

# Indigenous Goat Husbandry Practices and Its Production Environment in Case of South Western Ethiopia

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**Abstract:** This study was conducted in south western Ethiopia, with the main objective of describing indigenous goat husbandry practices and its production environment. For study, a total of 180 sampled households were employed for interview (questionnaire survey and key informative). Mixed crop livestock production system was a common type of farming system with large proportion of goat per household ( $13.5 \pm 0.55$ ). The main purpose of keeping goat was to generate income followed by meat and saving. Communal grazing was the major feed source both in dry and wet season in the study areas. The most dominant housing system in the study area was separate (62.2%) followed by expansion of the main house (25%) and inside main house (12.8%). About 90.6% of the farmers were practiced castration at the age of  $26.9 \pm 0.83$  months in Meant Goldiya and  $19.2 \pm 0.70$  months in Guraferda districts. Disease, predator and feed shortage were the three most important goat production constraints in both areas. Therefore, based on the reason of keeping goats by farmers, the main breeding objective has been defined as increasing meat production (improve growth rate and conformation) across the studied areas. Thus, full utilization is needs to improve the husbandry practices, put in an application of suitable disease prevention system and applying forage development strategies and feeding system.

**Keywords:** Goat Husbandry Practices, Production System, Production Constraints

## 1. Introduction

Ethiopia is a center of varied indigenous goat population, account for 32.7 million head [1], and eight distinct breeds of goat [2]. They provide a wide range of product and services for poor smallholders such as meat, milk, cash income, skin, manure and insurance against crop failure, cultural value and serve as banking system [3]. They are comparatively a better merit in their home tract. Goats are found in all agro-ecological zones from hyper-arid to super-humid and over the whole range of production systems from intensive smallholder production to very extensive nomadic pastoralist. It practiced at large in Ethiopia have evolved mainly as a result of natural production environments and socio-economic circumstances of farmers/pastoralists [4].

Based on the degree of integration with crop production and contribution of livelihood, level of input and intensity of

production, agro ecology, length of growing period and relation to land and type of commodity to be produced, mobility and duration of movement [5], production system in Ethiopia is broadly classified into pastoral, agro-pastoral and mixed crop livestock, peri-urban and urban production systems [6]. Even though large population of goats and their roles goats at household and national level, the product and productivity and their contribution of the country economy is getting low. This is due to many biological, environmental and socio-economic factors such as feed shortage, expansion of crop, health problem, and poor genetic potential [6].

The associated contexts of their development and utilization of identification, characterization and understanding of local breed resources is the prior step to made well informed decisions and pertaining genetic improvement intervention. Even though some characterization works have been attempted on indigenous

goat in Ethiopia, information on the production system and associated constraints generally incomplete. Comprehensive information on the production system, phenotypes, constraints, potential of goats are basic for the overall improvement of the goat production and enhance its contribution to household as well as the national economy. This gives a basement information prior to initiating improvement innervations. Therefore, the aims of this work was to describe husbandry practices, their production environmental and identifying major constraints in the study area.

## 2. Materials and Methods

### 2.1. Description of the Study Area

The study was conducted in Meanit Goldiya (West Omo zone) and Guraferda districts (Bench Sheko zone) of south western Ethiopia.

### 2.2. Sampling Technique and Sample Size

From the total kebeles in Meanit Goldiya and Guraferda districts, three kebeles were selected (for each district) purposively based on the presence of indigenous population, potential of goat production and location of the study area. From each kebeles, 90 farmers were selected by using systematic random sampling.

### 2.3. Method of Data Collection

To collect data, structured questionnaire was prepared and pre-tested for consistency and applicability of the objectives in the study. Discussion with focal group, key informants and district experts were made to have an overview about the goat production system and management system in the area.

Questionnaires were designed to address description of socio-economic characteristics, production environment and husbandry practices of goat.

### 2.4. Data Analysis

All data were entered, cleaned and managed using Microsoft excel sheet. The data were analyzed by descriptive statistics using SPSS [7]. Chi-square used to assess the statistical significance. Index was calculated to provide the rank of purpose of keeping goat, constraints of goat production, feeding system and disease.

## 3. Results

### 3.1. Livestock Composition, Production System and Goat Flock and Structure

Mixed crop livestock system was the predominant production system of the area. This study result revealed that goat flock size per household was not affected by district ( $P>0.05$ ). In average, respondent farmers owned  $13.5\pm0.89$  and  $13.5\pm0.63$  goats in Meanit Goldiya and Guraferda, respectively with overall mean of  $13.5\pm0.55$ . Among livestock species; goat contains large proportion (42-7%) across the districts. The average number of breeding does per household was  $6.0\pm0.25$  in the study areas. Does above the age of one year (40.9%) and kids less than 6 months' age (30.9%) were representing the major proportion in the flock across the studied districts. The overall proportion of goats across all the studied areas were 40.9% does, 5.6% bucks, 10.7% young female, 8.8% young male, 30.9% kids and 3.1% castrate. The ratio of breeding buck to breeding doe was 1:5.3 across the studied districts.

Table 1. Purpose of keeping goat in the study area.

District	Meanit Goldiya				Guraferda				overall			
Purpose	Rank				Rank				Rank			
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	I	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	I	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	I
Income	78	12	-	0.49	84	6	-	0.52	162	18	-	0.5
Meat	5	47	38	0.27	0	48	42	0.27	5	95	80	0.27
Saving	8	30	41	0.23	6	36	12	0.20	14	66	53	0.22
Manure	-	1	4	0.01	-	-	2	0.004	-	1	6	0.01
Wealth	-	-	3	0.005	-	-	-	-	-	-	3	0.003
skin	-	-	-	-	-	-	-	-	-	-	-	-

Index= $\Sigma$  of [ $3\times$  number of household ranked 1<sup>st</sup> +  $2\times$  number of household ranked 2<sup>nd</sup> +  $1\times$  number of household ranked 3<sup>rd</sup>] given for particular valued purpose divided by  $\Sigma$  of [ $3\times$  number of household ranked 1<sup>st</sup> +  $2\times$  number of household ranked 2<sup>nd</sup> +  $1\times$  number of household ranked 3<sup>rd</sup>] summed for all valued purpose.

### 3.2. Herding Practices and Purpose of Keeping Goats

There is significant ( $P<0.05$ ) different between ways of herding, and district and herding with other species and district. About 66.7% of the respondents were herded their goats separately, the rest (23.3%) herded with sheep in Meanit Goldiya area. In Guraferda majority (83.3%) of the

respond-ents were herded their goats separately, followed by herded sheep (19.4%). About 52.2% of the respondents run their flock with neighbor, while 47.8% of the respondents run their goat individually in Meanit Goldiya area. However, Majority (71.1%) of the respondents in Guraferda run their flock individually, while the rest (28.9%) of the respondents mix their goats together with their neighbor. The primary

purpose of goat rearing was sustained of their life. In the study area the farmers reared goat mainly for cash income (0.5), followed by meat (0.27) and saving (0.22) (Table 1).

### 3.3. Feed and Water Resource and Watering System

Communal Grazing was the major feed source of goat both in dry and wet season of the two districts. The index value of Communal grazing in wet season in Meanit Goldiya and Guraferda districts were 0.43 and 0.4, respectively. The corresponding index values of private grazing in wet season were 0.4 in both districts. Fallow land was ranked third in both districts in wet season by holding 0.14 and 0.16 in Meanit Goldiya and Guraferda, respectively. In dry season grazing aftermath (0.32), private grazing (0.23), grazing fallow land (0.1) we-re ranked second, third and fourth next to communal grazing (0.36) in Meanit Goldiya districts. Whereas in Guraferda district grazing aftermath (0.31), private grazing (0.24) and grazing fallow land (0.07) were

ranked second, third and fourth next to communal grazing (0.38).

There was significant ( $P < 0.01$ ) association the source of water in wet season, distance of water point, frequency of water both in dry season between this two districts. About 95.6% of the respondent across all the studied area reported that the main source of water in dry season was river; remain 4.4% reported spring.

In wet season about 63.3% of the respondents were reported that river was the main source of water. About 17.2% of the respondents reported that during wet / rainy season the goats were not drink water. This is because of that they have got enough water from the feed. Majority (67.8%) of the respondents in Meanit Goldiya area were traveled a distance of 1-5km, the remains were traveled less than 1km. In Guraferda area 83.3% of the respondents were traveled less than 1km, while 16.7% of them reported 1-5km.

**Table 2.** Frequency and distance of watering point in the study areas.

District					
Water source	Meanit Goldiya N (%)	Guraferda N (%)	Overall N (%)	Test X <sup>2</sup>	P-value
Frequency of water in dry season				51.6	.000
Freely available	0 (0)	5 (5.6)	5 (2.8)		
Once a day	47 (52.2)	80 (88.9)	127 (70.5)		
Twice a day	5 (5.6)	5 (5.6)	10 (5.6)		
Once in two day	27 (30)	0 (0)	27 (15)		
Once in three day	11 (12.2)	0 (0)	11 (6.1)		
Frequency of water in wet season				4.1	.130
Freely available	45 (58.4)	42 (58.3)	87 (58.4)		
Once a day	21 (27.3)	12 (16.7)	33 (22)		
Twice a day	11 (14.3)	18 (25)	29 (19.6)		

N=Number of household, X<sup>2</sup>=chi-square, Na=not applicable

The watering frequency in the study area was different from season to season (Table 2). During wet season goats were watered freely available (58.4%) and about 22% were watered once in a day, remain 19.6% reported that twice a

day. On the contrary, majority of goats in dry season were watered once a day (70.5%), followed by once in two days (15%).

**Table 3.** Housing system and their management.

District					
Parameter	Meanit Goldiya N (%)	Guraferda N (%)	Over all N (%)	Test X <sup>2</sup>	P-value
Type of house				46.747	.000
Separate	34 (37.8)	78 (86.7)	112 (62.2)		
Inside main house	17 (18.9)	6 (6.7)	23 (12.8)		
Expansion of the main house	39 (43.3)	6 (6.7)	45 (25)		
kid housed with adult				11.716	.001
Yes	90 (100)	79 (87.8)	169 (93.9)		
No	0 (0)	11 (12.2)	11 (6.1)		
Goat housed with other animals				10.062	.002
Yes	30 (33.3)	12 (13.3)	42 (23.3)		
No	60 (66.7)	78 (86.7)	38 (20.7)		
Type of animals housed				0.036	.850
With Sheep	28 (31.1)	11 (12.2)	39 (21.5)		
With Cattle	2 (2.2)	1 (1.1)	3 (1.5)		

N=Number of household, X<sup>2</sup>=chi-square

### 3.4. Goat Housing System

The housing system of goats in the study area was different from area to area (Table 3). The chi-square test indicates that type of house significant ( $P<0.01$ ) different between the two districts. Kid housed with adult and goat housed with other animals were significant ( $P<0.05$ ) different between the studied areas. The most dominant housing system in the study area was separate (62.2%) followed by expansion of the main house (25%) and inside main house (12.8%). Majority of the respondents in Guraferda districts was housed their goats in separate house (86.7%), followed by expansion of the main house and inside the main house (6.7%). Expansion of the main house is the main housing system in Meanit Goldiya districts (43.), followed by separate house (37.8%) and inside the main house (18.9%). In the study area kids were housed with adult (93.3%). About 76.5% of the respondents across all studied area reported that goats housed without other animals, while 22.8% reported that goats housed with other animals, especially housed with sheep (92.5%). and cattle (7.5%).

### 3.5. Castration Practices and Culling of Goats

In the study area, about 90.6% of the respondents were practiced castration, while 9.4% reported that not castrated. Age of castration for bucks was different ( $P<0.01$ ) between the two districts and it was  $26.9\pm0.83$  months in Meanit Goldiya and  $19.2\pm0.70$  months in Guraferda districts.

Reason for castration for the respondents were to improve fattening to obtain better market price (91.4%), both for fattening and better temperament (8.6%). There was a significant ( $P<0.05$ ) difference between the districts on castration season. Majority of the respondents were castrated in wet sea-son (67.9%) because of the availability of feed and water at the end of wet season, while the rest 20.9% and 11.3% castrated in any time and dry season. About 92.7% of the respondents practiced traditional castration method to castrate their buck. There was significant ( $P<0.01$ ) different between the studied districts in reason of culling female goats. However, there was no significant ( $P>0.05$ ) between the two studied areas in reason of culling male goats and used of culled goats. The average culling age for breeding male was a significant ( $P<0.01$ ) different between the study areas whereas the culling age of for breeding female was not significantly ( $P>0.05$ ) different.

Respondents in the study area culled their goats at average age of  $4.5\pm0.08$  years for male and  $7.5\pm0.4$  years for female goat. Breeding males were culled at the age of  $4.9\pm0.08$  years (in Meanit Goldiya) and  $4.1\pm0.08$  years (in Guraferda). Majority of the respondent culled the female goats because of poor mothering ability (28.4%), followed by sterility (20%), old age (18.4) and disease and poor growth (8.3%) whereas male goats culled because of poor growth (39.5%), unwanted color (39.5), both disease and poor growth (16.1%) and disease (5%). Majority of the respondents were used the culled goats for sold (77.2%) purpose, followed by both sold and slaughtered (17.2%) and slaughtered (5.6%).



Figure 1. Housing system of Guraferda (left) and Meanit Goldiya (right).

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

District	Meanit Goldiya				Guraferda				Overall			
Constraint	Rank				Rank				Rank			
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	I	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	I	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	I
Disease	45	23	12	0.41	12	66	12	0.35	57	89	24	0.38
Predator	12	-	23	0.13	66	18	6	0.47	78	18	29	0.3
Feed Shortage	20	50	9	0.25	12	-	24	0.09	32	50	33	0.17
Water Shortage	12	-	12	0.10	-	6	12	0.05	12	6	24	0.08
Labor Shortage	-	12	-	0.05	-	-	6	0.01	-	12	6	0.03
Market Problem	-	-	-	-	-	6	-	0.02	-	6	-	0.01
Drought	-	-	24	0.05	-	-	-	-	-	-	24	0.025

Index=sum of (3 X constraint ranked first + 2 X constraint ranked second + 1 X constraint ranked third) given for each districts divided by sum of (3 X constraint ranked first + 2 X constraint ranked second + 1 X constraint ranked third) for all district

### 3.6. Major Constraint of Goat Production

As presented in Table 4, disease, predator and feed shortage were the major goat production constraint across the studied areas. There was difference in index intensity in ranking constraints between the studied districts. In Meanit Goldiya district disease, feed shortage and predator were the serious problem with the index value of 0.41, 0.25 and 0.13, respectively. In Guraferda district predator, disease and feed shortage were the most dominate problem with the index value of 0.47, 0.35 and 0.09, respectively.

### 3.7. Major Goat Disease in the Study Area

The major disease occurred frequently in Meanit Goldiya districts was diarrhea (index=0.23), followed by Pneumonia (0.18), bloat (0.16) and foot mouth disease (0.158). Monkey was the major predator (Index=0.2-9) that frequently affect goats in Guraferda districts followed by foot mouth disease (0.27) and pneumonia (0.24). The occurrence of disease is common during the wet season 56.7% in Meanit Goldiya districts and 31.1% occurred at any time.

Whereas in Guraferda disease was occurred at the wet season (61.1%) and at any time (22.2%). Majority of the respondents (85.6-%) used medicine from the agriculture office and 14.4% from the agriculture office and private office in Meanit Goldiya district, whereas in Guraferda district all respondents had accesses to get medicine from the agriculture office.

## 4. Discussion

A virtuous comprehension of production system is vital for provoking any genetic breeding program [8]. This study provides information on production objectives, constraints, feeding, watering, castration and heath management of goats' production in the study area. The result obtained for flock size ( $13.5 \pm 0.6$ ) in this study was in line with the report Asefa *et al.* [9] in Bale zone (13.5), Ethiopia. This result is similar with the report of Tesfaye *et al.* [10] flock per household, was 12.1 in Shalla and Adami Tullu Jidu Kombolcha district. On the contrary, the finding of this result is higher than the report of Deribr [11] for Southern Alaba and Dale districts (4.5 to 6.5) and Fanthun *et al.* [12] who reported that the mean flock size of goats per household was  $9.80 \pm 9.30$  in Bench Maji zone of Southwestern Ethiopia. However, this result is lower than the result of Biruh [13] which was  $54.7 \pm 5.91$ ,  $63.15 \pm 5.98$  and  $37.12 \pm 6.27$  for Benatsemay, Hamer and Dasenech respectively. The predominant proportion of goats in the study area implies that goats could serve as immediate source of income, short generation interval and prolificacy; they require low initial capital, their broad feeding habits, and disease and drought tolerance.

The number of breeding does per household ( $6.0 \pm 0.25$ ) was higher than the report of Gatew [14] in Bati areas ( $3.51 \pm 0.91$ ). However, this result lower than the previous finding of Gatew [14] in Borana ( $9.30 \pm 0.78$ ) and Siti

( $13.30 \pm 0.84$ ) areas. The proportion of does greater than one year (40.9%) in this study result is in comparable with the finding of Fantahun *et al.* [12] 42.7% in Bench Maji zone, Southwestern Ethiopia. However, this value higher than the work of Grum [15] around Dire Dawa (35%) and Biruh [13] in low land areas of south Omo zones (32.6%) and Mahilet [16] in Eastern Harerghe (22.1-%). On the other hand, this result in lower than the study of Feki [17] in Asaita district of Afar region (53.2%) and Ahmed [18] in Horro Gunduru Wollega zone (47.4%). The highest proportion of female greater than one year may be implies to the role of female in the multiplication of flock facilitating annual replacement and sale of supplies animal thereby generating income to the farmer.

The ratio of breeding buck to breeding doe in this current result was (1:5.3) which in line with the report of Belete [19] and Gebreyesus *et al.* [20] who reported that the ratio of breeding buck to breeding doe was 1:5 in Goma district in Jima zone and Dire Dawa, Ethiopia respectively. Similarly, Alubel [21] who reported that 1:4, 1:4 and 1:5, respectively in ziquala, Lay Armachiho in Amhara region and Tanqua Abergelle, Tigry region, which was closer to the present findings. This value was higher than the recommended ratio of 1:25 for tropical traditional production system [22]. The ratio of male to female in this study may be sufficient if we consider only the capacity of male to mate, but this may be increased inbreeding rate. Thus, farmers should need to be well-informed on the importance of keeping a minimum number of bucks in ratio to the doe sizes. Good understanding of the community herding practices is crucial to bring sustainable flock genetic improvement in the smallholder farmers by design community-based breeding strategies.

The value obtained for herded separately in current study is similar with Alubel [21] majority (64.4%) of the respondents was herding separately in Armachiho district. This is might be due to feeding habits of goats and farmers preferred to herded goats separately, in case shortage of labor encountered they forced them to herded with other livestock. The report of Alubel [21] 82.4% in Ziquala, 87.1% Tanqua and 55.1% in Armachiho districts were run their goats individually which was in comparable with the result obtained for Guraferda district. Cash income, meat consumption and saving was the main purpose of goat rearing in the study area which is in line with Fantahun *et al.* [12] in Bench Maji Zone and Solomon *et al.* [6] in pastoralist communities. Similarly, Tesfaye [23] in Metema district, Mekuriaw *et al.* [24] in Amhara region and Solomon [25] in western lowland and Abergelle areas report-ed the primary reason of farmers keeping goat for cash income generation. This is due to goats have short generation interval, frequently sell their goats and uses the income for emergency cases, educational fees and for other expenses and they keep goat for saving as a banking system and use as a poverty alleviation method.

The report of Tesfaye [23] in Metama district, Grum [15]

in Dire Dawa zone, Amelmal [26] in konta special woreda, Briuh [13] in lowland of South Omo zone, Alubel [21] in Armachiho district, Netsanet [27] in Meta-Robi and Konso districts and Tsigabu [28] in Nure zone, Gambella region indicated that common grazing was the main feed resource of goats which was similar with the current study finding. The result obtained for the source of water at dry and wet season in this finding was in agreement with Alubel [21], in Armachiho district, Netsanet [27] in Meta-Robi and Konso districts and Hussien [29] in Arsi-Bale areas. The major proportion obtained for less than 1km in Guraferda district is similar with the study of Belete [30] in Bale Zone Ethiopia. Netsanet [27] stated that during the wet season goats watered freely in Meta-Robi district which is in consistent with the present result. In supporting with the current result, about 65.3% of the respondents reported that goats in dry season watered once a day in Armachiho districts [21].

House is very important to protect goats from extreme temperature (rain, cold, excessive heat and wind), disease, predator theft and to make management easier [31] and also it assist to provide intensive feeding and controlled inbreeding. The most dominant housing system in the study area was separate (62.2%) which was comparable with the study of Asefa *et al.* [9] in Mada Walabu (58.3%) district and this result was higher than the report of Alubel [21] in Ziquala district (45.45%), however, this finding was lower than the study of Tesfaye [3] Adami Tulu Jiddo kombelcha and Shalla districts (71.6%). About 76.5% of the respondents in the studied area goats housed without other animals which is in accordance with the study of Netsanet [27] in Konso area (76.1%), however, this value lower than this author study in Meta –Robi district 98.3% of farmers do not housed goats with other species. Majority of farmers in the study area was practiced castration which is in agreement the report of Fantahun *et al.* [12] in Bench Maji zone.

The average castration age reported for Meanit Goldiya (26.9±0.83 month) and Guraferda goat (19.2±0.70 month) in this study may be help to reduce the rate of inbreeding or control unwanted breeding within flock (family mating). Although, Alemu [32] recommended that lambs and kids should ideally be castrated as soon as the testicles descended into the scrotum (this can be from a few days of age to three weeks) and it is accomplished more easily, the wound heals more quickly in very young kids. Castrating of goats at early age has negative effect on the features of breed improvement for the next generation by reducing the opportunity of waiting best breeding bucks in a flock. In agreement with the current result, different authors in different parts of the country reported that improve fattening better price was the main reason of castration [17, 18, 13 and 12]. Castration was take place mostly at the end of the main rainy (wet) season in the study area; this is due to the presence or availability of feed and water at the end of wet season. As the respondents reported the materials that they used to castrate their buck is rounded stone locally known as ‘*allelo*’ or in Meanit language known as ‘*Bito*’. Belete [30] reported that about 73.1% of the respondents in Bale zone of Oromia region

were practicing modern castration method which is different from the current study finding. This is might be farmers did not access to get modern castration method.

The value obtained for culling age was in comparable with Tekleyohannes *et al.* [33] in Bena-Tsema district; however, this value was lower than the report of Asefa *et al.* [9] in Bale zone. Belete [19]; Dhaba *et al.* [34] and Ahmed *et al.* [35] reported that goat owners in Ethiopia in western part of Ethiopia cull their goats from the flock based on reproductive problem (sterility), old age, sickness, unwanted physical characteristics and physical defect. Similarly, Dereje *et al.* [36] revealed that productivity problem, disease, persistent poor body condition and synergetic effects of all these factors were the common top four reasons for destocking goat flock in west Hararghe, Eastern Ethiopia. These reports had similar notions of culling practices with different proportions of the current study. The major constraint found for Meanit Goldiya area is in agreement with the report of Arse *et al.* [37] showed that sever feed shortage, high disease prevalence and predatory were the main serious problems in ATJK, Arsi-Nagelle and Fenale districts.

The index value obtained for disease and predator in Guraferda district is in agreement with Gurmesa *et al.* [38] indicated that disease, predator and labor were the serious problem in Arsi Nagelle districts. Group discussion reveled that mon-key is the most serious predator that affect the production of goats in the study areas, particularly in Guraferda areas. It killed goats (particularly kids) by damaging their eyes. Other predator like hyena and tiger are also factors in the studied areas as farmers reported. Fantahun *et al.* [12] stated that feed shortage and disease was the main limiting production factors of goat in Bench Maji zone, southwestern Ethiopia which is in accordance with the result obtained for disease and feed shortage. According to Assefa *et al.* [9] showed that disease, feed shortage and predators were the most significant constraint of indigenous goat in Bale zone of Oromia region, Ethiopia which is in consistent with the current finding. The great production loss caused by disease it might be due to climatic condition of the study areas and poor nutrition of goats.

In addition to this, focus group discussion indicated that weak management of communal group grazing lands, over grazing, expansion of crop land, human population growth were the main factors that declining and shrinkage of the grazing land in both study districts. In other cases, Soil erosion, reduction of fallow land productivity and size, deforestation, poor management of the sloppy topography are observed as the factor that increase the feed shortage problem in both study districts.

The result obtained for diarrhea in Meanit Goldiya district is similar to Mahilet [16] who reported that diarrhea was the major disease that frequently affects goats in Meta district. Likely, Gurmesa *et al.* [38] and Girma *et al.* [39] indicate that diarrhea was found to be the most serious disease of goats which is good agreement with the current findings. The report of Seifemichael [40] showed that pneumonia was the most



frequently affected disease of goats in Afar region which is a good agreement with the current finding found for in Guraferda area. Mostly disease occurred during the wet season and Farmers during group discussion revealed that in addition to medicine from government they used traditional treatment for any types of disease. Especially, from traditional treatment medicine 'kebrecho', 'Chabalche' and 'Dieketa' are the predominant. The preparation is that first crushed root of 'Kebrecho' as well seed of 'Chabalche' and 'Dieketa' and mix with water and finally drenching the mixture through mouth for any types of disease. Discussion with both districts veterinarians revealed that the facilities and supply of vaccination and medicine from government is not good enough to eradicate disease occurrence as well supplying of similar medicine is aggravating the resistance of disease or the disease adapted the medicine. They also mentioned poor goat management system, unavailability of quality of feed and using traditional medications without knowing the dosage and side effects are a problem in their communities.

## 5. Conclusion

In this study is that goats play a significant role for farmers in the study areas as income generation, home consumption and saving throughout the years. But goat production system in the study areas was more of traditional extensive production system which constrained by disease occurrence, predator and feed shortage. Communal grazing was the main feed source of in the study area. The main source of water in wet and dry season across the districts was river. Majority of the farmers were practiced castration for the reason of improve fattening to obtained better price and it's important to reduce inbreeding depression. However, castration at early age may affect the genetic improvement of next generation by reducing the opportunity of waiting best breeding bucks in a flock. Therefore, this finding was provide information about husbandry practices and production environment of goats as first step in designing a sustainable community based breeding programme in the study areas.

## Conflict of Interest

The authors declare there is no conflict of interest.

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