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Assessment of the Production Status, Utilization and Management of Donkeys in Gena Bossa Woreda, Dawuro Zone, Southern Ethiopia

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Abstract
This study was conducted to assess the status, utilization and management system of donkeys in Gena Bossa Woreda, Dawuro Zone. Both primary data through structured questionnaire and secondary data from different relevant offices, published and unpublished sources were gathered using 150 statistically selected respondents. The result of the present study showed that the average number of donkey per household was 1.27. Almost all (99%) of the production system is extensive. The common feed resources for donkeys were natural grazing pasture, crop residue and house leftover. Donkeys were marketed through formal and informal systems. Marketing of donkeys were affected by market channel, lack of awareness and distance from market. The market price of donkeys was dependent on age, sex, body condition and season. Lack of awareness, poor road and feed shortage were the main problems that hinder donkey production and utilization in the study area. In general, it can be concluded that donkey production in the study area was practiced under extensive production system which is constrained by different factors. Therefore, in order to improve the traditional donkey production system and alleviate the constraints, different improvement strategies that can solve the existing constraints should be implemented.
Keywords: Constraints, Donkey, Overloading, Priority index, Utilization, Work pattern

1. INTRODUCTION

Farming system in majority of sub-Saharan Africa including Ethiopia is practiced as small-scale on areas of less than four hectares. People provide 89% of the power used in land cultivation, while draught animals supplied only 10% of the farm power (Fall *et al*., 1997). Pack animals and carts facilitate the marketing of product, stimulating local trade and production. Draught and pack animals can be very important for carrying domestic water and fuel, reducing drudgery (particularly for women) and releasing time that can be used in other productive or socially important tasks. Provided access to animal power is widespread, animal power can benefit all members of society (FAO, 2010).

Among draught and pack animals, donkeys play a vital role in rural economies through the provision of draught power and transport compared to other equid species. Donkeys contribute the major proportion of readily available transport needs of poor women and men living in hostile environments, enabling them to integrate into social and economic process (Fernando and Starkey 1996). In addition to their popularity in the transport sector, donkeys are perceived as disease resistance and hardy species by non-pastoralist communities and even animal health policy makers (Blakeway, 1994).

Donkeys are performed to other equines' because of their affordability, survivability, docile nature and ease of training and handling. The ability of donkey to thrive on poor quality minimally supplemented feeds has also made them popular in environments where feed shortages can seasonally become a critical problem. Dawuro zone, because of its undulating topography, forces people to use donkeys as pack animals and has a potential of donkeys and they contribute a significant socio-economic and livelihood roles.

However, the management and utilization pattern of donkeys in Dawuro zone is traditional and probably is the least exploited. Knowledge and understanding of the donkey management practices, utilization pattern and their constraints are important for designing development programs. It is, therefore, imperative to assess the production status, different utilization patterns and management of donkeys to improve welfare and health aspects of donkeys.

2. MATERIALS AND METHODS

2.1. Description of the Study Area

The study was conducted in Gena Bosa woreda which is located in Dawuro Zone in the administrative region of Southern Nation Nationality and Peoples' of Region (SNNPR). It is 250 km away from capital of SNNPR, Hawassa and 450 km from Addis Ababa. The geographical location of Gena Bosa woreda is 817 N of latitude and 48.06 E of longitude. The altitude of the wereda is 1700 meter above sea level with annual rainfall of 800-1000 mm. The average temperature is 20-24^{0}c. Cattle, goats, sheep, donkeys, poultry, mule are the major

livestock found in the woreda. According the census made during 2004 E.C, the population of Gena Bosa woreda is estimated to be 19, 1000 households.

2.2. Sampling and Sample size

From the total 36 kebeles of the woreda, 6 kebeles were selected based on donkey population. From each kebele, 25 households, a total of 150 households that have donkeys were selected purposely for interview.

2.3. Data Collection

By using structured questionnaires, both primary and secondary data were collected. Group discussion was made using key informants.

2.4. Data Analysis

The data collected were analyzed by using SPSS software version 20. The results were reported using descriptive statistics, such as mean, percent and frequencies and presented in form of tables, charts and graphs. For ranking major constraints of donkey utilization and management, priority index was employed using the following formula:

Priority index (PI) = $\frac{(F1X3) + (F2 X 2) + (F3 X1)}{\text{Sum (F total)}}$

F1= Frequency of the first rank
F2= Frequency of second rank
F3 = Frequency of third rank
FT= Frequency of total respondents

That is, Index was calculated as 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 an individual constraint divided by the sum of [(3 X number of household ranked first) + (2 X number of household ranked second) + (1 X number of household ranked third)] for overall constraints.

3. RESULT AND DISCUSSION

3.1. Socio- demographic Characteristic of Respondents

The socio demographic characteristic, sex, age categories, family size and educational status of the respondents are presented in Table 1. As indicated in Table 1, majority (70%) of the respondents were males while the rest (30%) were females. With regard to the age categories, most (58.7%) of the respondents were within the age category between (19-45) year. In the present study, most of the (60%) of the household had better education status (1-8) which can be an opportunity for easily training transfer and adoption of improved farming practice.

Table1. Socio- Demographic characteristics of respondents.

Variable	No of respondents (N=60)	Percentage
Sex - Male	105	70
- Female	45	30
Age category		
< 18 year	-	-
19-45 year	88	58.7
46-60 year	38	25.3
>60 year	24	16
Educational status		
Illiterate	39	26
1-8 grade	90	60
> 8 grade	21	14

3.2 Livestock species kept in the study area

Livestock species and the mean livestock number per household in the study woreda are presented in Table 2. The average number of donkeys per household was 1.27 which indicates that every household interviewed had at least 1 donkey. The result is in agreement with the report of Feseha (2004).

Table 2. Average number livestock species per household in the study area

Animal species	Total number	Mean per household
- cows	192	1.28
- Bulls	144	0.97
- Heifers	108	0.72
- Ox	184	1.23
- Donkey	190	1.27

3.3. Production system, ownership pattern and herd characteristics of Donkey

The production system of donkey in the study area was mainly (99%) extensive production system by letting their donkeys graze along roadsides and grazing area while the rest (1%) practice semi-intensive system. From the interviewed households, 75% of the respondents reported that their source of donkeys was home bred whereas the rest owe through purchase. The herd structure of the survey result indicated that adult male donkeys were higher (90%) than the females and young ones. The higher number of adult males than females may be an indication of the general pattern of use for donkeys. Males were perceived to be hardier and capable of doing heavier tasks than females. This finding was in agreement with the study of Feseha and Yoseph (1996).

3.4. Main Reasons for Keeping Donkeys in the Study Area

The major purposes of keeping donkeys in the study area are presented in Figure 1**.** In the study area, as reported by the households, donkeys were mainly kept as pack animals to load various agricultural commodities or inputs (for homestead purpose), to generate income through trade and for renting. Services provided by donkeys included transporting water from river, wood from forest and charcoal for household use and carrying consumable and commodity items to market and from market. The finding of this study is similar to the assessment result of Berhanu and Yoseph (2011).

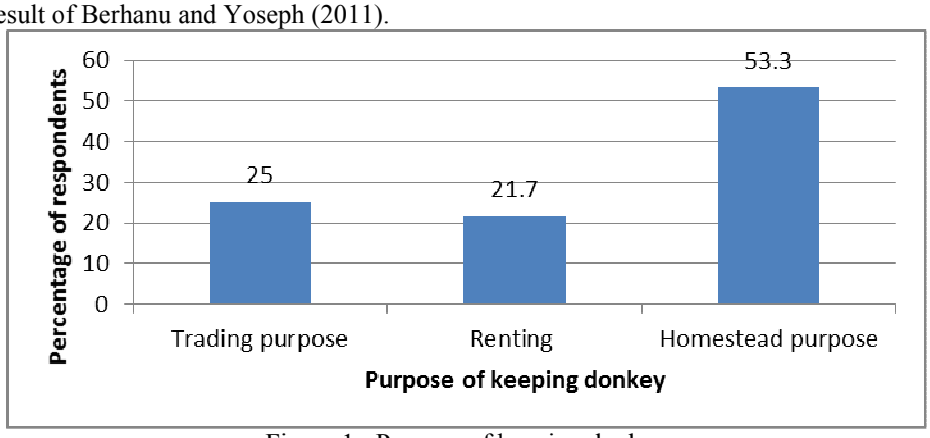

Figure 1: Purpose of keeping donkey

3.5. Feed Resources and Feeding Management of Donkey

The major feed resources of donkeys were indigenous pasture, farm wastes or crop residue and household wastes. In dry season, particularly in January, February, March and April, critical feed shortage prevails as reported by the respondents. Natural pasture and household wastes are the main feed resources during the rainy season whereas natural pasture, crop residue and household wastes are the feed resources in the dry season. As reported by the respondents, supplementing donkeys with maize grain, barley grain and sorghum is common during critical seasons and work load (50%). During these seasons, the farmers provide 3-5 kg of grain per animal per day which was also supported by focal group discussion.

3.6. Housing of Donkeys

Sheltering donkey in the main house together with the family is very common in the study area (100%). No separate housing was reported from the respondents. Donkeys are kept in house at night and during the day when the heat and rain fall intensity is high. Donkeys of all age and sex were kept together with other livestock species and housed at night with in the owner's house. The report is similar with the report of Berhanu and Yoseph (2011).

3.7. Water Source and Watering of Donkeys

Among the sampled respondents, 75% of the respondents use river as water source for their donkeys, 15 % underground water and 10 % rain water. The frequency of watering varies from farmer to farmer: 35% of the households gave a free access to water, 40% provide once a day and the rest twice a day. The result is in

agreement with the finding of Feseha and Yoseph (1996).

3.8. Health Care of 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 include respiratory problems (with common symptoms such as coughing and nasal discharge), back sores and parasitic load with their descending degree of severity. Except for few respondents (12%), the health care for donkeys with proper vet service in the study area was very poor. Traditional healing like branding and use of certain herbs were widely applicable. The result is in line with the report of Berhanu and Yoseph (2011).

3.9. Work Pattern and Work Load Condition of Donkeys

As indicated in Table 3, Overloading and excessive work were reported as the serious problems by the respondents. Donkeys in the study area were utilised on average of 8 hours/ day, walking more than 60 km by carrying 75-100 kg load on their back. This clearly indicates that donkeys were over utilized. The harnessing materials and saddle used were usually not appropriate which aggravate the likelihood of health related and welfare problems on donkeys. The study result is in agreement with the report of (Kumar *etal.* 2014).

Table 3: Work Pattern and Work load Condition of Donkeys

No	Parameters	Average value
1	Days per week that donkeys work	5
2	Hours spent per day	8
3	Distance covered per day (km)	60
4	Load (kg) that mature donkeys carry	75-100

3.10. Donkey Marketing System and Marketing Constraints

The marketing system, marketing constraints, season of demand and donkey price in the study area are shown in Table 4. Marketing system of donkeys in the study area depends on demand with working season. According to the study, marketing of donkeys was both in formal and informal ways. Marketing mostly depends on age, sex, and type of season. In dry season, donkey has best price than wet season because the level of demand to packing and loading purpose is higher in dry season. Marketing of donkeys in the study area was constrained by different factors including lack of awareness, lack of marketing channels and distance from market. The respondents also reported that their donkey selling price are related to age, sex, body condition and working season. In the focal group discussion made, younger, male and better body conditioned donkeys were preferred more and had higher price.

Table 4. Marketing system of donkeys in the study area

Variables	Frequency	Percentage
Marketing system	50	33.3
• Formal	100	66.7
• Informal		
Season of the high demand		
• dry season	120	80
• wet season	30	20
Marketing constraints		
• lack of awareness	55	36.7
• Distance from market	33	22
• lack of marketing channel	62	41.3
Price determinants		
• Age	30	20
• Sex	75	50
• Body condition	27	18
• Season	18	12

3.11. Problems of Donkey Production and Utilization

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 indicated in Table 5. Overloading is one of the major constraints of donkey production and utilization in the study area with priority index value of 0.35. Lack of awareness was the second constraint (PI= 0.20) reported by the respondents. Disease and feed scarcity were the third and the fourth constraints of donkey

production and utilization with index values of 0.18 and 0.14 respectively. The result is in agreement with the findings of Berhanu and Yoseph (2011). Similar report has also been made by Biffa &Woldemeskel (2006).

Table 5: Constraints of donkey production and utilization

No	Problems	Priority Choices					F-SUM	PI	Rank
		1st	2nd	3rd	4th	5th			
1	Feed problem	29	10	5	4	3	211	0.14	4
2	Poor road and harnessing problem	19	9	14	12	5	202	0.13	5
3	Disease	29	22	10	8	4	283	0.18	3
4	Overloading	71	34	12	7	2	543	0.35	1
5	Lack of awareness	33	21	15	7	6	314	0.20	2
Total							1553	1.00	

PI = Priority Index

4. CONCLUSION AND RECOMMENDATION

4.1. Conclusion

The result of the present survey study showed the dominate (99%) of donkey production system was the extensive system. Farmers rear donkeys mainly for homestead utilization, renting and for trade purpose. The common feed resource for donkey was natural grazing and crop residues and household wastes. The feed shortage during dry season was the most critical constraints for donkey raised by majority of the respondents. Donkeys are marketed either in formal or informal ways of system and the marketing system was constrained by factors such as lack of awareness, lack of marketing channels and distance from marketing places.

Housing of donkeys has got less attention as indicated by the respondents. River is the main water source for donkeys. Donkeys in the study area suffer various problems- over loading, loading heavy materials and working for longer period of hours of the day. Lack of awareness, overloading and poor road was the identified problems of donkey production and utilization that call for immediate improvement.

4.2. Recommendation

Based on the above conclusion the following recommendation are forwards.

- Farmers should be encouraged to use different feed resources that can supplement the available donkey feed resource.
- Improvement of the management practice like housing, health care and use of proper harnessing materials need to be implemented.
- Strong extension work must be done to alleviate the problems associated with production and marketing constraints of donkey. Attention should also be given to create awareness about improved donkey production system.

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