

Monitoring of Husbandry Practices and Harnessing of Working Equines in Hulet Eju Enese District, East Gojjam, Amhara Regional State, Ethiopia

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Abstracts: The study was conducted in Hulet Eju Enese district, Ethiopia to describe the major management practices and working performance constraint of equines. Two urban and three rural kebeles were selected randomly from a total of six urban and forty four rural kebeles, respectively based the proportion of equine abundance. Thirty house hold from each kebele were selected purposively. Semi structured questionnaire survey was carried out on 150 interviewees with main issues of equine management, constraint and harnessing system. To supplement questionnaire survey, three focus group discussions were made. Data collected in the field were managed and analyzed using SPSS (*Statistical Package for Social Science version 16*). In the area donkey were mainly used for pack (100%) and cart service (34%) while mule were mainly used for riding (83.33%), pack (56.67%) and cart service (46%). The working hours of donkey and mule were not similar in urban and rural area. They used greater than nine hours per day in urban area. The majority of the respondents (65.54%) housed their equines a house attached to the main house. In urban area of the district lack of shelter, feed shortage and health problems ranked as 1st, 2nd and 3rd prioritized problems, respectively. In rural area feed shortage, awareness of people toward equines and health problems were ranked as 1st, 2nd and 3rd, respectively. In the area the major harnessing system were breast band harnesses (45.65%), padding (33.85%) and saddle (19.45%). In Hulet Eju Enese district equine production lack reliable welfare and proper management like feeding, working time duration, proper using of harness that could provide the full benefits of working equines. Generally, the major constraints of equine working performance were vary in urban and rural areas of Hulet Eju Enese district. In Hulet Eju Enese district the types of harness vary on work type and area (rural and urban). Practicing equines welfare are crucial so that taking this into consideration the equine owners are mandated to commit in alleviating discomfort, pain, injury occurrences and other related welfare problems of equines.

Key words: Equine Harnessing • Hulet Eju Enese • Husbandry • Monitoring

INTRODUCTION

In Ethiopia the contribution of equines is extremely diverse. They can carry heavy loads, draw carts, serve as a means of personal transport and provide a taxi service; consequently, they contribute significantly to the national economy [1].

The husbandry practices of working equines are poor. Some methods of hobbling to restrain equines cause discomfort and inflict wounds [2, 3] and poorly designed harnesses or yokes that may be heavy and ragged have

an effect on the animals health and safety. In addition, animals are suffering from lack of shelter from sun, rain or biting insects at markets or working sites. Moreover, donkeys and horses, unlike oxen low priority are given when it comes to feed allocation.

This misuse, mistreatment and lack of veterinary care for equines have contributed enormously to early death, majority of which currently have working life expectancy of 4 to 6 years. However, in countries where animal welfare is in practice, the life expectancy of equine reaches up to 30 years [4, 5]. The term "fit and feeling good" is to

illustrate that animal welfare includes both emotional and physiological components. Physical wellbeing includes health and is affected by injury and disease while emotional wellbeing encompasses minimizing negative mental states such as fear, pain and distress as well as maximizing positive states such as happiness and comfort. A third component which overlaps with the previous two is naturalness and in the context of working animal welfare, this can be described as expression of normal behavior [6].

In Hulet Eju Enese district equines were kept for different purpose like cart service, pack service, traction and renting out service. But long working hours and difficult conditions are experienced by working donkeys and mules in the district [7]. Animals are often engaged in work for long hours and when get free; they are left to graze on natural pasture. These have a potential to affect negatively their welfare and quality of life of equines in the district.

MATERIALS AND METHODS

Study Area: Hulet Eju Enese district is found in east Gojjam zone, Amhara region and located 370 km northwest of Addis Ababa, capital of Ethiopia. The district is geographically located 10° 45' 00" -11° 10' 00" N latitude and 37°45' 69" - 38° 10' 00" E longitude. The district has an altitude range of 1290-4036 m a.s.l. [7].

The district consists of 44 rural and 6 urban Kebeles. The total land area is 138,336 ha; the land use pattern is classified into five categories; 66.7% cultivated 13% grazing, 7.2% bushes and forest land around homestead, 12.96% land not useful (*kola*) and 0.14% settlement areas [7].

Agro ecologically, the district is classified as 52% of "*Weinadega*" (midland), 18% of "*Dega*" (highland), 30% of "*Kola*" (lowland). The mean annual rainfall is 1100 mm ranging from 997 mm to 1203 mm. It is unimodal, falling during "*Kiremt*" (June-September), however, there is small rain falling between April and May ("*Belge*"). The mean annual temperature is 18.5°C and the range is from mean minimum of 10°C to mean maximum 27°C [7].

Livestock Production: The livestock production is one of the major economic bases of the area. The total livestock population in the district is estimated to be 727,157 heads out of which 88,112 (12.12%) cattle, 488,649 (67.2%) sheep, 19,579 (2.7%) goats, 17,183 (2.36%) equines and 113,634 (15.62%) are poultry [7].

Sampling Techniques and Methods

Sampling Techniques: Multi-stage sampling techniques were employed where the first stage was district. The district was selected purposively based on equine population, potential cart service and access of the road in the urban *kebeles* of the district. The district was stratified into urban and rural *kebeles* based on infrastructure, management system and work type of equines. The second stage was selection of rural administrative *kebeles* for rural area and *kebeles* for urban areas. Accordingly, three rural administrations and two urban *kebeles* were randomly selected from a total of 44 rural and 6 urban *kebeles* based on the proportion of equine abundance, respectively. Thirty households were purposively selected and interviewed based on equine possession (One who has at least one donkey and one mule were selected) from each selected rural administrative and urban *kebeles* (a total of 150 interviews).

Data Collection: A rapid survey with veterinarian, animal production expert in the district and focused group discussion was made with key informants after designing check lists of issues to be covered with the experts. Semi structured questionnaire was prepared in a way it can address the aim of the research.

Participatory methods, such as focus group discussions (FGDs) and semi structured questionnaire interviews were used to generate information at household and community level. Semi structured questionnaire interviews was developed to discover demographic characteristics, equine acquisition and reasons for keeping them, frequency of equine use, housing and other major husbandry practices and major constraint of working equine performance and harnessing systems in the study area.

Statistical Analysis: Data collected was organized, summarized and analyzed using Statistical Package for Social Sciences [8].

RESULTS AND DISCUSSION

Household Characteristics: The survey revealed that the majority of the households in both urban and rural *kebeles* were headed by males which accounted for 88.66%. In line with the present finding in Ethiopia the number of female household heads who owned equines was very small as compared to male household heads [9]. Female headed household in this particular study would

indicate either the husband has died or they are divorced. The majority of equine owners were within age range of 19-40 (42.0%) and 41-65 (43.33%). Also authors added that at central highlands of Ethiopia the age of the respondents varied between 29 and 68 years with an average of 40.25 years. About 48.3% of equine owners were illiterate (Who cannot read and write) and 51.7% of them were literate (Who can read and write). Similarly, according to Ahmed Hassen *et al.* [10] in central highlands of Ethiopia 42.5% of equine owners were illiterate and the rest 56.5% were literate. The majorities (76.7%) of the household heads in rural area were illiterates. In contrast, in the urban area the majorities (80.0%) of the household heads were literate, who can read and write. The majority of the households were Orthodox Christians (73.3%) followed by Muslims (21.7%).

Purpose of Keeping Donkeys: In Hulet Eju Enese district, donkeys were kept for different purposes (Table 1). Donkeys were kept for pack (100%), cart service (20.67%) and renting out (6.0%). Group discussion participants and key informants in the area, reported that donkeys were kept for income generation by selling them through production. In the district donkey are not kept for riding and traction purpose, this might be due to tradition, perception of owners and the presence of mule as a choice. In contrast to this in Türkiye donkeys are used as traction animals in rural areas for small-scale farmers [11]. Also [12] found that in Meskan district, southern Ethiopia 44.1% donkey owners were engaged in draught type of work. In contrast to the present finding, 100 % of the working donkeys in Africa were used to pull carts while 14.9 % were used for pack work and 6.4 % for riding [13]. This finding is in line with other study 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 [9].

Purpose of Keeping Mules: In Hulet Eju Enese district, mules were kept for different purpose (Table 1). In the district mule owners kept them for cart service (83.33%), pack (56.67%), riding (46%), renting out and traction (9.33%). In Ethiopia 78.3% of households kept mules mainly for riding, 13% for pack services (to generate income and homestead use), 4.3% exclusively for renting out and 4.3% for cart use [9]. In the rural *kebeles* of the district 9.33% of respondents of mule owner kept them for

Table 1: Purpose of keeping equines in Hulet Eju Enese district

Species	Work type	Urban	Rural	Overall
		N (%)	N (%)	N (%)
Donkey	Pack service	60 (100)	90 (100)	150 (100)
	Renting out	8 (13.3)	1 (1.1)	9 (6)
	Cart service	28 (46.67)	3 (3.3)	31 (20.67)
Mule	Pack service	52 (86.7)	33 (36.7)	85 (56.67)
	Riding	56 (93.3)	13 (14.4)	69 (46.0)
	Renting out	7 (11.7)	7 (7.8)	14 (9.33)
	Cart service	55 (91.67)	64 (71.7)	119 (83.33)
	Traction	-	14 (15.6)	14 (9.33)

N=Household Number; Percentages may not total 100 due to rounding.

traction purpose. But in the urban *kebeles* mule did not used for traction (Table 1), this might be the agronomic activities mainly practiced in rural area.

Equines Husbandry Practices: Equines production is a combination of different activities such as, feed and feeding, watering, grazing management, duration of working hrs, housing system, harnessing systems and welfare of animals.

Feed and Feeding of Equines: The major feed resources in the area were natural pasture (100%), crop residue (53.33%) and hay (48.67%) Table 2. Similarly, the major sources of feed for livestock in dandi district, oromia regional state, Central Ethiopia were natural pasture grazing, crop residue, conserved hay, stubble grazing and non conventional feeds [14, 15]. But the availability varies on season and areas. The availability of natural pasture is not significantly different ($P > 0.05$) in urban and rural area..

According to this finding crop residues were the second most utilized feed resources for equines followed by natural pasture. But crop residues were highly significant ($P < 0.01$) in rural areas. Among the feed resources, natural pasture and crop residues contribute the largest source of feed to livestock in dandi district, oromia regional state, central Ethiopia which is the case in most developing countries [14]. Hay supplementations of equines in urban area were highly significant ($P < 0.01$). According to group discussion hay was cheaper than other feed resource in the area.

Season and Frequency of Supplementation: . As can be seen from Table 3 donkey were more supplemented than mule in both urban and rural area, this might be due to over loading and overworking activities of donkey.

The majority of the households' equines supplemented during dry seasons (43.58%) followed by during working day (29.9%) and minimally wet season

Table 2: Major feed resources for donkeys and mules in Hulet Eju Enese district

Feed resources	Rural	Urban	Total HHN=150	Chi square	Significant level
	HHN=90	HHN=60			
	N (%)	N (%)	N (%)		
Natural pasture	90 (100)	60 (100)	150 (100)	-	ns
Stubble	29 (32.22)	14 (23.33)	43 (27.78)	1.39	*
Maize grain	25 (27.78)	22 (36.67)	47 (31.33)	1.32	*
Crop residue	59 (65.56)	21 (35.0)	80 (53.33)	13.50	**
<i>Atela</i>	15 (16.67)	22 (36.67)	37 (24.67)	7.75	**
Weeds	13 (14.44)	7 (11.67)	20 (13.33)	0.24	*
Concentrate	-	18 (30.0)	18 (15.0)	30.68	**
Hay	35 (38.89)	38 (63.33)	73 (48.67)	8.61	**

*P < 0.05; **P< 0.01 value within the row indicates significant and highly significant on different feed resources, respectively; NS- Non Significant; HHN=Household Number; Percentages may not total 100 due to rounding.

Table 3: Season and frequency of supplementation of equines in Hulet Eju Enese district

Particulars	Urban		Rural		Overall
	Donkey N (%)	Mule N (%)	Donkey N (%)	Mule N (%)	N (%)
Practice of supplementary Feeding					
Season of supplementation	50 (83.3)	47 (78.3)	59 (65.6)	54 (60)	210 (71.78)
Dry season	32 (53.3)	32 (53.3)	27(30)	34 (37.7)	125 (43.58)
Wet season	2 (3.3)	6 (10)	24 (26.7)	15 (16.7)	47 (14.78)
Both season	4 (6.7)	9 (15)	16 (17.8)	9 (10)	38 (12.38)
During working day	22 (36.7)	13 (21.7)	23 (25.6)	32 (35.6)	90 (29.9)
Frequency of supplementation					
Daily	32 (53.3)	30 (50)	10 (11.1)	26 (28.9)	98 (35.83)
Twice a day	7 (11.7)	11 (18.3)	2 (2.2)	6 (6.7)	26 (9.73)
Whenever available	21 (35)	17(28.3)	74 (82.2)	55 (61.1)	167 (51.65)
Other	-	2 (3.3)	4 (4.4)	3 (3.3)	9 (2.75)

HHN=Household number

(14.78%) and both season (12.38%) that may be in the dry season there is shortage of feed and in the dry season there might be work availability of owners and income generation. In agreement to this research result some farmers fed supplements in the dry season, since communal grazing areas are overgrazed especially at the start of the ploughing season [18]. According to key informants and group discussions in rural kebeles of the districts there was relatively better feeds are available in wet season. The major frequency of supplementations was done whenever available (51.65%), daily (35.85%), twice a day (9.73%) and other time of supplementation was (2.75%) with respective rank of percentage (Table 3). In contrast to this [20] reported that the majority of the respondents (98.6%) provided feed at different frequencies in a day. Accordingly, 46% of the

respondents provided feed for equines once daily while 24%, 24% and 3% of the respondents gave twice, three and four times daily, respectively.

Amount of Supplementary Feed: According to this research finding the amount of supplementary feed given to donkey per day in the district were 3.80±1.48 kg roughages like hay and different straw. Similarly, where grazing is poor, or there is not enough time for grazing, a donkey that weighs 150 kg must be given supplementary feed about 3 to 4 kg of roughage [21]. The amounts of feed given to mules were 4.04±1.73 kg of with different supplementary feed. The amounts of feed offered to donkey per day in urban were highly significant (P< 0.01) than in rural area. The amounts of feed given for mules were significant in the district. In urban area more feeds

were offered for equines that might be the animal spent their time on work and the majority of households were literate (80%) which will be important for feeding management.

Type of Supplementary Feed of Mules and Donkeys:

Virtually, the type of supplementary feed in the study district varies between urban and rural areas. The majority of feeds utilized in the district were teff straw (82.5%), wheat straw (82.5%), chickpea straw (70.25%), hay (48.67%), *Atela* (24.67%) and other type of feed (38.0%). Similarly among the feed resources, natural pasture and crop residues contribute the largest source of feed to livestock in the study which is the case in most developing countries [14]. The result showed that the major type of supplementary feed in the urban area were teff straw (85.0%), chick pea straw (78.3%), wheat straw (70.0%), hay (63.33%), *Atela* (Local brewery residues) (36.67%) and other type of feed (42.3%). Whereas in the rural area the major type of supplementation were wheat straw (90.0%), teff straw (80.0%), chickpea straw (62.2%), hay (38.89%), *Atela* (16.67%) and other type of feed (30.76%). Hay and *atela* (local brewery residues) were highly significant ($P < 0.01$) in urban area that might be the availability and cost of feed in the urban area. Teff straw supplementation were not significant ($P > 0.05$) in the study area that might be the availability were not vary in the area. Wheat straw and chick pea straw supplementation were significant ($P < 0.05$) in urban area that might be feed resource source were from market and they will be cheap.

Feeding Practices for Donkeys and Mules: Apparently, there was difference between urban and rural owners of mule and donkey on grazing day/week. The owner of donkeys stated that donkey were grazing five day (29.75%), four day (25.85%), two day (25%) and greater than five day (14.15%) per week. Whereas the grazing time of mule were five day (22.8%), four day (19.2%), two day (19.15%), one day (15.85%), > five day (15.55%) and three day (7.55%) per week.

The finding showed that donkey had different grazing day per week in urban and rural area. In rural area the majority of owners (47.8%) graze their donkeys five days/week. Where as in urban areas the majority of owners (50.0%) graze there donkey two days/week. Similarly mule had different grazing day per week in urban and rural area. In rural area the majority of mule owners (35.6%) were graze five day/week. Whereas in urban areas the majority of owner (38.3%) were two days/week. This

difference might rise due to the variation of accessibility of road, work type and supplementary feeding practices in both areas.

Working Hour of Donkey: The working hours of donkeys per day is shown in (Fig. 1). The working hours of donkeys vary in urban and rural areas. The majority of donkeys (60.0%) in urban area were working in the time duration of > 9 hrs per day this might be in urban area donkey are utilized to generate income as daily source, access of road and aim of keeping them and the rest equine owners 13.3% and 26.7% were use their equines < 6 hrs and 6-9 hrs per day, respectively. Similarly, Demelash Biffa and Moges Woldemeskel [22] reported that in Ethiopia donkeys were work from 4 to 12 hours/day, depending on the season and type of work. Whereas in rural area donkey owners 48.9%, 23.3% and 27.8% were work 6- 9 hrs, less than 6 hrs and greater than 9 hrs per day, respectively. This difference might be in rural area most of equine owners use their donkey for transportation of farm commodity and other work in short period of time.

Working Hours of Mules: Figure 2 shows that the working time of mule per day. This research revealed that the major working hours of mules per day (45.6%) in rural area were in the range of 6-9 hrs of time duration and the rest mule owners and rest mule owners 22.2% and 32.2% were < 6 hrs and > 9 hrs per day, respectively. Similarly, Demelash Biffa and Moges Woldemeskel [22] reported that in Ethiopia mules were work from 4 to 12 hours/day, depending on the season and type of work. In the urban area the majority of mules (63.3%) were work in the range of > 9 hrs of time duration this difference in urban and rural area might be difference of work type and urban mule use for daily income source and the rest mule owners 16.7% and 20.0% were use their mule < 6 hrs and 6-9 hrs per day, respectively.

Watering Practice: The current study indicated that the amount of water offered to donkey and mule were not varying with in species. It was noticed that donkeys were drinking 13.12 ± 3.6 litter water per day in urban area. While in rural area donkeys drink 12.83 ± 4.60 litter water per day this showed that there was no significant difference across area ($P > 0.05$). Similarly, Zinash Sileshi *et al.* [23] the water requirement of donkeys are vary on season, in wet season air temperature (27°C) total water requirement are 16 litter whereas in dry cold season air temperature $15-21^{\circ}\text{C}$ total water requirement are 12 litter. However, the

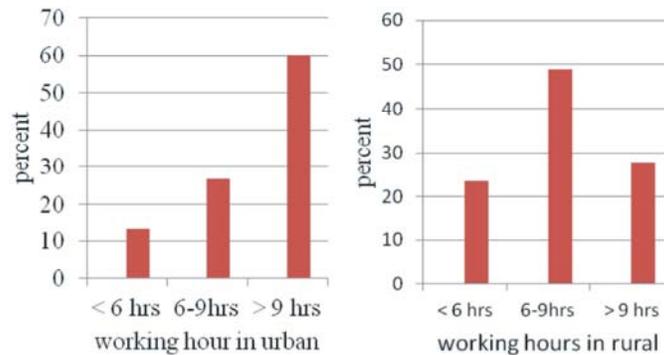


Fig. 1: Working hrs/day of donkeys in the study district

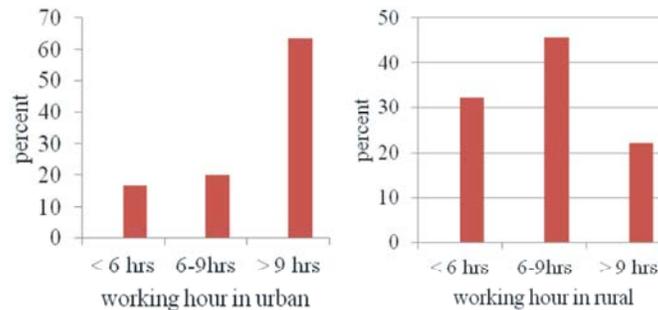


Fig. 2: Working hrs/day of mules in the study district

water consumption of mules per day in urban area were 18.0±5.01 liter and rural 15.04±4.70 liter this showed that there were highly significant difference ($P < 0.01$) that might be the work type, feeding activities and working hour difference of mules in urban and rural area of the district. Similarly normally a fully-grown adult equines consume anywhere from 10 to 25 liters of water per day [11, 24].

Watering Frequency of Equines: The watering frequencies of equines during dry season in urban and rural are shown in Table 4. The proportions of households that water their equines were twice in a day (59.7%), once a day (32.5%) and any time required (5.8%) that might be environmental condition difference, work type and feeding condition difference in the area. Adequately watering with every second day frequency was very minimal. In contrast to this finding the frequency of watering of equine in central highland of Ethiopia were, once in a day (77.5%), twice a day (17.5%) and >Twice in a day (5%) [10]. Beside to this [25] reported that equines were watered at Ginchi Watershed, Ethiopia once a day (84.2%) and twice a day (15.8%).

The proportion of households that water their equines once a day, any time required and twice in a day during the wet season in urban and rural were 49.45%, 38.45% and 12.20%, respectively. The wet weather

condition might not restrict the water consumption ability of equines due to high work load. In contrast to this study the watering frequency of mule and donkey according to 50% of equine owners in Ginchi Watershed were every third day and the rest 50% of equine owners water their equine occasionally [25].

Housing of Equines in the Study District: Apparently, farmers in the Hulet Eju Enese district use different house types. The house type includes keeping equine in the main house (5.76%), house attached to the main house (65.54%) followed by a separately constructed equine house (28.6%). In contrast to this the equine holders in Dandi District, Oromia Regional State, Central Ethiopia, 6.1% housed at night at corrals, 72.7% in separate shed and the rest 21.2% households shelter in the living room of the households [15]. According to key informants if the equines are housed in the main house, the room will be separated and partitioned by walls made of locally available materials. Farmers house all sex and age groups together. Some farmers tether equines at night where as other animals were not. Generally, if the animals are housed in the main house they are usually tethered.

Equine House Cleaning: It was found that farmers clean mule and donkey houses regularly. They clean mule and donkey houses more frequently during the rainy season

Table 5: Equines house cleaning frequency per week in Hulet Eju Enese district

Frequency of cleaning	Dry season			Wet season		
	Urban	Rural	Total	Urban	Rural	Total
	HHN=60 N (%)	HHN=90 N (%)	HHN=150 N (%)	HHN=60 N (%)	HHN=90 N (%)	HHN=150 N (%)
Daily	20 (33.3)	52 (57.8)	72 (45.55)	56 (93.3)	70 (77.8)	126 (85.55)
Three times per week	11 (18.3)	31 (34.4)	42 (28.89)	-	-	-
Twice per week	29 (43.3)	7 (7.8)	36 (25.55)	2 (3.3)	15 (16.7)	17 (10.0)
Once per week	-	-	-	2 (3.3)	5 (5.6)	7 (4.45)
Total N (%)	60 (100)	90 (100)	150 (100)	60 (100)	90 (100)	150 (100)

HHN=household number

Table 6: Major constraints of working mules and donkeys in Hulet Eju Enese district

Constraints of equines	Urban (HHN=60)						Rural (HHN=90)					
	Number of HH ranking						Number of HH ranking					
	1 st	2 nd	3 rd	Total	Index	Rank	1 st	2 nd	3 rd	Total N	Index	Rank
Feed shortage	30	7	12	116	0.17	2	30	37	14	174	0.23	1
Perception of people toward equines	-	4	4	12	0.020	9	13	19	8	140	0.18	2
Market problems	-	1	2	4	0.01	10	5	2	-	19	0.025	8
Over loading and working	10	9	11	59	0.09	6	13	20	3	82	0.11	5
Health problem	22	17	10	110	0.16	3	23	13	17	112	0.15	3
Lack of appropriate harness	6	10	10	90	0.14	4	2	2	2	12	0.020	9
Lack of veterinary service	-	6	2	14	0.021	8	13	20	9	88	0.12	4
Lack of shelter	49	1	3	151	0.23	1	2	-	-	6	0.01	10
Lack of extension service	2	28	5	67	0.10	5	11	22	-	77	0.10	6
Water scarcity	2	14	11	45	0.07	7	7	6	22	55	0.07	7
Total 669	765											

Index= [(3 for rank 1) + (2 for rank 2) + (1 for rank 3)] divided by sum of all weighed reasons mentioned by respondent

than the dry season (Table 5). In addition, the urban HHs clean donkey and mule houses more frequently than the rural HHs. Farmer's in the rural kebeles do not clean donkey and mule houses on Sundays and other observant days. According to group discussion if mule and donkey are housed in the main house the house is usually cleaned daily. In the district the cleaning frequency of equine house vary in season.

Constraints of Donkeys and Mules in Rural Area:

The interviewed households were asked to prioritize the major working performance constraints of mules and donkeys. In urban areas lack of shelter, feed shortage and health problems ranked as 1st, 2nd and 3rd, respectively (Table 6) the first ranking of shelter in urban areas might be the majority of household land holding were lower than rural household land holding to construct house and sheltering of equines with renting house were difficult. While in rural areas feed shortage, perception of people toward equines and health problems were ranked as 1st, 2nd and 3rd, respectively. In line to the present study, Anne R. Pearson *et al.* [26] reported that a large proportion of rural

equines owners believed feed shortage and disease to be the first and the second prioritize constraint to keeping equines in rural area of east Shewa zone, Ethiopia.

Harnessing Systems of Equines: According to group discussion and key informant participation choosing of type of harness were based on species type, type of work and cost of harness. This research result indicates that 45.65%, 33.85% and 19.45% of household breast band strap, padding and saddle, respectively. In line with the present study, Wistanstow *et al.* [27] reported that in United Kingdom the breast band is the most commonly used and consists of a wide band around the breast and held in place by a neck strap. It was also evident that there were variation in harness types among mules and donkeys. The respondent of equine owners in rural area were stated that saddle (15.6%), breast band strap (30.0%) and padding (54.4%). This is might be due to the variation of work type in which in rural area pack service are common and the availability of material used for padding. In contrast to this animal harness showed interesting variations and farmers mostly (95%) used collar harness,

Table 7: Harnessing and amount of load in kg for working equines in Hulet Eju Enesie district

Categories	Urban		Rural		Total %	Total Amount of load
	HHN=60 %	Amount of load Mean±S.D	HHN=90 %	Amount of load Mean±S.D	N=150 %	Mean±S.D
Breast band strap	63.3	345±121	30.0	273±94.7	45.65	309±107.85
Padding	13.3	95±36.2	54.4	84±33	33.85	89.5±34.6
Saddle	23.3	102.4±34.6	15.6	99±44	19.45	100.7±39.3

while only 5% used breast straps [19]. Whereas the respondent of equines in urban area states that 13.3%, 23.3% and 63.3% were padding, saddle and breast strap, respectively this might be in urban area cart work are more practiced and the availability of material and market for breast band strap is found. According to group discussion and key informant owners have not knowledge, attitude and practices regarding harnessing of working animal. Similarly Research results showed many gaps in farmers' knowledge, attitudes and practices regarding feeding, health care and harnessing of work animals [19].

Work Load and Type of Harness: In Hulet Eju Enesie district the amount of load of equines were vary on harnessing type difference Table 7. Equines which engaged in breast band harness were more loaded than other type of harnessing systems this is due to the presence of wheel which simplify load by reduce energy lose from equines.

CONCLUSION

Equines are integral part of livestock keeping in rural farming and urban community and they were mainly kept for transportation like pack service, riding, cart service, traction and renting out. In Hulet Eju Enesie district equine production lack reliable welfare and proper management like feeding, working time duration, proper using of harness that could provide the full benefits of working equines. The majority of equine owners were offered supplementary feed to their equines at working day and dry season.

Even though donkeys and mule are easily managed as compared to other livestock, farmers still face different constraints in keeping donkeys and mule. Various constraints limit equines working performance in Hulet Eju Enesie district that needs to be addressed by systematically describing the husbandry and harnessing systems thereby planning and designing appropriate research and development activities that will be relevant to specific systems.

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REFERENCES

1. Fesseha Gebreab, 1993. Use of equines in Ethiopia. In: Proc. 4th National Livestock Improvement Conference, 13-15 November 1991. Institute for Agricultural Research, Addis Ababa, pp: 51-57.
2. Alujia, A.S. and F. Lopez, 1991. Donkeys in Mexico. In: Fielding D. and Pearson R. A,(Eds.), Donkeys, Mules and Horses in Tropical Agricultural Development. CTVM: Edinburgh, pp: 1-7.
3. Mohammed yimer, 1991. Management and breeding aspects of donkeys around Awassa, Ethiopia. In: Fielding D and Pearson R A (Eds), Donkeys, Mules and Horses in Tropical Agricultural Development, CTVM: Edinburgh UK, pp: 185-188.
4. Svendsen, E., 1981. Down Among the donkeys. Pan books, London.
5. Fred, O. and K. Pascal, 2006. Extension Approaches to improving the welfare of working equines. Kenya Network for Dissemination of Agricultural Technologies (KENDAT), Nairobi, Kenya, pp: 1-28.
6. Webster, A., D. Main and H.R. Whay, 2004. Welfare Assessment: indices from clinical observation. Animal welfare, 13: 93-98.
7. Woreda Agriculture Office, 2011. Livestock Censes of Hulet Eju Enesie district, unpublished. Motta, East Gojjam Zone, Ethiopia.
8. Statistical Packages for the Social Sciences (SPSS), 2008. Cary, North Carolina, USA.
9. Berhanu Admassu and Yoseph Shiferaw, 2011. Donkeys, horses and mules their contribution to people's livelihoods in Ethiopia, The Brooke, Addis Ababa, Ethiopia.

10. Ahmed Hassen, Abule Ebro, Mohammed Kurtu and A. Treydte, 2010. Livestock feed resources utilization and management as influenced by altitude in the Central Highlands of Ethiopia. *Livestock Research for Rural Development* 22 (12), Debre Brahan University, Debre Brahan, Ethiopia.
11. Orhan Yılmaz, Saim Boztepe and Mehmet Erturul, 2012. The domesticated donkey: iii -economic importance, uncommon usages, reproduction traits, genetics, nutrition and health care. Idyr University, Faculty of Agriculture, Department of Animal Science, Igdyr, Türkiye, *Canadian Journal of Applied Sciences*, 3(2): 320-338.
12. Solomon Mekuria and Rahmeto Abebe, 2010. Observation on major welfare problems of equine in Meskan district, Southern Ethiopia. Hawassa University, Faculty of Veterinary Medicine, Hawassa, Ethiopia.
13. Krecek, R. and D. Wells, 2001. Socioeconomic, health and management aspects of working donkeys in Moretele, North West Province, South Africa. Department of Veterinary Tropical Diseases, Faculty of Veterinary Science, University of Pretoria, *Journal of the South African Veterinary Association*, 72(1): 37-43.
14. Sere, C., A. Ayantunde, A. Duncan, A. Freeman, M. Herrero, S. Tarawali and I. Wright, 2008. Livestock production and poverty alleviation-challenges and opportunities in arid and semi-arid tropical rangeland based systems. In: the proceedings of multi-functional grasslands in a changing world. XXI International Grassland Congress and VII International Rangeland Congress, China, pp: 19-29.
15. Belay Duguma, Azage Tegegne and B.P. Hegde, 2012. Smallholder Livestock Production System in Dandi District, Oromia Regional State, Central Ethiopia. *Basic Research Journal of Agricultural Science and Review* ISSN 2315-6880, 2(6): 122-129.
16. Mesfine Abebe, 1992. Overview of livestock in Ethiopia. Christian Relief and Development Association (CRDA). CRDA workshop on livestock and forage production, Addis Ababa, Ethiopia, pp: 9-16.
17. Aganga and C. Tsopito, 1998. A note on the feeding behaviour of domestic donkeys: a Botswana case study. *Applied Animal Behaviour Science*, 60: 235-239.
18. Aganga, A.A., M. Letso and A.O. Aganga, 2000. Feeding donkeys. Department of Animal Science and Production, Botswana College Agriculture. *Livestock Research for Rural Development* 12 (2) 2000, <http://www.cipav.org.co/lrrd/lrrd12/2/agan122.htm>
19. Khalil Makki and Omer Mohammed, 2013. Management and field performance of horses and donkeys used for ploughing on smallholder farms. An example from North Kordofan, Sudan. School of Rural Extension, Education and Development, Ahfad University for Women, Omdurman, Sudan.
20. Shelima, B., H. Dinka, A. Abalti, T. Geleta, T. Mume and R. Chala, 2007. Socio-economic importance and management of carthorses in the mid rift valley of Ethiopia. In: Pearson R A, Muir C J and Farrow M 2007 (Editors). *The Future for Working Equines. The fifth International Colloquium on Working Equines. Proceeding of an International Colloquium held at the Addis Ababa University, Ethiopia*, pp: 181-188.
21. Morgane James, 1999. Care and use of working donkeys. Directorate Communication, National Department of Agriculture in cooperation with National Council of SPCAs. National Department of Agriculture and obtainable from Resource Centre, Directorate Communication, South Africa.
22. Demelash Biffa and Moges Woldemeskel, 2006. Causes and Factors Associated With Occurrence of External Injuries in Working Equines in Ethiopia. *International Journal of Applied Research in Veterinary Medicine*, 4: 1-7.
23. Zinash Sileshi, Azage Tegegne and Getnet Tekle Tsadik, 2002. Water resources for livestock in Ethiopia: Implications for research and development. Ethiopian Agricultural Research Organization (EARO), Addis Ababa, Ethiopia, pp: 66-79.
24. Fielding D. and P. Krause., 1998. Donkeys. *The Tropical Agriculturalist Series*, Macmillan Education Ltd.
25. Belay Duguma, Azage Tegegne and B.P. Hegde, 2011. An Assessment of Availability of Livestock Drinking Water Resources, Patterns of Exploitation and Management Strategies at Ginchi Watershed, Ethiopia. *American-Eurasian J. Agro.*, 4(3): 38-45.
26. Anne R. Pearson, Alemayehu Mengistu, Tesfaye Agajie, Eleanor F. Allan, David G. Smith and Mesfin Asfaw, 2001. Use and management of donkeys in peri-urban areas of Ethiopia. University of Edinburgh and Ethiopian Agricultural Research Organization collaborative project. University of Edinburgh, Easter Bush, Roslin, Midlothian, EH25 9RG, UK.
27. Wistanstow, Leamore Common, Craven Arms and Shropshire, 2004. World Association for Transport Animal Welfare and Studies (TAWs) Common ground: moving forward with animals. Silsoe Research Institute, UK.