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Small ruminant production and constraints in Misha Woreda, Hadiya Zone, Southern Ethiopia

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The study was conducted in Misha Woreda, Hadiya Zone, Southern Ethiopia with aim of assessing the production and challenges of small ruminant animals. Data was collected via questionnaire, interview and group discussion. For the study, 4 Kebeles were taken randomly and from each kebele, 20 households were selected purposively based on the experience and involvement of small ruminant production. The result indicated that about 80% of the interviewed respondents were male headed while the remaining 20% were female headed. Among the sample respondents, about 12.5% of the respondents were illiterate and the rest 87.5% were learned at different stages of literacy ranging from elementary to high school grade levels. The prevailing sheep and goat production system common in the study area was mainly extensive (90%) with slight semi-intensive characteristics (10%). The main purposes of rearing sheep and goats in the study area were for home cash income (75%), for security (17.5%) and for slaughter during holidays (7.5%). The results further showed that the main feed source (42.5%) is communal grazing land, 22.5% house leftover and 20% crop residues in the study area. The extensive production system along with feed shortage needs improvement of husbandry practices. Shortage of feed and grazing land and lack of capital are the main problems that hamper the potential of sheep and goat production in the study area. It was concluded that different organizations like government and non-governmental should take these under consideration to improve the production of sheep and goats.

Key words: Production, small ruminant, feed shortage, crop residues.

INTRODUCTION

Livestock is a pillar of the economy in developing countries like Ethiopia. It is one component of agriculture under which the small ruminants are among the major economically important livestock. Thus, they play an important role in the livelihood of resources especially for poor farmers. There are many livestock species in the world. When compared to other countries, Ethiopia has the largest livestock population in Africa that has a considerable contribution to the national economy and the livelihood of the people. According to CSA (2016), Ethiopia has 57.83 million cattle, 28.9 million sheep, and 29.70 million goat population.

The favourable production environments of Ethiopia have the vast majority of livestock as a base for the rural population's livelihood. However, livestock production and productivity and producers' benefits from livestock production are far below expectations (Solomon et al., 2010). Sheep are among the major economically important livestock as it plays an important role in the livelihood of resource for farmers. Sheep serve as immediate cash need and insurance against crop failure especially where land productivity is low and unreliable due to different factors (Markos, 2006).

Sheep are raised by humans all over the world for a variety of reasons and in many different management systems. Under the extensive systems, sheep have the capacity to express the full range of their natural behaviours, although some aspects of their normal social organization are disrupted. These disruptions include weaning earlier than would occur naturally, segregation of sheep on the basis of age and sex and various husbandry operations, which can cause pain or stress (Kilgour et al., 2008).

Ethiopia is home for a large and diverse livestock resources and favorable production environment (Solomon et al., 2007). Accordingly, Misha Woreda which is found in Hadiya zone, Southern Ethiopia is known to be potential and suitable for livestock productions like sheep. However, the output of the livestock is influenced by different factors. For instance, Belete (2009) indicated that although various research and development activities have been carried out in the past, no significant increase in productivity was achieved. Therefore, improvement programs are necessary to increase productivity and sustainable development of small ruminants in different farming systems of the country in innovative approach so as to meet the demands of the human population. Moreover, there is no or little information on the production and marketing system of sheep in Misha Woreda, Hadiya Zone, Southern Ethiopia. Therefore, it is important to assess the major sheep production system and constraints to improve the production. Therefore, the general intent of this study was to assess the production system and constraints of sheep production in the study area. Specifically, this study aims at answering the basic research questions and some other specific questions in relation to sheep production and constraints in Misha Woreda, Hadiya Zone, Southern Ethiopia.

MATERIALS AND METHODS

Description of the study area

The study was conducted in Misha Woreda, Hadiya zone which is located about 253 km away from Addis Ababa, 207 km from Hawassa and 18 km from Hossana. The Woreda is divided in to 35 Kebeles for administrative purpose. Among these, 32 Kebeles are rural and 3 Kebeles are town. Misha Woreda is bounded by Silte zone in East, Guraghe Zone in North, Gombora Woreda in South and Gibe Woreda in West direction. The altitude ranges from 1500-2900 m.a.s.l with the average temperature ranges from 18-25°C

and the rainfall ranges from 1000-1500 mm. In terms of economic activities, the Woreda's community fully experienced animal rearing and crop production (mixed farming system). Misha Woreda's livestock number, cattle accounts for about 76265, 50795, 17074 and 37447 cattle, sheep, goat and poultry respectively. In addition to these, there are also transitional and modern beehives. Most dominant cereal crops found in the study area are wheat, teff, maize, sorghum, bean, pea and other cash crops like chat, coffee and vegetables are found (MWAO, 2006).

Sampling techniques and sample size

A stratified random sampling technique was used to stratify the agro-ecological zones into "Woinadega" (mid altitude), "Kola" (lowland) and "Dega" (highland). According to the district agricultural office, Misha Woreda has totally 35 Kebeles among which 17, 10, 8 Kebeles are "Woinadega" (mid altitude), "Kola" (lowland) and "Dega" (highland) respectively. For the study to make a representation based on agro-ecology, 2, 1, and 1 Kebeles were taken randomly from "Woindega", "Kola" and "Dega" respectively. From each kebele, 20 households were selected purposively based on the experience and involvement of sheep production. Thus, totally 80 households (4 Kebeles × 20 households) were included in the study to assess the sheep production, marketing system and constraints in Misha Woreda, Hadiya Zone, Southern Ethiopia.

Data collection

Both primary and secondary data were collected for the study. To collect primary data, three tools namely questionnaire, interview and group discussion were conducted. Semi-structured questionnaires were prepared and distributed for the respondents while the secondary data was gathered from written documents.

Data analysis

The collected data was analyzed and arranged by using SPSS version 16 (2007) for descriptive statistic such as mean, frequency and percentage and the results were interpreted by using tables and graphs.

RESULTS AND DISCUSSION

Socio- demographic characteristics of households

The socio-demographic characteristics of respondents in the study area is indicated in Table 1. The data showed that the majority (80%) of interviewed respondents were male headed while the remaining 20% were female headed. This suggests that sheep and goat production activities are mainly the duty of men even though they are performed by females in small amounts. According to the educational level, among the sampled respondents about 12.5% of the respondents were uneducated and the rest 87.5% were found at different stages of literacy ranging from elementary to high school grade levels. The higher proportion of the respondents (55%) is found in the age between 25 and 40 ages. However, about 30% of the respondent age is between 41 and 60 years old; whereas, about only 15% of the respondents are above

Table 1. Socio-demographic characteristics of respondents.

Variable	Categories	Numbers	%
Sex	Male	64	80
	Female	16	20
Age	25-40	44	55
	41-60	24	30
	>60	12	15
Educational status	Illiterate	10	12.5
	1-5 grade	54	67.5
	> 6 grade	16	20
Family size	1-3	4	5
	4-6	74	92.5
	>7	2	2.5

Table 2. Production system and purpose of keeping sheep and goats.

Production system	Numbers of respondents (N=80)	%
Extensive	72	90
Semi Intensive	8	10
Intensive	0	0

60 years old. With regard to family size, the majority about 92.5% of them has family size between 4 and 6 and small amount (5%) of the sampled respondents has family size between 1 and 3. However, few amount (2.5%) of the sampled respondents had a family size more than 7.

Production system and purpose of keeping sheep and goats

As indicated in Table 2, the prevailing sheep and goat production system commonly practiced in the study area is mainly extensive (90%) with slight semi-intensive characteristics (10%). Similar reports was also reported by Alemitu and Abera (2018) in the study conducted in Sodo Zuria District Wolaita Zone Southern Ethiopia where the dominant (90%) sheep production system practiced was extensive system while only 10% of the respondents practice semi-intensive sheep production system. The extensive system of sheep in the study is characterized with no or minimum inputs and improved technology which results in low productivity.

The respondents were also asked about the main purposes of rearing sheep and goats in the study area. Accordingly, about 75, 17.5 and 7.5% of the respondents keep sheep and goat for cash income, security and for slaughter during holidays. According to this finding the sampled farmers in the study area rear sheep to use for cash income dominantly (Figure 1).

Flock size sheep and goat

The flock composition of sheep and goat showed variation from farmer to farmer based on purpose of keeping and feed availability. As indicated in Figure 2, the average number of flock composition of the interviewed respondents was 5.6, 5, 5, 4, 2.9 and 2.5 for doe, ewe, lamb, buck, kid and ram. From this result, goat was the higher flock and widely reared in the area. However, the average number sheep flock composition in the study area indicates that it has a great potential as income generation, slaughter and security of the household.

Major feed sources of sheep and goats

The major feed sources of sheep and goats in the study area are indicated in Figure 3. Natural pasture with certain browse species, crop residue, improved forage and house leftover were the main feed resources of sheep and goat in the study area. Natural pasture and house leftover are main feed resources during the rainy
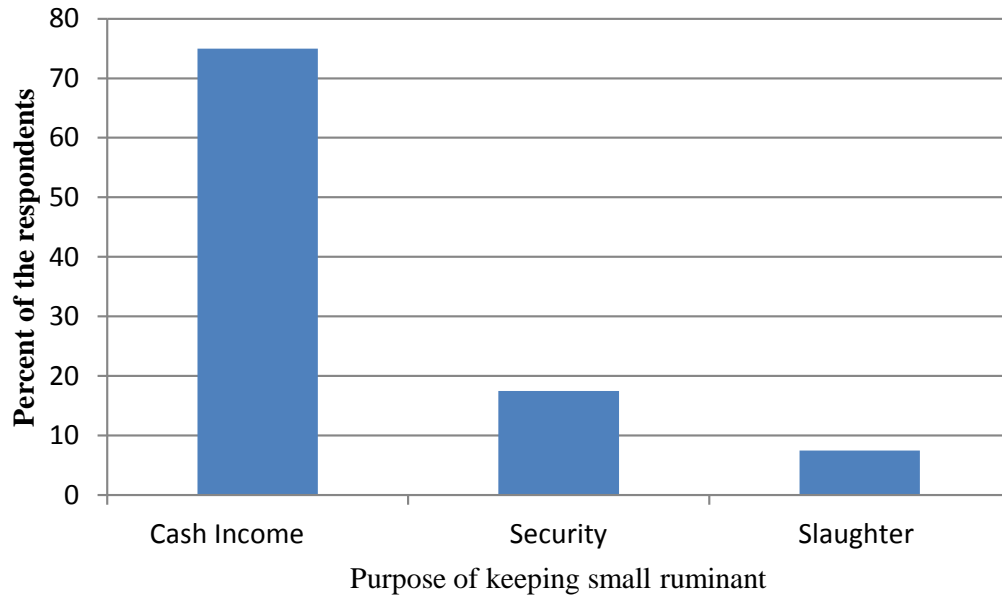
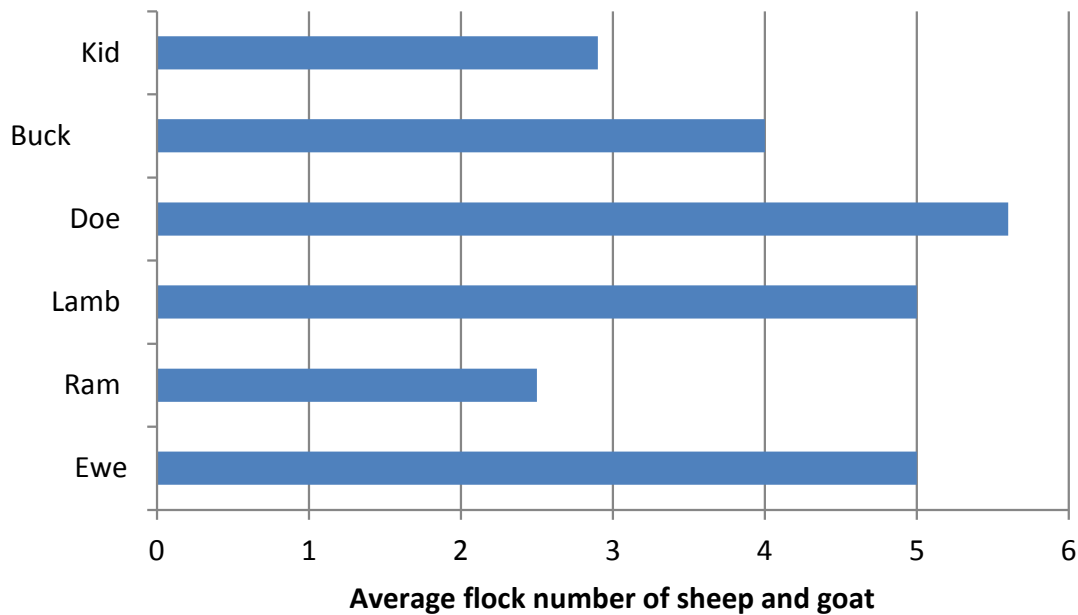**Figure 1.** Purpose of keeping of small ruminants.

Figure 2. Flock size of sheep and goats in the study area.

season; whereas, natural pasture, crop residue, improved forage and house leftover are the feed resources in the dry season. The results showed that the main feed source (42.5%) is communal grazing land, (22.5%) house leftover and (20%) crop residues in the study area. In addition, farmers cope with the season of feed scarcity through conservation and supplementing the critical classes of the flock such as the pregnant ewes and the lambs with wheat bran, sweet potato and local brewery by-products.

Housing of sheep and goats

According to the study results, farmers used different types of houses for sheep and goats in the study area. According to data collected, the majority (81.25%) of the respondents keeps sheep and goats in the main house

Table 3. Housing type of sheep and goats in the study area.

S/N	Housing type	Frequency (N=80)	%
1	Main housing (together with family house)	65	81.25
2	Separate house	15	18.75

Table 4. Constraints of sheep and goat production in the study area.

Major constraint	Frequency	Rank
Disease band parasites	12	4
Feed shortage	44	1
Lack of capital	26	2
Shortage of land	18	3
Lack of exotic breed	9	5

together with the family in the study area except for newborn lambs and kid until weaning. About 18.75% of respondents use separate housing for newborns for a specific period of time. The respondents also indicated that barn sanitation was commonly practiced in the study area (Table 3). This finding is slightly similar with (Alemitu and Abera, 2018) who indicated that the majority (72.2%) of the respondent accommodate their flock in the main house with the family member, while 20% keep sheep together with other animals and only 7.8% have separate houses for sheep in Sodo Zuria Woreda, southern Ethiopia.

Constraints of sheep and goat production

As presented in Table 4, the most serious constraint that affects sheep and goat production which is mentioned by 44% of the respondents is feed shortage. Lack of capital was the second problem that hinders the productivity of sheep as identified by the respondents in the study area. Shortage of land diseases and parasites were the third and fourth constraints indicated by the respondents respectively. It was observed that feed shortage in the dry and rainy season, diseases, inadequate veterinary service and lack of capital are the main sheep and goat production constraints in the study area. This finding is in line with Arse et al. (2013) who indicated that the major challenges to goat production in the six selected study areas were severe feed shortage, high disease prevalence in Adami Tulu, Arsi Negelle and Fantale districts of Oromia Regional State, Ethiopia.

CONCLUSION AND RECOMMENDATIONS

The study revealed that the production system of sheep and goat is mainly extensive (90%). The extensive production system along with feed shortage needs improvement of husbandry practices. The sampled respondents used different types of houses for sheep and goats. Accordingly, about 81.25% of the respondents keep sheep and goats in the main house together with the family except for newborn lambs and kid until weaning, while about 18.75% of respondents use separate housing. Shortage of feed, shortage of grazing land and lack of capital disease and parasite are the main problems that hamper the potential of sheep and goat production in the study area. Based on the results found and the conclusions drawn, provision of training on production and husbandry practices need to be implemented; in addition to this, the extensive system of production should be improved to semi-intensive system of sheep and goat production. This finding and recommendations drawn would be used in any other situation where similar production systems are practiced.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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