

Management Practices, Utilization and Challenges of Donkey in Godey Town, Somali Regional State, Ethiopia

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How to cite this paper: Hassen, G., Abdimahad, K., Welday, K., Ma'alin, A., Mahamed, A. and Omer, A. (2022) Management Practices, Utilization and Challenges of Donkey in Godey Town, Somali Regional State, Ethiopia. *Open Journal of Animal Sciences*, 12, 616-628.

<https://doi.org/10.4236/ojas.2022.124044>

Received: July 16, 2022

Accepted: September 2, 2022

Published: September 5, 2022

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Abstract

The study was conducted in Godey town of Shebelle zone, Somali Regional State, Ethiopia. The objective of the study was to assess management practices, utilization, and challenges of donkey. A total of 200 households who own working donkeys were selected purposely for this study. Data were collected using semi-structured questionnaires, key informants interviews, focus group discussions with communities who own donkeys and personal observations. The study revealed that the majority of the respondents were illiterate which might be associated with poor education access in the area. The study further revealed that 92% of working donkeys were involved in drought work, whereas 18% were used for pack work. The common feed resources for donkeys were feeds obtained from natural pasture, green maize leaves, hay, household wastes and grain supplements. Pipe water, river water, and pond water were the main water sources for working donkeys in the study area. About 91% of households kept their donkeys in an open backyard, while 9% of them kept them in a separate shed built adjacent to or a short distance away from the family home. Donkeys provide cart services in the study area, transporting various items weighing more than 300 kg in order to obtain a high benefit in a short period of time and are more than six days per week. Working donkeys in the current study area had a life span of fewer than 6 years, 7 - 10 years, and more than 10 years, with 18.5%, 75.5%, and 6%, respectively. The most important constraints that affect donkey production and utilization in the study area were a lack of feed, health problems (sickness, wounds, etc.), overloading and overworking, poor road and harnessing problems, and poor attitude/lack of awareness. As a result, in order to enhance working donkey management concerns, area-based development interventions that can overcome current constraints should be employed.

Keywords

Donkey, Management Practices, Utilization, Challenges

1. Introduction

Donkeys are important farm animals that have descended from African wild ass (*Equus asinus*) and early were domesticated equines that have been around long as mankind [1]. For at least 5000 years, donkeys have been primarily utilized as working animals. Donkeys are adapted to dry and mountainous conditions with the scarcity of water and poor quality of vegetation [2]. Ethiopia has around 10 million donkeys which is the second largest donkey population in the world after China and nearly 40% of Africa's equine population [3].

The low cost of purchase and maintenance of donkeys, their relatively small size, ease of training and handling high effective digestive system and their ability to stand thirst have enabled them to small scale farmers and the poor living in peri-urban, remote and hostile environments with no infrastructure and road access [4]. In Ethiopia, 56% of households kept donkeys mainly for pack services (to generate income and homestead use), 26% for cart use (to generate income), and 14% for pack use but exclusively for homestead use and 4% exclusively for renting, breeding or petty trade [5].

Animal welfare is being compromised internationally due to several constraints such as poverty and lack of knowledge. In the rural and peri-urban areas, the welfare of working donkeys in developing countries is therefore crucially important [6], not only for the health and survival of those animals, but also for the livelihoods of those people dependent on them [7]. Often in rural and urban areas, donkeys are not kept properly, because of misplaced love for animals and the belief that they are worthless. Donkeys are the most important, appropriate, and economical pack animals under the smallholder farming system because of the country's low level of road construction, network, and rugged terrain [8]. A pair of well-conditioned donkeys could be used as an alternative draft power source for secondary and tertiary land in areas where draft power is a constraint for crop cultivation [4]. Many activities that are performed by donkeys within the community are collecting firewood, transporting water in both rural and urban (*Biyole*), farm inputs and goods to markets and/or homes in the rural areas [9].

Donkeys are used under difficult environmental conditions including intense heat, difficult topography dehydration, malnutrition, lesions on different body parts, hoof problems, poor feeding and housing management practice. Donkeys are often engaged in work for long hours and when getting free, they are left to scavenge on garbage and feed on grass, walk long distances and overloading, poor handling during loading, poor harness devices and unloading is common [10]. These have the potential to affect negatively their welfare and quality of life.

Donkeys are subjected to different welfare problems in rural and urban areas, even though they have a crucial role in the day to day activity. The most common difficulties with donkey welfare are overloading and insufficient access to feed or health care services [11]. Moreover, they are exposed to long working hours with little rest, little poor husbandry, lameness, severely tethered or hobbled, cruel training methods, lack of shade, lack of water, inhumane handling, heat stress, and inhumane disposal when old or worn out [12].

Donkeys provide invaluable support for the livelihoods of communities in Godey town. They are used in transportation of goods and are exposed to various management and care practices. Little attention has been given to this animal and there is no information on donkey management, utilization and challenges that affect donkeys in the study area as such information will be useful for designing strategies that will improve donkey utilization and care. The herein presented study has been conducted in order to assess these practices and identify major constraints of donkey utilization.

2. Materials and Methods

2.1. Description of the Study Area

The study was conducted in Godey town of Shabele zone, Somali regional state, Ethiopia. Godey is bordered on the south by the Shebelle River which separates it from Adadle, on the northwest by Imay-bari, on the north by Dhanan, on the northeast by the Korahei zone, and on the southeast by Kelafo. It has an average elevation of 358 meters above sea level. The average annual maximum and minimum temperatures are 35°C and 22.9°C, respectively. The main rainy season termed locally as *Gu'*, extend from April to June and the short rainy seasons (*Deyr*) stretches from October to December. The average annual rainfall ranges from 150 to 344 mm. The soil type at the research site was sandy loam. The topography of the area is an extensive flat to gently sloping.

2.2. Study Design and Sampling Procedure

A cross-sectional study was conducted to assess management practices, utilization and major production challenges of donkey in Godey. Prior to site and participant selection, discussions were made with key informants such as livestock experts in the Bureau of livestock resources and pastoral development and different development agencies found in Godey for baseline information such as donkey production potential and their trends, donkeys' and utilization practices. Four kebeles were selected based on their accessibility and donkey population. A total of 200 donkey owners were purposively selected for this study.

2.3. Data Collection

Data were collected using semi-structured questionnaire interview, key informant's interviews, focus group discussion with community who own donkeys and personal observations. The data collected include demography and social

characteristics of the households, purposes of donkey keeping, feeds and feeding systems of donkeys, water source and watering of donkeys, housing condition of donkey, breeding practices, health care of working donkeys, working practices of donkeys, and major constraints of working donkeys in the area.

2.4. Data Analysis

Data were analyzed using SPSS (version 26.0). Descriptive statistics such as frequency and percentage were used to analyze the data and interpreted by tabular while qualitative data were narrated and explained logically based on the existing condition and literature.

3. Results and Discussion

3.1. Household Characteristics

The general characteristics associated with donkey keeper respondents distributed by sex, age, family size and educational status are presented in **Table 1**. The sex characteristics of respondents showed that the respondents in the study area were male-headed households that might be due to the fact that males are closely related to livestock handling and management. In terms of age category, the majority of respondents (34.5%) were in the age category of 31 - 40 years, while 28.5% were in the category 41 - 50 years.

The educational status of the majority of respondents were found illiterate, which might be associated with poor education access in the area. The educational level of the donkey owners in the study area was almost comparable to the reports of earlier reports for different parts in Ethiopia [13] [14]. This might

Table 1. Demo-graphic and social characteristics of the respondents.

Variables	Category	Frequency	Percent
Sex	Male	144	72
	Female	56	28
Age (years)	18 - 30	47	23.5
	31 - 40	69	34.5
	41 - 50	57	28.5
	51 - 60	24	12
	>60 years	3	1.5
Educational level	Illiterate	174	87
	Read and write	16	8
	Primary school (1 - 6)	10	5
Source of donkey	Purchase	182	91
	Inherit	6	3
	Exchange	12	6

be due to various factors such as access to education, awareness about the importance of education and other related factors. However, it is important to note that from technology adoption, this higher population of the illiterate class had a disadvantage on the acceptance of new technologies like trainings, improved agricultural technologies and adopting them for better live improvement. In other words, adoption of improved technologies should also consider the literacy condition of farmers. Study by Appleton and Balihuta [15] indicated that education is the main issue in agricultural development.

Working donkeys were acquired by sampled households in the study area through purchase (91%), exchange (6%), and inheritance (3%). Similarly, Mekonnen and Channe [16] reported that purchase was source of donkey for urban areas of Assosa district; while purchase, inherit and exchange were source of donkey for 90%, 2% and 8% of respondents in rural areas of Assosa district, respectively.

3.2. Purposes of Keeping Donkeys

Donkeys can be kept for different purposes including draught, packing, ploughing, breeding for commercial sells, and prestige/riding. However, in the study area, working donkeys were mainly used for draught (92%), whereas the rest (8%) were used for packing (Figure 1). This finding is in line with the report of Mahamed *et al.* [17] who reported that most donkeys (64%) in Jigjiga city were used for draught, whereas the rest of the others were engaged in packing. Furthermore, information obtained from key informants interview and focus group discussions showed that donkeys were used for transporting of water, construction materials and grains/food items. Fred and Pascal [18] noted that equids are kept for transportation purpose in different agro-ecological zones of Ethiopia. Pritchard *et al.* [19] reported that in some regions of Northwest Kenya, animals were categorized as draught, pack, riding and other type of working equid. A study by Tamador *et al.* [20] has shown that draught donkeys are used for transport of building materials, farm products, consumer goods, public transport. Pack donkeys, on the other hand, were used for distributing milk and

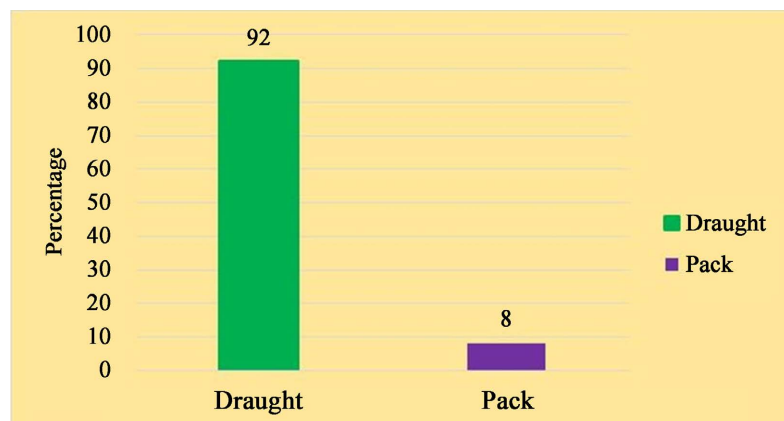


Figure 1. Reasons of keeping working donkeys in the study area.

transport of light goods and plastic containers. A study by Mohammed [9] revealed that farmers use alternative means like draught animals specially donkeys and mules to transport crops, fuel wood, water, building materials and people by carts or on their back from farms and markets to home. According to Mekonnen [21] and Svendsen [22], donkeys are considered as beasts of burden in many developing countries.

3.3. Management Practices of Working Donkeys

3.3.1. Feeds and Feeding of Donkeys

The major feeds and feeding frequency of working donkeys are given in **Table 2**. The major feed resources of donkeys were green maize leaves, natural pasture, grain supplements, hay and household wastes irrespective of the work type and load. This study is in contrary with the report of Molla *et al.* [23] who reported that most of the donkey owners in and around Hawassa town used concentrate feeds such as wheat bran, chopped sugarcane, barely and green grass. The type and amount of feed requirement varies according to the work load and type [24]. Furthermore, Dennis and Anderson [25] suggested that animals, which are being used throughout the year for transport, need more feeds than animals that are only worked for short periods seasonally.

The study further revealed that majority (93.5%) of the respondents offered feed to donkeys two times (morning and evening) and the remaining provided three times (morning, afternoon & evening). This is in agreement with the report of Molla *et al.* [23] who reported that 36.72% and 63.28% of respondents in and around Hawassa town provided feed twice and three times, respectively. Similarly, Dinka *et al.* [26] reported that the majority of the respondents (98.6%) in the mid rift valley of Ethiopia provided feed to donkeys at different frequencies in a day.

3.3.2. Water Source and Watering of Donkeys

Table 3 shows the source of water, frequency of watering, and amount of water offered to working donkeys in the study area. Majority of respondents (70.5%) used river water for their donkeys, while 19.5%, 10% respondents used pipe water,

Table 2. Major feed resources and feeding frequency of donkeys in the study area.

Variables	Category	Frequency	Percent
Feed resource	Feed obtained from natural pasture	48	24
	Green maize leaves	87	43.5
	Hay	18	9
	Household wastes	12	6
	Grain supplements	35	17.5
Feeding frequency	Morning and evening	187	93.5
	Morning, afternoon and evening	13	6.5

Table 3. Source of water and watering frequency of working donkeys in the study area.

Parameters	Category	Frequency	Percent
Source of water	Pipe water	39	19.5
	River	141	70.5
	Pond	20	10
Watering frequency	Once a day	102	51
	Twice a day	93	46.5
	Three times	5	2.5
Estimated amount of water offered/day	10 liters	68	34
	15 liters	90	45
	20 liters	42	21

and pond water, respectively. Majority of the respondents provide water their animals once a day (51%) and twice a day (46%) and the remaining (3%) respondents are three times per day. On the other hand, amount of water offered to working donkeys varied by household: 45% offered 15 liters, 34% offered 10 liters, and the rest offered 20 liters.

The main sources of water for donkeys in the study area were rivers, pipes, and ponds, and the frequency of watering varied between once daily, twice daily, and three times daily. This finding is in line with the study of Mekonnen and Channe [16] reported that the majority (40%) of donkey owners/users in urban area of Assosa district provided water three times per day but the rest (35% and 25%) provide water twice and once per day, respectively. Mekonnen and Channe [16] further noted that in all respondents of rural areas in Assosa district provided water to working donkeys once per day. On the other hand, amount of water offered to working donkeys varied by household: 45% offered 15 liters, 34% offered 10 liters, and the rest offered 20 liters. Mekonnen and Channe [16] further reported that the average amount of water per supply per donkey was 9.75 ± 2.7 L in urban areas of Assosa district and not measured in rural study locations.

3.3.3. Housing of Donkeys

Working donkeys were mostly housed in an open area by tethering around the household compound. However, few of respondents reported a separate shed built either adjacent or few distance far from the family house (Table 4). This finding is similar with the study of Tuaruka and Agbolosu [27] who reported that 44% of the respondents in Bunkpurugu/Yunyoo District in the northern region of Ghana allowed their donkey to freely roam without providing housing. The study further added that some farmers indicated that donkeys have good immune response and can survive both in cold and dry environments due to this they were not providing a shelter for their donkeys. However, some others reported that resource constrains caused their inability to provide housing for

their animals. During wet season these farmers tether their donkeys in front of their houses. On the other hand, this finding is in contrary with the report of Mekonnen and Channe [16] who reported that 90% of the households from urban and 40% from rural areas in Assosa district of Benishangul gumuze region reported accommodation of working donkey in a separate shed built either adjacent or few distance far from the family house. The difference might be due to the agro-ecology, educational background and attitude of the households towards donkey management practices.

3.3.4. Breeding Management of Donkeys

In terms of breeding, an uncontrolled breeding method was used, in which donkeys mate randomly without any human intervention and donkeys breed early in rainy season, which might be associated with availability of feed resources during the rainy season. Like other equine species [28] [29] in most production systems of Ethiopia, no planning of breeding and human-assisted breeding of donkeys in most cases.

3.3.5. Health Care of Working Donkeys

According to the result of the current study, donkeys face a range of health problems, not all of which have been clearly identified in this survey. As indicated by the respondents, the main health problems identified included back sores, respiratory problems (with common symptoms such as coughing and nasal discharge), lameness, bite wound, eye problem, and hoof overgrowth (Table 5). This finding is in line with the report of Feleke *et al.* [30] who noted respiratory problems (coughing and nasal discharge), back sores and parasitic load with

Table 4. Housing practice of donkeys in the study area.

Housing of donkeys	Category	Frequency	Percent
Type of house	Open backyard	182	91
	Separate shed/enclosure	18	9
Frequency of cleaning house	Once a week	121	60.5
	Twice a week	79	39.5

Table 5. Identified health problems of donkeys in the study area.

Health problems	Local name (<i>Somali</i>)	Frequency	Percent
Back sore	Dhabar xanuun	54	27
Respiratory problem	Dhibaatada neefsashada	43	21.5
Lameness	Curyaanimmo	25	12.5
Bite wound	Nabar qaniinyo	33	16.5
Eye problem/ocular discharge	Indho ilmayn	7	3.5
Hoof overgrowth	Ciddiyo dhaadheeri	15	7.5
Digestive problem	Dhibaatada dheef-shiidka	23	11.5

their descending degree of severity as the main health problems reported by donkey owners in Gena Bossa Woreda, Southern Ethiopia.

Furthermore, information obtained from focus group discussion and key informants interview showed that the health care for donkeys with proper vet service in the study area was very poor. Traditional healing like burning, branding and use of donkey dungs smoke were practiced. Similarly, Feleke *et al.* [30] reported that traditional healing like branding and use of certain herbs were widely applicable in Gena Bossa Woreda of Southern Ethiopia.

3.4. Working Practice of Donkeys

Working practices of donkeys in the study area are summarized in **Table 6**. Majority of the respondents indicated that donkeys were used for worked for more than 5 days in a week and working hours ranged from 4 hours to more than 8 hours. This is in line with the findings of Biffa and Woldemeskel [11] who noted that donkey work from 4 to 12 hours/day in Ethiopia, depending on the season and type of work. With regard to loading practices, most of the donkey carried more than 300 kg load at a time and sample households indicated that they were packing heavy load in order to get high benefit in short time. The result obtained in this study was higher than the result reported by Biffa and Woldemeskel [11] who indicated carrying an average weight load of 150 kg in Hawassa town. Similarly, this observation was in agreement with the findings of Morka *et al.* [31] who noted described overloading and over working was the main constraint on

Table 6. Distribution of respondent's respect to amount of load/week, reasons of overloading and life span of working donkeys.

Variables	Category	Frequency	Percent
Frequent use of donkey/week	<3 days	30	15
	3 - 5 days	63	31.5
	>5 days	107	53.5
No of hours worked/day	<4 hours	35	17.5
	4 - 8 hours	98	49
	>8 hours	67	33.5
Estimated amount of load	<80 kg	28	14
	80 - 300 kg	79	39.5
	>300 kg	93	46.5
Reasons of carting heavy load	Lack of awareness	17	8.5
	To get high benefit within short time	183	91.5
Life span of working donkeys	<6 years	37	18.5
	7 - 10 years	151	75.5
	>10 years	12	6

working equine in and around Nekemte town, East Wollega Zone, Ethiopia. Furthermore, the study showed that the life span of working donkeys in the area was 6 - 10 years and this contradicted Fred and Pascal's [18] findings, which claimed a life expectancy of up to 30 years.

3.5. Major Constraints of Working Donkeys

There are various problems or constraints faced by the respondent farmers in the utilization and production of donkeys. According to the responses of the households, donkey production and utilization bear different constraints as summarized in **Table 7**. It was found that shortage of feed (0.28), health problems (0.26), overloading (0.19), overworking, poor road and harnessing problem (0.15) and lack of awareness were (0.11) the most commonly known constraints of working donkeys kept in the study area. Feed shortage was ranked as the first most important constraint (0.28 which affects management of working donkeys, followed by health problems (0.6). The current result is in agreement with the findings of Feleke *et al.* [30] who noted feed problem, poor road and harnessing problem, overloading and lack of awareness as the major constraints of donkey production and utilization in Gena Bossa Woreda, Dawuro Zone, Southern Ethiopia. Similar information was also reported by Mekonnen and Channe [16]. In addition, Haftu and Adane [32] reported harnessing problems, over loading, disease, lack of veterinary service and injury as the major constraints of donkey in Hossana city of Ethiopia. Experts in study location during group discussion underlined that working donkey management system in general was backward *i.e.*, donkey owners do not give more attention for donkey, especially in supplementary feeding, health care, housing management, reducing the load, providing adequate rest times, providing day time shelters and using appropriate harnesses.

4. Conclusion and Recommendations

It was found that donkeys were primarily used for draught work in the study area. Natural pasture, green maize leaves, hay, household wastes, and grain supplements were all common feed sources for donkeys. Donkeys were typically fed twice or three times per day. Donkeys were mostly watered twice a day from the river, which was their main source of water. According to the respondents,

Table 7. Major constraints of working donkeys in the study area.

Constraints	Priority choices					Index	Rank
	1 st	2 nd	3 rd	4 th	5 th		
Shortage of feed	104	52	26	15	3	0.28	1
Health problems (disease, wound etc)	82	46	34	14	9	0.26	2
Overloading and overworking	78	12	25	12	8	0.19	3
Poor road and harnessing problem	43	29	23	9	4	0.15	4
Poor attitude/lack of awareness	23	21	17	5	12	0.11	5

donkey housing has received less attention, and they are kept in an open backyard. Donkeys were used for work for more than 5 days a week transporting various items weighing more than 300 kg in order to obtain a high benefit in a short period. The most common known constraints of working donkeys kept in the study area that need immediate improvement were found to be feed shortages, health problems, overloading and overworking, poor road and harnessing problems, and lack of awareness. Therefore, based on the above conclusions, the following recommendations are forwarded:

- Since donkeys are overworked, proper feeding and supplementary feed would be necessary.
- Proper veterinary health care and disease prevention strategies should be designed.
- Awareness creation and training of both professionals and donkey owners as to donkey related technologies, basic management, health care and welfare problems of donkeys should be made.
- Improvement of the management practice like housing, health care and use of proper harnessing materials need to be implemented.
- Donkey owners should be encouraged to use different feed resources that can supplement the available donkey feeds.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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