ecological zones, sheep are kept by smallholders and graze together with goats and/or other livestock such as cattle (Lebbie, 2004 cited by Yoseph, 2007).

In the central highlands of Ethiopia sheep depend mostly on grazing fallow lands, overgrazed natural pasture and crop residues usually with no extra-supplement and receive minimum health care. Farmers maintain one to three rams (depending on the size of the flock) for year round breeding (Tembely, 1998). Productivity is low and is under nutritional stress for much of the year due to cropping intensity. Sheep carry heavy internal and external parasite burdens (EARO, 2000). According to Peacock (2005) in highland agro-ecology, as in central Ethiopia, increased human population has led to decreased farm size and a gradual shift from keeping large to small ruminants, mainly sheep.

#### 2.1.2 Agro pastoral and pastoral system

Sheep production is associated with the purely livestock based nomadic and transhumance pastoral production systems based largely on range, primarily using natural vegetation. In the lowlands of Ethiopia, livestock is comprised of large flocks and herds of sheep and goats, cattle and camels mainly transhumant, where only surplus are sold at local markets or trekked to major consumption centers. Extensive livestock keeping is the backbone of the economies of the lowlands (EARO, 2000).

Sheep are highly produced in pastoral and agro pastoral systems. Relatively larger flocks are maintained in the lowland (agro) pastoral systems. The major feed resources for sheep include grazing on communal natural pasture, crop stubble, fallow grazing, road side grazing, crop residues, browses, and non-conventional feeds (household food leftovers, weeds, crop tillers and fillers). Production of improved forages, improvement of low quality feed sources such as crop residues and supplementary feeding (except fattening) is almost non-existent (Solomon et al, 2008).

## **2.2. Productive and Reproductive performance of sheep in Ethiopia**

### **2.2.1. Reproductive performances of sheep**

Livestock production system and the relative importance and potential for increased production by livestock species in varied areas differ markedly due to differences in resource endowment, climate, population, disease incidence, level of economic development, research support and government economic policies (Beets et al., 1990). In Ethiopia, sheep are maintained under two broad production systems (EARO, 2000).

According to Ermias Belete et al. (2014) funding the variations in performances of sheep in Ethiopia are aroused from within and between breeds, and across the agro ecologies. Therefore, it shows that there is a genetic potential and the poor performances also be improved by management of indigenous sheep.

Reproductive traits are difficult to measure and are strongly influenced by management decisions, but are also of paramount economic importance (Notter, 2000). Flock reproductive rate also affects selection intensity and consequently the rate of genetic improvement in all traits under selection. Reproductive rate can be influenced by conception rate, litter size, young mortality and interval between parturitions (Ndlovu and Simela, 1996). The traditional free roaming management system allows year round breeding, with minimal purchased inputs (Kosgey et al, 2008). This creates a good environment for rams to service ewes any time, which is not a case in a controlled system under on station. On the contrary, uncontrolled breeding is complicated by diseases transmission and inbreeding when the rams are small in number. Poor reproductive performances of Ethiopian sheep can be associated with genetic factors, poor management, seasonal fluctuations in feed resources and diseases (Mukasa-Mugerwa et al., 2002). Season of the year highly affects most reproductive traits including fertility, lambing and weaning rate. Age at first mating affects reproductive efficiency. The age at which puberty is attained is determined largely by genotype and environmental factors like nutrition, season and climate (Girma, 2008). In most sheep breeds, achieving 40-70% of the mature body weight is satisfactory for attainment of puberty. There are large variations in mean age at puberty between and within breeds, resulting from the genotype and post weaning nutrition.

#### **2.2.1.1. Age at first parturition**

The majority of studies report the age of first lambing for Ethiopian sheep within the range of 411-475 days. Ewes under village management conditions in southwestern Ethiopia, demonstrated a mean age of 404 days at first lambing (Belay and Haile, 2009). The same pattern was found for Afar sheep under pastoral management (Gizaw et al., 2013).

According to Ermias Belete et al. (2014) funding age at first lambing varied by location and season. The mean average age at first lambing of Dorper sheep was 11.81 months which were comparable with the previous reports of 12 months (Tsegaye et al., 2013) in Ethiopia and 11.5 months of ewe sheep of Dorper (Fourie et al., 2009). There is micro difference existed due to difference in production systems and climate.

Age at first parturition can be recorded easily in a farmers stock. There is a big variation among production system and breeds for this trait (12-24 months). These variations could be due to genetic and environmental differences (Getahun, 2008). According to Abegaz et al. (2002) reported age at first lambing of Horro ewes at 64.6-85% of their mature body weight.

#### **2.2.1.2. Parturition interval**

Parturition interval (Lambing) refers to the number of days between successive parturitions. Reproductive efficiency is related to the length of parturition interval; i.e. ewe with long lambing interval has lower reproductive efficiency (Ibrahim, 1998). At least three times lambing is expected per two years under normal circumstances (Girma, 2008). To attain this lambing interval should not exceed 8 months (245 days). There are reports on the possibility of attaining three parturitions from indigenous sheep in two years (Getahun, 2008) though Parturition interval of the traditionally managed sheep was influenced by various factors including previous litter type, parity and lambing season (Dibissa, 2000).

#### **2.2.1.3. Litter size**

Litter size is a combination of ovulation rate and embryo survival, number of lambs or kids born per parturition. There is a positive relationship between litter size and age and litter size and parity (Getahun, 2008). An increase in ewe weight (prior to mating) by 1 kg over the mean of the population results in an increase of about 3.8% in litter size. Litter size varies between 1.08 and 1.75 with average of 1.38 for tropical breeds (Girma, 2008). Twin born ewes tended to produce more and heavier lambs than did those born single. Peak prolificacy generally achieved between 4 and 8 years of age (Notter et al., 2000).

According to Tsedeke (2007) funding the average litter size was estimated to be around 1.70 per ewe for Arsi-Bale sheep, but the litter size per ewe of Menz and Washera sheep is around 1.11 (Taye et al., 2010) in Ethiopia. This implies Arsi-bale sheep has higher litter size than Menze and Washera sheep due to genetic difference.

Litter size is influenced by genotype, parity, season, and ewe body weight at mating (Mukasa-Mugar-wa and Lahlou-Kassi, 1995). For Horro sheep, litter size increased with parity from 1.26 in primiparous ewes to 1.44 for ewes of parities five and above. With respect to weight of ewes at mating, litter size increased by 2.5

percent for each kilogram increase in weight (Abegaz et al., 2002). Litter size is significantly affected by year of lambing, parity and weight of ewes at mating (Berhanu and Aynalem, 2009).

### **2.2.2 Growth performances of sheep**

Growth is an important trait for meat production which determines the overall productivity of the flock. Growth rate of lambs, particularly during the early stages of growth, is strongly influenced by breed, milk yield of the ewe, the environment under which the animals are maintained including the availability of adequate feed supply in terms of both quantity and quality (Mengistie, 2008). Parity, pre-mating weight of the dam, type of birth, sex, season and month of birth also contributes for growth performances of sheep.

#### **2.2.2.1 Birth weight and pre-weaning growth performances**

According to Ermias Belete et al. (2014) funding birth and weaning weight was not affected by location, season, sex, birth type, parity and blood group. The mean birth weight was 2.25kg which was comparable with Berhanu and Aynalem (2009) of indigenous sheep.

There is an average birth weight variation across the country. Mukasa and Lahalou (1995) reported that average birth weight in Ethiopia is 2 kg, but, Milan et al. (2011) reports the average birth weight of sheep in Serbian is about 3.37 kg. Moreover, from the reviewed data, the minimum and maximum average weaning weights of sheep were reported as 8.13 and 15 kg (Kassahun, 2000) and (Berhe, 2010), respectively in Ethiopia.

According to Taye et al. (2009) funding birth type and sex are sources of variation in lamb pre-weaning growth rate. Lambs which are heavier at birth are usually singles or are those produced by ewes with larger body sizes and good feeding conditions. The indication is that lambs heavier at birth have larger adult weight and higher growth capacity. Genotype showed significant difference on birth weight of lambs.

#### **2.2.2.2 Weaning (90-day) weight and pre-weaning Average Daily Gain**

According to Tsedeke Kocho (2007) funding the weaning age of both sex was recorded in month was 4.6 and 4.55 for male, respectively. This result shows there was no higher variation in weaning weight in sex difference.

Weaning weight is a trait of great economic importance in meat sheep production since it has influence on growth rate and survival (Taye et al., 2009). Different values of weaning weight were reported by different authors. Thus, weaning weight and post-weaning growth rate of lambs is as important as the pre-weaning growth performances, mainly when the objective is producing meat through lamb and kid production. Seasonal variation in growth rate is observed in tropics because feed supply varies remarkably (Awigichew, 2000). Because of weaning shock, lower growth rate was observed at weaning time (Taye et al., 2009).

#### **2.2.2.3 Survival (Mortality) rate of sheep**

According to Mesfin L et al. (2014) funding the average mortality rate was  $6.31 \pm 0.01$  and there was no significant difference between the local and crossbred sheep ( $4.55 \pm 0.03$  versus  $6.59 \pm 0.02$ , respectively). Mortality rate was higher for lambs born in the dry season, compared to those born in the wet season. Ewes' parity was affected by the mortality rate of lambs. The trend observed was a decrease in mortality rate from the first to the third ewes' parity. Similar to the effect of breed, sex difference had no effect in lamb's mortality. Lambs birth type had also influenced lambs mortality.

Reproductive losses during pre-weaning period due to poor milking ability of dam, poor management and pneumonia are very high. As assessed from literature results compiled in Table 4, lamb losses before one year of age vary from 6.4 % to 45%. This could be a major influencing factor of productivity of a flock (Abegaz et al., 2002). Lamb mortality rate varies from one flock to another depending mostly on management level (Awigichew, 2000).

## **2.3. Sheep marketing system in Ethiopia**

Sheep rearing is one of the main cash income sources for the farmers in most of our country particularly in Burie district (Abebe et al., 2013). According to Ayele et al. (2003) funding several studies in high lands concluded that livestock account for 37-87% of the total farm cash income of farmers. In addition, the livestock sub-sector in Ethiopia contributes from 12-16% of the total and 30-35% of agricultural GDP. Farmers in Burie district rear sheep for two reasons, to get cash and for home consumption. They slaughter their sheep for festivals like Easter, New Year and Christmas (Abebe et al., 2013).

According to Estefanos Tadesse et al. (2015) funding about 72.5 % of sheep marketing was based on eye estimation of the weight and on the traditional evaluation of condition score of the sheep. 21.7% of sheep markets on the basis of live weight using scales. The remaining, 5.8 % of sheep marketing uses both live weight and estimation. Most of the respondents use visual estimation for purchase and sell of sheep. They believe that visual estimation (traditional evaluation of condition score by farmers) is the method which saves time and energy. Moreover, most purchasers like this method than price setting based on live weight. This may be because the farmers believed that they will fetch better price through estimation than the use of weight scales.

According to Tsedeke Kocho (2007) funding the majority of the producers, about 96.7% market their animals on 'eye-ball' estimation. Few farmers (2.0%) prefer to sale on live weight basis for it fetches better prices. Animals marketed on live weight basis are only young male animals required by the export abattoirs.



Producers of 37.0% prefer “eye-ball” marketing for it fetches better prices and that of 36.3% prefer for majority of their customers purchases on ‘eye-ball’. Animals are marketed on individual basis and agreement to prices reached after a long one-to-one bargaining between buyers and sellers and sometimes brokers. Local and terminal traders and exporter agents are better informed of the demands and prices of animals and are decisive to fix prices. Producers usually sale with the trader prices for their immediate income needs.

The sheep marketing constraints include seasonality of price and the involvement of unwanted brokers interfering in the purchase and sale of sheep. This may have an impact on the farmer not getting the price they deserve for sale of sheep. Half of sheep market information comes from visitors, but a few from traders. Market information from traders and visitors has its own impact on profitability of product brought to market by farmers. Buyers are often price setters. Major problems related to marketing of sheep in the area include seasonality of market, unwanted brokers, disorder and high taxation rate (Estefanos Tadesse et al., 2015).

Livestock markets are generally under the control of local authorities. Market locations in primary and secondary markets are usually not fenced; there are no permanent animal routes and no feed and watering infrastructures. Yet buyers and sellers are subjected to various service charges by the local authorities as well as other bodies (Ayele et al., 2003).

Marketing of sheep is characterized by strong seasonality and subject to fluctuation. Demand and price increases during festival periods. Factors affecting market supply, as measured by the number offered, include high demand during religious festivals, lambing season, quality and quantity of grazing, as well as cash needs for crop inputs and, later, for food purchase before harvesting (EARO, 2000).

There are sheep marketing channels in Ethiopia. A marketing channel refers to the sequence of enterprises and markets by which produce is moved from producer to consumer. Sheep marketing agents include: producers, country buyers (farmers, cooperatives, small traders, butchers, etc.), big traders (wholesalers), export abattoirs, live animal exporters, brokers/agents and consumers. In fact, there are also brokers, transport owners and other market agents who have direct and indirect roles. The marketable live sheep and goats in the hands of farmers reach consumers largely following a 3-tiered system consisting of small, medium and large markets (ESGPIP, 2011).

## **2.4. Challenges of sheep production in Ethiopia**

Smallholder farmers rearing sheep confess a range of interlinked technical, socio economic and institutional bottlenecks. Constraints requiring proper and timely intervention towards improved smallholder sheep and goat production were identified.

### **2.4.1 Disease and Parasite**

According to Tsedeke Kocho (2007) funding one quarter of total flock owners across all the study sites reported that diseases and parasites are overriding problems in sheep production. This clearly depict that it is a major cross-cutting impediment to the flock production. Considerable flock owners, 98.7 and 64.0 percent, respectively reported the occurrence of morbidity and mortality to their flocks. Diseases and parasites contributing 34.6% of the total flock loss is the largest single factor to the immense flock mortality (21.7% in sheep). The effect of morbidity on productive and reproductive performances of the flocks is also apparently higher.

Sheep disease and parasites were the main constraints for sheep productions. Especially Anthrax, Sheep pox, PPR are major contributors to high mortality of sheep in the study area. The most common parasites were Mengemites, tick and fleas. Traditional medicine are generally used to cure the animal but sometimes they causes serious problem due to higher dose and lack of knowledge about the disease type (Tefaye and D., 2008). Diseases and parasites are also contributing for higher production losses, particularly in young stocks. Respiratory Disease Complex (RDC) (Tibbo, 2006) is among the most important diseases and associated complexes in small ruminants’ husbandry and management.

### **2.4.2. Shortage of feed**

Feed shortage problem is similar throughout the country, being serious in high human population areas where land size is diminishing due to intensive crop cultivation and soil degradation. The better use of available feeds and the use of non-conventional feeds for supplementation are growing (Belete, 2009) to alleviate the problem.

According to Tsedeke Kocho (2007) funding the situation of inadequate quantity and quality of feed and nutrition reported across the study sites differ significantly. Feed shortages encounter often during cropping seasons but widespread throughout the year when lands are covered with both Belg and Meher crops.

Inadequate feeding and poor quality feed are often regarded to be major factors limiting sheep production in the tropics. Most of the locally available feed resources are poor in nutritive value. According to Gaten (Tefaye and D., 2008), the protein level required for maintenance is about 8% in the dry matter. The same sources indicated that shortage of feed and inadequate supplementary feeding were a major causes of livestock mortality and poor performance in highland agro ecologies of southern and central Ethiopia.

### **2.4.3. Shortage of water**

In eastern, north-eastern and south-eastern part of the country there is also critical shortage of water; however,

there are breeds adapted to lowland agro-ecologies through their physiological adaptation mechanisms (Belete, 2009). According to Tsedeke (2007) report the problem of water shortage in mixed flock and goat dominating areas of Alaba Woreda. The same author reported the long distance travel of small and large ruminants searching for water. This in turn has implications on the productivity of the flocks.

#### **2.4.4. Lack of improved technology and inputs**

According to Tsedeke Kocho (2007) an overall of about 9.3% respondents reported lack of improved technologies and inputs for intensive and market-oriented sheep production. This is more noticeable in mixed flock and sheep dominating Kebeles that have better market access and limited land holdings. Technological inputs to mitigate the clear and present danger of flock health and nutrition are critical requisite.

#### **2.4.5. Lack of proper extension service**

According to Tsedeke Kocho (2007) the total and significant households (13.3%) condemned that the current extension system is providing them little support to enable them expand their flock production. It is anticipated that the extension service system could impartially support the farming activities that uphold the livelihood of the smallholder farmers. Sheep are providing an evident contribution through income, food, manure, saving and social and cultural functions.

### **2.5. Opportunities of sheep production in Ethiopia**

According to Estefanos Tadesse (2015) funding the presence of different sheep breeds (Adilo and Arsi), which are adapted into the environment and the smallholder management system like getting water once in 4 days and environmental suitability and/or proximity to the small ruminant export abattoirs and high demand for meat in the nearby big town of Awassa, is a plus to the existing opportunity in sheep production. The most important opportunity unexploited was the use of small-scale processed fish meal for feeding sheep and/or other livestock. The other opportunity worth exploiting is the use of poultry litter from the intensive farms in the Awassa town as a feed source to the ruminants. Farmers are interested to increase flock size of sheep because of higher market price, high market demand, fast return obtained and ease management and suitability for consumption by producers. Endeshaw (2007) also reported that the market demand for sheep was greater than for goats in Dale district of Sidama zone.

According to Fikru S and Gebeyew K (2015) founding modest interventions on the existing flock impediments, such as minimizing flock loss through diseases and parasites control and proper feeding during dry seasons could potentially boost the flock performances. The local sheep flocks demonstrate remarkable response to the local fattening management practices and possess desirable physical characteristics adding high aesthetic value. High demand of the small ruminants in the local market as a result of population increase, urbanization, and increase in income can be considered as an opportunity for the small ruminant producers.

Nowadays, many abattoirs flourish in the country; so agents and assemblers purchase small ruminant even at farm gate. Several development partners involved in higher learning, research and development are currently committed to sheep and goat development in the zone (Fikru S and Gebeyew K, 2015).

### **3. Conclusion**

In Ethiopia, more than 80% of the human population depends on agriculture for their livelihoods and usually keep livestock as pastoralists or in mixed crop livestock systems. Ethiopia has one of the largest livestock population in Africa with the estimated domestic animal number of 57.83 million cattle, 28 million sheep, 28.6 million goat, 1.23 million camels, 60.5 million poultry, 2.1 million horses, 0.4 million mules and 7.88 million donkeys. Sheep production provides food, cash income and manure to the smallholder farmers. Sheep have greater environmental adaptability, shorter production cycles and faster growth rates, ease of management, low investment capital and low feed requirements as compared to large ruminants. Livestock production system and the relative importance and potential for increased production by livestock species in varied areas differ markedly due to differences in resource endowment, climate, population, disease incidence, level of economic development, research support and government economic policies. In Ethiopia, sheep are maintained under two broad production systems namely pastoral and agro-pastoral, and mixed crop livestock production systems. Livestock production system and the relative importance and potential for increased production by livestock species in varied areas differ markedly due to differences in resource endowment, climate, population, disease incidence, level of economic development, research support and government economic policies. Growth is an important trait for meat production which determines the overall productivity of the flock. Growth rate of lambs, particularly during the early stages of growth, is strongly influenced by breed, milk yield of the ewe, the environment under which the animals are maintained including the availability of adequate feed supply in terms of both quantity and quality. Animals are marketed on individual basis and agreement to prices reached after a long one-to-one bargaining between buyers and sellers and sometimes brokers. Local and terminal traders and exporter agents are better informed of the demands and prices of animals and are decisive to fix prices. Producers usually sale with the trader prices for their immediate income needs. Sheep productions are highly

influenced by feed shortage, disease and parasites, severe water shortage and high shortage of labor. There are opportunities to increase sheep production like several development partners involved in higher learning; research and development are currently committed to sheep development.

#### 4. Recommendation

Depending on the above conclusions, I recommend the following to improve sheep production performance and marketing systems in Ethiopia.

- ▶ Farmers should improve management systems and use healthy control mechanisms.
- ▶ Marketing system should be modernized which means use body weight scale to sell and buy sheep.
- ▶ It is important to increase and use different opportunities that improve sheep production.
- ▶ Extension service should give training to farmers how to improve sheep production performance by giving supplementary feed and vaccination for different diseases.

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