Global Veterinaria 21 (3): 109-115, 2019
ISSN 1992-6197

DOI: 10.5829/idosi.gv.2019.109.115

Sheep Fattening Practices and Constraints in East Badewacho Woreda, Hadiya Zone Southern Ethiopia

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Abstract: The study was conducted in Hadiya Zone East Badewacho Woreda, Southern Nations Nationalities and peoples of Ethiopia. The objective of the study was to assess sheep fattening practices and constraints. Among 38 Kebeles of East Badewacho the Woreda about 4 Kebeles and 60 households were selected randomly to collect primary data. Based on the study, majority of the respondents (93%) of the interviewed households were practicing traditional sheep fattening system, while the rest (7%) practiced agro industrial byproduct based fattening system. The common feed resource used for sheep was natural grazing, browsing crop residues and household wastes. Feed availability greatly depends on the season of the year when crops are growing. Accordingly, feed shortage during dry season was the most critical constraints for sheep raised by 50% of the respondents. The most common (66.7%) feeding frequency of sheep was once a day. River, pond, trough water, harvested water, rain and well water are common source of water for sheep fattening. Majority of the respondents (98.6%) of respondents accommodated their sheep in the main houses together with the family members. Sheep mortality was happened and resulted loss of flock due to diseases and parasites, poisoning and the presence of ecto-parasite. Based on the present findings, agricultural development agents should give attention in creating awareness for farmers by providing advice, adequate skill and monitoring especially how to keep the health of their flock.

Key words: Feed Shortage · Natural grazing · Dry Season · Sheep mortality

INTRODUCTION

Ethiopia has the largest livestock population in Africa with estimated number of 56.71, 29.33, 29.11, 9.86, 1.16, 56.87 and 10 millions of cattle, sheep, goats, equine, camel, poultry and bee colonies, respectively [1]. Rising developing country demand for livestock products propelled by income and population growth and by urbanization offers poverty reduction opportunities to actors in the supply chain [2]. In Ethiopia, similar to other developing countries, changes in the demand for livestock products have been largely driven by human population growth, income growth and urbanization [3]. Along with this, large export and domestic market for mutton and live animal has created opportunity for sheep production in Ethiopia. Besides, strategic location of Ethiopia to Middle East is also an opportunity to export meat (Largely from sheep and goats) and live animals to these countries.

Sheep have a great environment adaptability, short production cycle, faster growth rates, easy management, low investment capital and low feed requirement as compared to large ruminants [4]. Sheep are the major economically important livestock in Ethiopia, playing an important role in livelihood of resource poor farmers. They provide their owners with a vast range of products and services such as meat, milk, skin, hair, wool and manure and as means of saving and investment. Sheep serves as living bank for their owner and immediate cash need and ensures against crop failure specially where land productivity is low and are liable due to erratic rainfall, sever erosion, too frost and water logging problems [5]. The income obtained from sheep was used to purchase household commodities and farm inputs [6]. Lack of grazing area due to human population growth and crop land expansion has forced the small scale farmers of Ethiopia to recognize the significance of sheep [7]. Even though, *Badewacho* Woreda which is found in a

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Hadiya Zone Southern Ethiopia has a good potential of sheep production, the fattening and marketing is not yet identified and studied. Therefore, the aim of this research was to assess the existing fattening and marketing system of sheep in the study area.

MATERIALS AND METHODS

Description of the Study Area: The study was conducted in *East Badewacho* Woreda *Hadiya* Zone Southern Ethiopia. It is located at 345 km from Addis Ababa a capital city of Ethiopia and 78 km from *Hossana* a capital city of *Hadiya* zone. The altitude of the Woreda ranges 1500-2100 m a.s.l. Annual rainfall ranges between 800-1500 mm and annual temperature ranges between 18.5-22.5°C. There are 38 Kebeles in the Woreda. From those 28 Kebeles are mid altitude "*Woinadega*" and 10 Kebeles are low land ("*Kola*"). The major crops cultivated in the study areas are cereal crops, root and tuber crops, vegetable crop, Enset and fruit crops. *East Badewacho* Woreda was a population of 82224, 14755, 14608, 2430, 678, 42 and 189840 cattle, sheep, goat, donkey, horse, mule and poultry, respectively. The soil type is clay loam and the major animal feed resource is natural grass and crop residues [8].

Sampling and Sampling Size: According to the data of Zonal office, the Woreda has totally 38 kebeles among which 28 and 10 kebeles are "*Woinadega*" (Mid altitude) and "*Kola*"(Low land), respectively. For the present study, to make a representative of the agro ecology 3 and 1 kebeles from "*Woinadega*" and "*Kola*" were selected respectively. The kebeles were selected based on the potential of feed resource for fattening and experience of fattening. From each kebele, 15 households were selected purposively based on the experience in sheep fattening. Thus, totally 60 households (4 kebeles*15 households) were included in the study to assess the fattening of sheep and marketing system in *East Badewach* Woreda *Hadiya* Zone Southern Ethiopia.

Data Collection: For this study both primary and secondary data were used. The primary data were obtained by preparing semi-structured questionnaire and personal observation. The secondary data were obtained from written documents and Agricultural office of the East Badewach Woreda Hadiya Zone Southern Ethiopia.

Data Analysis: The collected data were analyzed and summarized by using SPSS, descriptive statistics like percentage, mean and standard deviation and the results were interpreted by using tables and figures.

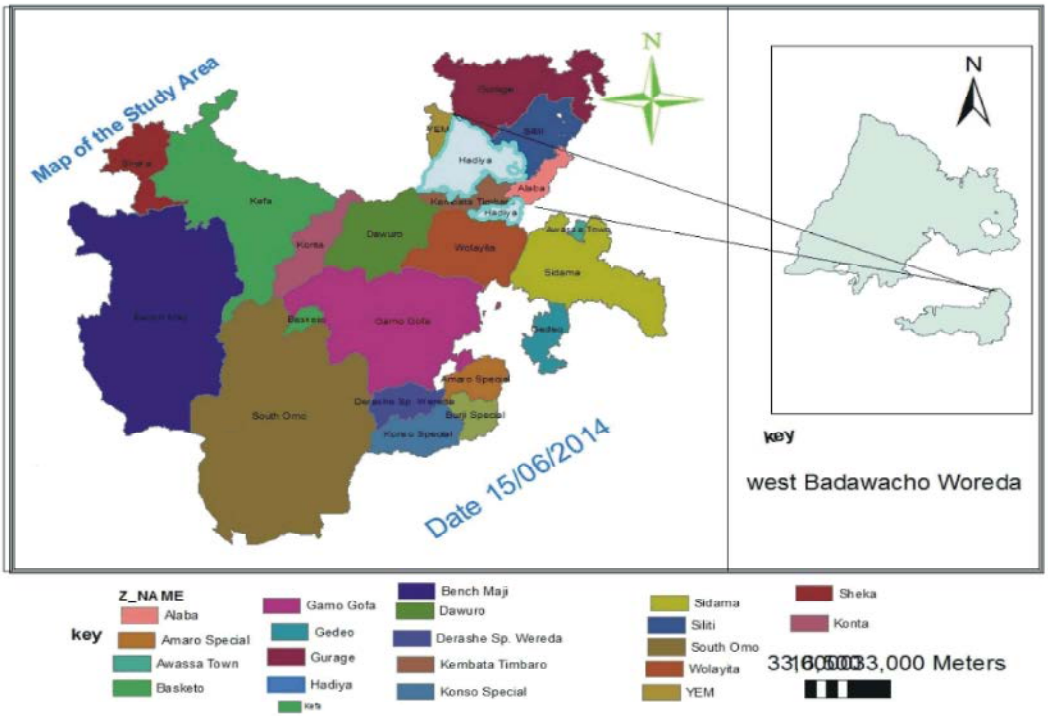

Fig. 1: Map of the study area

RESULT AND DISCUSSIONS

Socio Economic Conditions of the Respondents: As it is indicated in table 1, about most of fattened sheep (83.3%) were males. This finding slightly agrees with results of Taye [9]. As well as, in the Southern Ethiopia, 95% male headed households Taye [9]. From the respondents 75% were educated from which 14.5% were above 10th grade (Figure 1). However, 25% of the respondents were illiterate. Similar to the current results, 22.8% of the respondents were illiterate, 3.53% could read and write, 70.2% had attended primary school and 3.50% reached secondary school in western and south-western Ethiopia [10]. Therefore, providing access to education has a role in accepting the new technology and great attention should be needed in this aspect.

The socio-demographic characteristics, sex, age categories and family size of the respondents are presented in table. As it is indicated in Table 2 most (48.3) of the respondents were found in the age category between 15-45 years old. This presence of high proportion of active working age may be an opportunity for active participation in agricultural activities. Majority (66.7%) of the respondents had a family size of 5-8 persons per household, while those who had less than 4 persons accounted only 13.3% (Table 3). In general, the presence of high proportion respondents with large family size in the study area may indicate some form of family planning should practice/encourage.

Farming System: The agro- ecological Zone of the Woreda is suitable for mixed farming activities because of these reason all farmers participated mixed livestock production system. Farmers grow maize, Teff, Haricot bean, Wheat and sorghum which are the major staple diet. Crop residues and by product from crops are mainly used as source of feed for livestock in the study area. Also Jifar Seramo *et al.* [11] reported that most of crop residues are used as livestock feed but their supply is seasonal. The average crop production per hectare of land in quintals per year which is used to calculate crop residues obtained Table 4.

Livestock Production and Composition: According to respondents the major livestock species raised in the study area including cattle, sheep, goats, donkey and horse. Among those cattle are dominant livestock species in the study area. The composition of cattle, sheep, goat, donkey, horse and mule was 4.56, 2.08, 1.5, 1.41, 0.41, 0.06 and 4.03 respectively (Table 5). In similarly way [6] reported in Ethiopia livestock specially cattle play a pivotal role in the per dominantly crop livestock mixed farming system, by providing food, cash, income and mostly importantly, draught power.

Purpose of Sheep Fattening: As it is indicated in Table 6 majority of the respondents 70%) kept the sheep for sale. This implies that sale of sheep to generate cash constitute the primary purpose among others. From the respondents only 11.67% uses as family consumption (Meat and milk) whereas 18.33% of the respondents raise sheep to provide a saving function. Similarly, multiple functions are particularly important in low and medium input production environments. Research reports also addressed the importance of multiple values of indigenous livestock breeds in developing countries in low input system [12].

Sheep Fattening System: The fattening system of sheep in the study area is indicated in table 7. Based on this the majority (93%) of the interviewed households were practicing the traditional sheep fattening system while the rest (7%) practiced agro industrial byproduct based fattening system. The traditional fattening system is considered to the most dominant in sheep fattening system under smallholder farmers. According to table 8, about 66% of the respondents use natural grazing and browsing land to feed their sheep but the only 6.7% of them provide agro industrial by product to their sheep. The result of the present study is similar with who agreed that communal grazing; roadside grazing, enset (False banana, *Ensete ventricosum*), banana leaf and private grazing land was major feeds resources for sheep in Awassa zuria district of southern Ethiopia [13].

Feed Supplements Offered to Sheep: According to table 9, majority of the respondents (66.7%) provide feeding their sheep once a day where as only (33.3%) twice a day (Table 9). In this case the producers let out their sheep to grazing area at the morning and this type of feeding system is common in the traditional fattening system. According to the information collected from the respondents depending on the availability household food leftovers, grains (Commonly maize and haricot bean) and minerals (Common salt and mineral soil, *bole*) are offered to sheep as supplementary feeds (Table 10). Based on the result, the majority of the respondents (64%) provided green fodder as supplementary feed for fattening of sheep. Similarly, 65.14% and 6 % of the respondents provided leftover grains (Attella) and salt (*Bole*), respectively. As it is indicated in the result water

Table 1: Sex of the respondents

Gender of owners	Number of respondents (N=60)	Percentage
Male	50	83.3
Female	10	16.7

Table 2: Age category of the respondents

Age category	Number of respondents (N=60)	Percentage
<15	2	3.3
15-45	29	48.3
46-65	22	36.7
>65	7	11.6

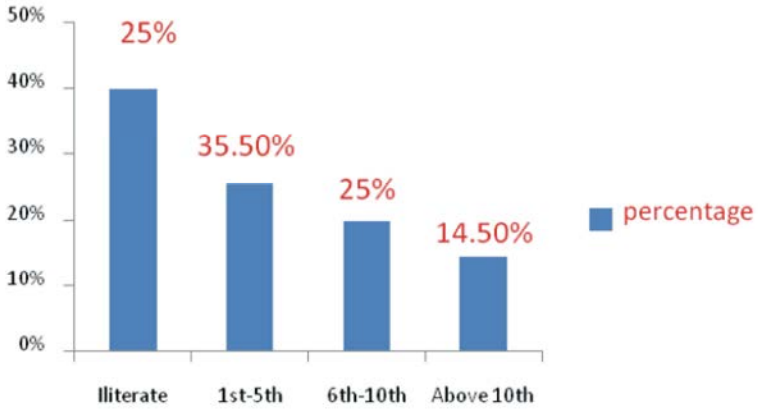

Fig. 2: Educational level of Respondent

Table 3: Family size of the respondents

Family size	Number of respondents (N=60)	Percentage
<4	8	13.3
5-8	40	66.7
9-13	12	20
>13	-	-

Table 4: Average crop production per household in quintals per year

No	Types of crops	Area of land	Productivity per hectar of land in quintals	Average crop production in quintals per year
1	Maize	0.75	60	45
2	Teff	0.5	16	8
3	Haricot bean	0.5	22	11
4	Wheat	0.25	48	12
5	Sorghum	0.125	20	2.5

Table 5: Livestock holding per house hold in the area

Livestock species	No of livestock	Mean
Cattle	274	4.56
Sheep	125	2.08
Goat	90	1.5
Donkey	85	1.41
Horse	25	0.41
Mule	4	0.06
Poultry	242	4.03

Table 6: Purpose of sheep fattening

Purpose	No house holds	Percentage
Sale	42	70
Consumption (Meat and milk)	7	11.67
Saving	11	18.33

Table 7: Fattening system

Fattening system	Number of respondents (n=60)	Percentage
Traditional system	56	93
Agro industrial by product based fattening	4	7

Table 8: Feed resource and feeding management of sheep in the study area

Feed resource	Number of respondents (N=60)	Percentage
Natural grazing	40	66
Crop residues	12	20
Household wastes	4	6.7
Agro industrial by product	4	6.7

Table 9: Frequency of feeding

Frequency of feeding	Number of respondents (N=60)	Percentage
Once a day	40	66.7
Twice a day	20	33.3

Table 10: Common local supplements offered to sheep

Supplements	Number of respondents (N=60)	Percentage
Green fodder	38	64
Food leftovers and attella (Local areke, tella)	10	16
Grains (Cooked/roasted	8	14
Salt, bole	4	6

Table 11: Watering frequency of sheep in dry seasons

Frequencies	Number of respondents (N=60)	Percentage
Daily	15	25
Every two days	30	50
Every three days	10	17
Every four days	5	8

Table 12: Major causes of sheep mortality

Health problems	Number of respondents (N=60)	Percentage
Diseases and parasites	37	61.6
Feed poisoning	15	25
Physical damages	1	1.7
Ectoparasites	7	11.6

scarcity arise from drying up of water sources and long distances, 17% of sheep owners water their flock commonly every three days (Table 11). Among sheep owning households about 50 % indicated that they water their animals every two days and occasionally about 8% households water in further extended interval of four or more days.

Sheep Health Managements: According to the data collected from the respondents the majority (61.6%) reported that there was loss of sheep due to diseases and parasites. However, 25% of the respondents indicated that feed poisoning the cause of sheep mortality during the study whereas 11.6% reported that ecto-parasite are the main causes that influence sheep production in the study area (Table 12).

Housing and Management Practices: About 98.6% of respondents accommodated their sheep in the main houses together with the family members (Table 13). Confining of sheep in separate barns (Only 0.7% respondents) or adjoining structures (0.7% respondents) is uncommon. Key informant farmers during group discussion indicated that the local tradition is that *sheep survive less in the absence of smoke from the house fire.*' Flocks were kept in the house at night and during the day when the heat intensity was high. Young animals were kept around the homestead until weaning to avoid walking long distances in search of food and water and to minimize exposure to predators. The major reason for housing flocks at night with the family was to minimize attack by predators and to avoid theft. Housing of flocks in the main house was more common than other reports in

Table 13: Housing system of sheep

Housing system	Number of respondents (N=60)	Percentage
Houses together with the family members	58	98.6
Separate barns	1	0.7
Adjoining structures	1	0.7

Table 14: Challenges of sheep fattening

No.	Challenges	Number of respondents (N=60)	Percentage (%)
1	Feed shortage	30	50
2	Disease problem	15	25
3	Shortage of water	10	16.7
4	Marketing problem	5	8.3

the country [5]. Confining of flocks together with family had zoonotic health implications, nevertheless, to reduce predator and theft losses household for long held the tradition of sharing the same roof with their flocks.

Constraints of Sheep Fattening: According to Table 14, lack of feed resource was the major challenges of sheep fattening and most of sheep owners were unable to purchase different types of feed which is nutrition for their animals due to the high cost. Feed shortage was the most critical challenges for sheep raised by (50%) of the respondents. The second most challenges for sheep rose by (25%) of the respondents was health of sheep are affected by disease, management and stress. Shortage of water in amount and quality can cause different problems hence it was the third challenges for sheep raised by (16.7%) of the respondents. Only 8.3% indicated that market was the problem due to lack of developed technology, cultural taboo and season of market need in the study area.

CONCLUSION AND RECOMMENDATION

Sheep fattening was a common practice in the study area. The common feed resource for sheep was natural grazing and browsing crop residues and household wastes. Feed shortage during dry season was the most critical constraints for sheep raised by majority (50%) of the respondents. The most common (66.7%) feeding frequency of sheep was once a day. River, pond, trough water, harvested water, rain and well water are common source of flock water. Feed is one of the most challenges that influence fattening activity in the study area. Therefore based on the present findings, there has to be a need to aware farmers to cultivate improved forages to improve productivity and strong veterinary service should be implemented to undertake disease control and treatment.

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