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Research Article

Characterization of Husbandry Practices of Indigenous Goat Populations in South Gondar Zone, Ethiopia

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ABSTRACT

This study was conducted to describe the husbandry practice of indigenous goat populations in South Gondar. To this effect, husbandry practices of indigenous goat population were taken from 153 households (138 males and 15 females) of both sexes selected randomly drawn from three districts (Farta, Fogera and Libokemkem). The districts were selected multi-stage purposive sampling technique and data were gathered through semi-structured questionnaire, focus group discussions, field observations analysis using SPSS (version. 20). The results indicates that natural pasture was ranked as first feed resource for goat in both dry and wet seasons for the studied districts those communal grazing land might be leading to mate of unrelated goats especially in large flock size and reduce inbreeding. About 79.7% of the respondent housed their goats separately from other animals. Majority of respondent practices castration of buck in wet season by modern castration method (burdizzo). The categories of goats used for fattening were castrated (54.8%), whereas female goats were only fattened when they get older. The respondents culled their goats at average age of 6.13 years for bucks and 7.95 years for does. The most reasons of culling male goats were age, poor physical condition, frequent illness and poor libido. The mean marketing age for goats in the study area was 9.46 months for young bucks and 10.8 months for young does. All respondents had accesses to get veterinary service in each kebeles. The major diseases identified by the interviewed respondents were Foot and Mouth Disease (FMD), foot root, anthrax, pasteurellosis, sheep and goat pox, internal and external parasites, and lung warm. Most of the time providing vaccination to prevalence disease occurred during the onset and offset of rain. The major constraints of goat were disease occurrences and feed shortage. In conclusion goat management practiced in the study area was traditional, kept primarily for income source. Therefore, improving husbandry practices applying appropriate disease prevention methods and applying strategic forage development and feeding practices.

Keywords: Castration; Constraints; Culled; Disease; Husbandry practices; Indigenous goat

INTRODUCTION

Ethiopia is home of about 32.73 million goats, from those goat population 99% are of local breeds. They are reared in a crop livestock and agro pastoral farming systems, and are widely distributed across different agro-ecological zones of Ethiopia. The size of goat populations in Ethiopia has increased more rapidly (134%) than the sheep (65%) and cattle (38%), shifting the sheep to goat ratio from 1.3 in 2003 to 0.9 in 2013. Goat meat production in Ethiopia had increased by 2% between 2005 and 2012 and expected to further increase in the upcoming years due to increased domestic and export demand for goat meat. Moreover, in areas where there is a financial and physical limitation for resources to keep large ruminants, goat milk production is valued the most [1].

Goats are small body size, broad feeding habits, adaptation to unfavorable environmental conditions and their short reproductive cycle with comparative advantage over other species

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especially resource poor livestock keepers. Goats are browsers and highly selective feeders and had a strategy that enables them to thrive and produce even in the area shortage of bushes and shrubs. Thus, the presence of goats in mixed species grazing systems can lead to a more efficient use of the natural resource base and add flexibility to the management of livestock [2].

Slow growth rates of goats managed under smallholder conditions, high mortality rate and low commercial off-take rate were the major challenges of smallholder goat production in Ethiopia. These could be attributed to prevalence of diseases resulting in high mortality, lack of adequate feed resources, and absence of appropriate breeding systems to exploit the diverse genetic potential, poor access to infrastructural and institutional supports. South Gondar is suitable for small ruminant production and has higher number of sheep and goat. Despite there is potential in the area, productivity of goats is affected by different factors. The production system needs to be clearly identified to undertake improvement program for livestock. Therefore, it is necessary to know the production system of goat population the particularly in South Gondar. Therefore, the objective of this paper is to describe the husbandry practice and to assess constraints of goat production [3].

MATERIALS AND METHODS

Sampling procedure

First, the relevant second hand information was gathered from South Gondar zone agriculture and rural development office experts of livestock. This information's are essential in identifying the appropriate locations for the intended study. Based on the obtained information, a multi stage purposive sampling technique was used to select the study districts and kebeles. Kebeles are the smallest administrative units within a district. In the first stage, three districts namely Farta, Fogera and Libo-Kemkem were selected purposively based on goat population size. In the second stage, based on distribution of goat's population, three kebeles from each district were selected purposively. In the third stage, the farmers who possess at least three matured goats of both sexes and have long enough experiences in rearing goat were identified within kebeles with systematic purposive sampling. A total of 153 households (51 from each district and 17 households from each kebeles) were randomly sampled for interview using a semi-structured questionnaire [4].

In addition, to refine the obtained information through interview, focal group discussions were held at each kebeles.

Individuals communally known to have high quality breeding animals, model farmer, and people believed to be knowledgeable about the past and present of social and economic status of the area and community elders and storytellers were identified and included in the discussion.

Data collection procedures

A semi structured questionnaire was prepared and pre-tested using randomly selected households and the necessary adjustments were made. Information on the socioeconomic characteristics of the farmers (like sex, age, education level, major goat production constraints); culling age and routine husbandry practices like housing; feed situations; major diseases occurred in the area and castration practices of goat were collected. Moreover, secondary data were collected from the district and zonal offices of agriculture. Information on the management of goat such as feeding, housing, health, constraint of goat production, livestock holding and dynamics were collected [5].

Statistical analysis

All the collected data were double-checked and corrected for any types of errors or outliers. All data were then coded. For all data from the questionnaire were recorded in Microsoft excel. The data obtained through the questionnaire were analyzed using descriptive statistics crosstabs and percentage compared across districts using *Chi square* test. The qualitative data obtained through direct observation were analyzed using the frequency procedure using a Statistical Package for Social Science (SPSS ver. 20).

RESULTS

General household characteristics

General information of household in study area is presented in Table 1. There was a significant difference (P<0.05) among districts in age of respondents. The average ages of respondents were 48.3 year for the three districts. Of the total interviewed households, the majority (90%) of them were male headed while the remaining lower proportion were woman headed (10%). The majority of the respondents were illiterate (50.3%) followed by read and write (26.8%).

Table 1: Household characteristics in the study area.

HH characteristics	District						Over all		X^2 value
	Farta		Fogera		Libo-kemkem				
Age (mean ± SE)	46.76 ± 1.01[a]		48.92 ± 1.14[ab]		50.2 ± 1.15[b]		48.63 ± 0.64		
	N	%	N	%	N	%	N	%	
Sex									

Male	46	90.2	44	86.3	48	94.1	138	90.2	1.8 ns
Female	5	9.8	7	13.7	3	5.9	15	9.8	
Educational status									
Illiterate	28	54.9	22	43.1	27	52.9	77	50.3	2.87 ns
Read and write	14	27.5	16	31.4	11	21.6	41	26.8	
Religious school	5	9.8	6	11.8	6	11.8	17	11.1	
Primary (1-8)	3	5.9	5	9.8	5	9.8	13	8.5	
Secondary (9-12)	1	2	2	3.9	2	3.9	5	3.3	

Note: [ab]Means with the different superscripts letter within the same row and class are significantly different at p (<0.05); x^2 Pearson *Chi-square*; N=Number of respondent; HH=Household

Feed resource and feeding of goats

The available feed resources in dry and wet seasons of the year in study site are presented in Table 2. In the dry season, the feed resources were a natural pasture, shrub and bushes, crop residues, hay, crop aftermath, and fallow land whereas in wet season natural pastures, shrubs and bushes, and fallow land were reported as major feed resources.

Table 2: Ranking of goat feed sources by district in dry and wet seasons.

Feed resource	Farta	Fogera	Libo-kemkem	Overall
	Index			
Dry season				
Natural pasture	0.37	0.33	0.38	0.36
Shrub and bushes	0.17	0.17	0.16	0.17
Crop residues	0.19	0.2	0.18	0.19
Hay	0.01	0.02	0.01	0.012
Crop aftermath	0.11	0.13	0.13	0.12
Fallow land	0.15	0.15	0.14	0.16
Wet season				
Natural pasture	0.42	0.41	0.41	0.41
Shrub and bushes	0.33	0.33	0.33	0.33
Fallow land	0.26	0.27	0.26	0.26

The types of feed supplements that were provided to goats include homemade grain, oil seed cake, local brewery and flour. The ways of grazing during the dry season was free grazing (60.8%) and the remaining (39.2%) was herding while 89.5% of them reported herd grazing during the wet season (Table 3) [6].

Table 3: Supplement feed for goat in the study area N (%).

Feed resource	Farta	Fogera	Libo-kemkem	Overall	X^2 value
Type of supplement					5.38 ns

Homemade grain	14 (27.5)	7 (13.7)	11 (21.6)	32 (20.9)	
Oil seed cakes	2 (3.9)	3 (5.9)	4 (7.8)	9 (5.9)	
Local brewery product	20 (39.2)	24 (47.1)	17 (33.3)	61 (39.9)	
Flour by product	2 (3.9)	2 (3.9)	4 (7.8)	8 (5.2)	
All	13 (25.5)	15 (29.4)	15 (29.4)	43 (28.1)	
Season of mineral supplementation					1.9 ns
Dry	13 (25.5)	8 (15.7)	12 (23.5)	33 (21.6)	
Wet	26 (51)	31 (60.8)	26 (51)	83 (54.2)	
Both	12 (23.5)	12 (23.5)	13 (25.5)	37 (24.2)	
Method of grazing dry season					1.15
Herding	19 (37.3)	23 (45.1)	18 (35.3)	60 (39.2)	
Free grazing	32 (62.7)	28 (54.9)	33 (64.9)	93 (60.8)	
Method of grazing wet season					7.25*
Herding	49 (96.1)	47 (92.2)	41 (80.4)	137 (89.5)	
Tether grazing	2 (3.9)	4 (7.8)	10 (19.6)	16 (10.5)	

Note: *Significantly different at p (<0.05); x^2=Pearson *Chi-square*; ns=non significantly; N=Number of respondent

Housing of goats

In study areas, goats were housed in different ways as shown in Table 4. About 79.7% of the respondent housed their goats separately from other animals, while 20.3% of them reported to house their goats together with sheep. The most dominate housing system in study area was separate house (54.2%), followed by extend of building (35.9%) and yard (9.8%) [7].

In all districts all sex and age group housed together except kids (96.7%) because of to protect newly born kids.

Table 4: Housing of goats in the study area %.

House	Farta	Fogera	Libo-kemkem	Overall	X^2 value
	N (%)				
Goat house					0.8 ns
Alone	40 (78.4)	41 (80.4)	41 (80.4)	122 (79.7)	
With sheep	11 (21.6)	10 (19.6)	10 (19.6)	31 (20.3)	
Type of house					12.8*
Separate house	27 (52.9)	31 (60.8)	25 (49)	83 (54.2)	
Extend of building	22 (43.1)	18 (35.3)	15 (29.4)	55 (35.9)	

Yard	2 (3.9)	2 (3.9)	11 (21.6)	15 (9.8)	
Are kids housed with adult					0.4 ns
Yes	1 (2)	2 (3.9)	2 (3.9)	5 (3.3)	
No	50 (98)	49 (96.1)	49 (96.1)	148 (96.7)	

Note: *Significantly different at (P<0.05); x^2=Pearson *Chi-square*; ns=Non Significantly

Castration of bucks

Castration practices in the studied districts are presented in Table 5. About 85.6% of the respondents reported practicing of castrations. The major (52.9%) reason of castration of bucks was for fattening of their goats. About 60.8% of the respondents castrate their goats during the wet season or end of the wet season. About 43.1% of respondents reported that they castrate their bucks at the age of one to two years while 29% of households castrate when bucks are two to three years old [8].

Majority (31.4%) of the respondent were used modern (burdizzo) castration method followed by both tradition and modern (30.7%) and traditional method (23.5%) using a rounded stone known as alello.

Table 5: Castration methods of male goats in the study areas (%) fattening practices of goats.

Parameter	Farta	Fogera	Libo-kemkem	Overall	X^2 value
Do you practice castration of goat					0.74 ns
Yes	86.3	82.4	88.2	85.6	
No	13.3	17.6	11.8	14.4	
Reason of castration					15.46*
To fatten and sale	68.6	43.1	47.1	52.9	
To prevent unwanted breeding	11.8	11.8	25.5	16.3	
For better temperament	5.9	27.5	15.7	16.3	
Season of castration					12.89*
Dry	41.2	19.6	13.7	24.8	
Wet	45.1	62.7	74.5	60.8	
Age of castration					24.52*
6 months-1 year	17.6	17.6	5.9	13.7	
1 year-2 years	41.2	56.9	31.4	43.1	
2 years-3 years	27.5	7.8	51	28.8	
Method of castration					21.32*
Local methods (stone, and other)	21.6	23.5	25.5	23.5	

| Modern | 39.2 | 43.1 | 11.8 | 31.4 |
| Both | 25.5 | 15.7 | 51 | 30.7 |

Note: *Significantly different at p (<0.05); x^2=Pearson *Chi-square*; ns=non significantly

About 60.8% of the respondents in the study area were practicing fattening (Table 6). The categories of goats used for fattening were castrated (54.8%), barren doe and castrate (19.4%), adult male (6-12) months (15.1%) and buck (10.8%). The common period of fattening were February up to May (56%), June up to August (28%) and October up to January (16.1%).

Feed resource used for fattening were natural pasture, crop residues and concentrate like homemade grain (bran of barley, wheat and bean), household left over and local brewery by product (atella). According to respondent, natural pastures (44.1%) and crop residue (22.6%) were the main feed resources for fattening [9].

Table 6: Fattening practices of goats in the study area (%).

Parameter	Farta	Fogera	Libo-kemkem	Overall	X^2 value
	%				
Did you practice goat fattening					3.46 ns
Yes	62.7	51	68.6	60.8	
No	37.3	49	31.4	39.2	
Which category of goat fattening					5.16 ns
Young buck (6-12) months	9.4	19.2	17.1	15.1	
Buck	12.5	7.7	11.4	10.8	
Castrated	56.2	53.8	54.3	54.8	
Barren doe and castrate	21.9	19.2	17.1	19.4	
Period of common fattening					2.35 ns
October-January	18.8	11.5	17.1	16.1	
February-May	50	53.8	62.9	55.9	
June-August	31.2	34.6	20	28	
Feed resource use to fatten goat					2.5 ns
Natural pasture	43.8	34.6	51.4	44.1	
Natural pasture and concentrate	15.6	15.4	11.4	14	
Natural and crop residues	18.8	30.8	20	22.6	

| Natural pasture, crop residues and concentrate | 21.9 | 19.2 | 17.1 | 19.4 |

Note: *Chi square* (X^2) values denote no significant difference between districts. Ns ($p>0.05$)

Culling and marketing age of goats

The average culling and marketing age of goat are present in Table 7. In the study area, households culled their goats at average age of 6.13 years for bucks and 7.95 years for does.

The mean marketing age for goats in the study area was 9.46 months for young bucks and 10.8 months for young does.

Table 7: Average culling and market age in the study areas (mean ± SE).

Parameter	Farta	Fogera	Libo-kemkem	Overall
Average culling age (year)				
Average culling age of buck	5.53[a] ± 0.14	6.22[b] ± 0.13	6.65[c] ± 0.13	6.13 ± 0.08
Average culling age of does	7.13[a] ± 0.13	8.06[b] ± 0.14	8.6[c] ± 0.12	7.95 ± 0.09
Average market age (month)				
Average marketing age of young buck month	9.55[b] ± 0.14	9.80[b] ± 0.12	9.12[a] ± 0.1	9.46 ± 0.08
Average marketing age of young does month	10.71[a] ± 0.15	11.12[b] ± 0.14	10.4 7[a] ± 0.14	10.8 ± 0.08

Note: [abc]Means with the different superscripts letter within the same row are significantly different at p (<0.05).

Health management of goats

The major diseases identified by the interviewed households were Foot and Mouth Disease (FMD), foot root; anthrax, pasteurellosis, sheep and goat pox, internal and external parasites, and lung warm (Table 8). The major disease that frequently occurred in the Fogera and Libo-kemkem districts were FMD, followed by anthrax and pasteurellosis whereas in Farta district sheep and goat pox, FMD and anthrax were ranked as first, second and third, respectively [10].

Table 8: Major goat diseases that occur during wet and dry seasons using index values.

Local name	English name	Farta	Fogera	Libo-kemkem	Mostly occurred
Afemeyaz	FMD	0.14	0.17	0.15	Jun-Oct
Chakuwat	Foot root	0.11	0.12	0.1	June-Sap
Kurba	Anthrax	0.13	0.15	0.13	March-June; Oct-Febr
Adifik/Afrite	Pasteurellosis	0.12	0.14	0.12	Not seasonal
Fentata	Sheep and goat pox	0.16	0.12	0.11	Febr-June
Internal	NA	0.12	0.08	0.1	Not seasonal
External	NA	0.11	0.1	0.11	Not seasonal
Kizen/Tekmat	Diarrhea	0.11	0.13	0.11	Not seasonal
Sal	Lung warm	Nr	Nr	0.06	Not seasonal

Note: FMD=Foot and Mouth Disease, NA=Not Available and nr=not ranked

Goat production constraints

The constraints of goat production in the study area were disease occurrence, feed shortage and drought occurrence with value 0.23, 0.22 and 0.18 respectively presented in Table 9. Based on the current study disease, feed shortage and drought were the first, second and third major constraints for Farta and Libo-kemkem district where as feed shortage, disease and

drought were the first, second and third major constraints for Fogera district. Other constraints like market problem, lack of superior genotype, present of predators and labor for kept goat were low indices [11].

Table 9: Constraints of goat production in the three study districts using index values.

Criteria	Farta	Fogera	Libo-kemkem	Over all
Disease occurrence	0.22	0.21	0.25	0.23
Feed shortage	0.21	0.24	0.21	0.22
Water shortage	0.04	0.04	0.06	0.05
Drought occurrence	0.17	0.19	0.17	0.18
Market problem	0.09	0.06	0.07	0.08
Present of predator	0.08	0.07	0.07	0.07
Lack of superior genotypes	0.06	0.06	0.08	0.07
Labor shortage	0.14	0.13	0.09	0.12

Note: Index=Sum of (3 X number of household ranked first+2 X number of household ranked second+1 X number of household ranked third) given for each constraint divided by sum of\(3 X number of household ranked first+2 X number of household ranked second+1 X number of household ranked third) for all constraint in a study site; R=Rank.

DISCUSSION

General household characteristics

Farta with lowest average age group of respondent than Libo-kemkem and Farta with Fogera and Fogera with Libo-kemkem have similar age group. The average age of respondents were 48.3 year, this average age group indicating that the respondents were a good experience in goat farming and at productive age group. The present study was comparable with previous report of Abraham et al., and Sheriff, et al. The majority (90%) of them were male headed while the remaining lower proportion were woman headed (10%). The occurrence of less percentage of women respondents in the study areas may be due to workload inside the house to handle all activities related to cooking, taking care of their children, cleaning and other. The current observation was in agreement with that of Zergaw who reported that about 93% of respondents were male headed in Konso and Meta-Roba districts [12].

The majority of the respondents were illiterate (50.3%) followed by read and write (26.8%). This indicates that farmers needed more awareness for adopting new technology. The present study was similar with Adem the majority of respondent were illiterate (56.2%) in Ebnat and Tach Gayint district. In addition, this result was comparable with Fantahun et al., who reported that 44.4% of goat keepers in Bench Maji zone were illiterate.

Feed resource and feeding of goats

Natural pasture was ranked as first feed resource for goat in both dry and wet seasons for the studied districts. The findings were in agreement with those of Samuel, et al., in Agarfa district, Neme in Ada Barga and Ejere districts and Bireda, et al., in Asossa zone who reported similar trends.

In the dry season, feed resources natural pastures, crop residues and shrub and bushes were ranked as the first, second and third, respectively. This finding was similar with that of Muluneh, et al., who reported that the main feed resources for goat were natural pasture and crop residues during dry season in West Gojjam zone. The major crop residues used in the study area includes barley, maize, wheat, teff, finger millet, noug, rice, vetch and bean.

In wet season natural pastures, shrubs and bushes, and fallow land were reported as major feed resources, which ranked as first, second and third, respectively. This result was in line with the findings reported by Asefa, et al., in Bale zone and Adem in Ebnat and Tach Gayint district. Mostly feed shortage occurred during the dry season starting from late December to early June. The higher feed shortage during the dry season may be because most farmers use communal grazing land that provides little biomass with poor nutrient quality with large stock density. However, communal grazing land might be leading to mate of unrelated goats especially in large flock size and reduce inbreeding.

The majority of feed supplements used for goats were local brewery product (39.9%) like atella. Mineral (mainly table salt) supplementation was reported across all study areas and about 54.2% respondents supplemented their goats during wet season.

Housing of goats

The farmers in study area shelter their goats during night throughout the year to protect them from predators, theft, adverse climatic conditions and to provide cleaning barn. The major housing system in study area was separate house (54.2%) which was good agreement with report of Tsegayein Jimma zone.

The current result indicates that in all districts all sex and age group housed together except kids (96.7%) because of to protect newly born kids. Such practices would have effect on mating and lead to inbreeding. According to focal group discussion indicated that kids kept on temporary pen bedding material local known as kirchat made from baboo for the first two week to kept dry, clean and warm at night.

Castration of bucks

Majority of respondents reported practicing of castrations. This finding was in good agreement with the findings of Gatew, et al., who reported that the majority of goat keepers practice castration. The major (52.9%) reason of castration of bucks was for fattening of their goats to get a better price. In agreement with the present results, the practice of castration has been reported in different parts of the country.

About 60.8% of the respondents castrate their goats during the wet season or end of the wet season because of the availability of feed. About 43.1% of respondents reported that they castrate their bucks at the age of one to two years while 29% of households castrate when bucks are two to three years old. The findings were consistent with those of Samuel, et al., and Derib who reported that main age of castration was from 6 month to 24 months.

Majority (31.4%) of the respondent were used modern (burdizzo) castration method followed by both tradition and modern (30.7%) and traditional method (23.5%) using a rounded stone known as alello. Focal group discussion indicated that the traditional castration method mostly causes damage on the testicle of goat resulting in bleeding around the vas deference and the castration area. Such incidences were the major causes of illness due to development of infections around the testicle. The current results were consistent with those of Asefa, et al., and Takele who reported that most of the respondents were practicing modern castration. On the other hand, Zergaw; Derib; Adem and Tesfaye reported that most respondent castrate their buck traditionally.

Fattening practices of goats

Farmers with large flock size do have the potential to retain male bucks for subsequent castration and fattening. Poor farmers sell younger males at earlier age. In contrary, Tkue, et al., reported that most respondents in Emba Alaje district were not practicing fattening. Moreover, Takele reported that all respondents in

Shabelle zone did not practice fattening at all. Female goats were only fattened when they get older. The common period of fattening were February up to May (56%), June up to August (28%) and October up to January (16.1%) to sell in holiday such as Easter, New Year and Christmas. Zergaw reported similar practices in goats reared in Konso and Meta-Robi district households.

Private or common natural pastures were the main feed resources for fattening. They were providing their goats with some drugs like Albendazole (300 milligrams) for treatment of internal parasites. The observations were in close accordance with the findings of Derib from South Omo zone and Tsegay in Jimma zone. In general, goat fattening practices in study areas were not more supported by improved feeding like oil seed cake, wheat middle and management methods.

Culling and marketing age of goats

Culling of goat flocks is an important tool for the development of a good flock, by means of improving the genetic quality and productivity of a flock. Households culled their goats at average age of 6.13 years for bucks and 7.95 years for does. Similar observations were reported by Zergaw for goats reared in Konso and Asefa, et al., for does in Bale zone. However, the present results were lower than that of Asefa, et al., for bucks reared in Bale zone. The most reasons of culling male goats were age, poor physical condition, frequent illness and poor libido. The reasons of culling of female goats were low survivability of kids, frequent illness, sterility, poor physical condition, extended kidding interval, and poor mothering ability.

The mean marketing age for goats in the study area was 9.46 months for young bucks and 10.8 months for young does, indicating that male goats reach marketing age earlier than females. Farmer sold early maturing male cause negative selection and required to use late mature male for breeding purpose. This finding is comparable with that of Asefa, et al., who reported that male goats reach their marketing age much earlier than females. On the other hand, lower marketing age for both male and female goats was reported by Derib in South Omo zone.

Health management of goats

As the respondents explain that the facilities and supply of vaccination from government was not enough as well as similar vaccine was not effective or aggravating the resistance of disease. About 76.5% of the respondent in the study area had access to get medicine from government veterinary clinic followed by both government and private clinic (14.4%) and 9.2% of them from private veterinary clinic. This result was in line with Adem who reported that in Ebinat and Tach Gayint districts (93%), government animal health were the main sources of veterinary services.

From group discussions made in all districts with farmers and kebeles Development Agents (DAs) the quality (most of the drugs near to expiry date) and the quantity (amount of each drug and number of types of drugs) of drugs were not satisfactory. Most of the time providing vaccination to

prevalence disease occurred during the onset and offset of rain. Symptoms commonly associated with several goat diseases are depression, tick born disease, accidental death, abortion, coughing, serious nasal discharge which block nostrils, bloody and bad odor diarrhea, mouth inflammation, formation of vesicles on mouth and foot, nodules on the lips and eyes, skin irritation and scratching with fixed objects were among reported symptoms.

Anthrax is particularly a zoonotic disease, which can affect both animals and humans. In contrary to the current findings, Adem reported diarrhea and anthrax were the first two major diseases occurred in Tach Gayint and Ebinat district, respectively. However, diarrhea by itself cannot be a disease it is commonly considered as a symptom of any kind of infectious and non-infectious diseases. According to the group discussion, majority of goat disease problems occurred during the dry season, which could be associated with feed shortage, which subsequently lead to poor body condition resulting in higher susceptible. During the rainy season, FMD and foot root were the common types as reported by households. As indicated by different authors, FMD, anthrax, pasteurellosis, sheep and goat pox, internal, external parasite, foot root and diarrhea are common diseases that occurred in Ethiopian goat populations.

Goat production constraints

Identification of constraints is a prerequisite to plan appropriate intervention strategies for a given farm animal production. The major constraints of goat production in study area were disease occurrence, feed shortage and drought occurrence. Other constraints like market problem, lack of superior genotype, present of predators and labor for kept goat were low indices. This implies that farmer were lack of awareness about goat genotype. The most common predators in the study area were foxes and wild dogs. The predators attack goats when they are browsing in natural grazing land in the daytime. The current study was comparable to the previous findings reported by Gebreyowens and Kumar who studied disease the first main constraints for goat production Eastern zone of Tigray and Asefa, et al., disease and feed shortage were the first and second constraint of goat production in Bale zone.

CONCLUSION

The major feed resources used for goat in the study area were natural pasture, shrubs and bushes, crop residues, crop aftermath and follow land. Majority of the respondents across all district housed their goats alone and majority of the respondents reported practicing of castrations with majorly used modern (burdizzo) castration method. Majority of the respondents in the study area were practicing fattening but female goats were only fattened when they get older. Male goats reach marketing age earlier than females. The most frequently occurred type of disease were foot and mouth disease, foot root, anthrax, pasturellosis, sheep and goat pox, internal parasite, external parasite diarrhea and lung warm. The major constraints of goat production were disease occurrence, feed shortage and drought occurrence.

Generally goat production systems in the area were traditional husbandry practices so awareness should be provided for improvement and reduce negative selection.

CONFLICT OF INTEREST

Authors certify that there is no competing interest.

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