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Participatory Assessment on Management and Health Problems and Socio-Economic Importance of Working Donkeys in Kombolcha District, Ethiopia

[1]*Asres Zegeye,* [2]*Alemante Molla,* [1]*Solomon Tiruneh and* [1]*Zeleke Tesema*

[1]Sirinka Agricultural Research Center, P.O. Box, 74, Woldia, Ethiopia
[2]Wollo University, School of Veterinary Medicine, P.O. Box, 134, Desie, Ethiopia

Abstract: Participatory appraisal was applied to assess the major health and management problems and socioeconomic importance of working donkeys in Kombolcha district in 2011/2012. The participatory methods used were simple ranking, matrix scoring and proportional piling. The result of matrix scoring and ranking showed that back sore, Lameness, coughing, emaciation, ectoparasite and colic were the major health problems of working donkeys in the study area. In addition to this, shortage of feed, lack of appropriate harness, lameness and lack of treatment were found management problems which hindered efficient utilization of thus animals. Participant also arrange the role of donkeys as transport of cereals and stone first, followed by transport of water and transport of feed. Participant forwarded that teaching and provision of training was pointed as major solutions to alleviate such problems. Based on this finding participatory epidemiology was found to be an important approach in veterinary investigations and it can also be used besides to conventional approaches.

Key words: Participatory Appraisal · Animal Health Management · Socio Economic Importance · Working Donkeys

INTRODUCTION

Donkeys (*Equus asinus*) are among the most important domestic animals most intimately associated with humans. They contribute a lot through their involvement in different social and economic sectors. Despite their valuable contribution to human society, very little is known about donkeys, they are given less consideration than other species of livestock and their welfare is often neglected [1].

As the welfare of animals, they need to be protected to live peacefully in their environment without affecting their health and wellbeing. Indeed, Aluja and Lopez [1] reported that donkey, certainly are the most neglected and abused animal in Mexico: Good welfare should result if the donkey is provided with appropriate food, water, shelter and health care, if attention is paid to its behavioral needs and if it is free from fear. Many of these points have to be guided by common sense in the absence of perfect knowledge about the needs and motivation of donkeys [2].

In Ethiopia donkeys have been used as beast of burden for a long time and still render their valuable services, mostly as pack animals, throughout the country in general and in areas where modern transportation is absent, unaffordable or inaccessible in particular [2]. According to Howe and Garba [3] study on subsistence farmers in Kaffecho Zone in Ethiopia found that pack animals offered the only realistic way of obtaining returns from agriculture above mere subsistence. Ownership of an animal in this area could significantly reduce total transport costs and increase both the returns to the farmer; and the range of distances over which it was economic to trade.

Equines are neglected animals compared with food animals despite their role in supporting poor people's economy especially in developing countries like Ethiopia. Equine health disturbance is one of the important menaces affecting their working capacity and may result in mortality [4]. For example, ticks, mites, lice, flies etc. cause irritation, weakness, emaciation,

Corresponding Author: Zegeye Asres, Sirinka Agricultural Research Center, P.O. Box, 74, Woldia, Ethiopia.
Tel: +251914611386, E-mail: asres1923@gmail.com.

anemia and rough hair coat and disease transmission resulting in poor efficiency, stunted growth and even death of the animals [5].

Participatory rural appraisal (PRA) became obvious as an intelligent gathering process using multiple probing technique and relevant stakeholders to solve existing community problems [6]. In recent times, participatory epidemiology (PE) arose as a system of joint or shared interaction and analysis of disease status between rural people and professionals so that reliable epidemiological data are generated [7].

Welfare of working donkeys is a cause for concern in many areas of the world. A well managed, health donkey not only lives longer, but also is able to work more easily and more regularly than one that is in pain, ill or underfed. The welfare of donkeys is affected by what information and understanding the owner has about donkey health and welfare, how the owner analyze this information and reaches at a conclusion and how he consistently behaves based on the conclusion he has drawn.

The major objective of this work was to assess the health problems, their management constraints, to set up possible solutions, socioeconomic factors affecting donkey utilization and their importance in the study area.

MATERIALS AND METHODS

Study Design: Multistage sampling technique was employed from December 2011 to April 2012 within the selected peasant association of the district. Participatory appraisal method was conducted by assembling six groups, one from each peasant association. Each focus group was comprised of eight people with overall comparable literacy. It was made by delivering 100 graves for each of the focus groups to enable them their answers on the given questions related to the socio economic importance, management problems, health problems and the possible solutions for the mentioned problems. The participatory appraisal methods used were mapping, simple ranking, proportional piling and matrix scoring.

Check List: A check list was designed, which comprised of proportional piling, mapping and interview with key informants through open questions to collect information on major donkey health and management problems and socio-economic importance of working donkeys.

Mapping: Farmers were encouraged to draw a map of the village on the flip chart with the help of a pencil. This map was used to understand the resources available for animals, possible interaction with animals from outside, follow up questioning with the farmers and visiting the risk areas.

Simple Ranking: A list of health and management problems was made by asking the participants to name that occur in the study area. These were written on cards and participants asked to organize or rank the cards in order of importance. This procedure was repeated for each selected villages of the study area.

Proportional Piling: Proportional piling (PP) was used to rank health and management problems by numbers and their relative importance in the communities. Participants were asked to list major health and management problems and socioeconomic importance of working donkeys. Circles were drawn on cardboard papers with each circle representing mentioned within the communities. Participants then allocated 100 counters (Beans) (Assuming that the list of problems made up (100%) to each circles in piles according to the relative problems with the highest score indicating the major health or management problem in the area.

Matrix Scoring and Ranking: Matrix scoring was conducted to understand the perception of community to major health problems prevailing in the area. For this purpose, the selected community groups were made to select, rank and score the major health problems of working donkeys. The ranking and scoring were done by matrix ranking and scoring. Group composition was made to include different community members by sex, age, skill, experience and social status for all participatory approaches done with groups.

Data Management and Analysis: A database was constructed and statistical analysis in Microsoft Excel was used. Data obtained from the scoring tools were summarized using proportion, ratio, graphs and pie-chart. In addition, the level of agreement among the scores of informant groups was assessed using Kendall's coefficient of concordance (W) [8]. Consequently, evidence of agreement between informant groups was categorized as ‘Weak’, ‘Moderate’ and 'Strong’ according to published guidelines on the interpretation of W and

the P values assigned; agreement was termed 'Weak' for $W < 0.26$, $P > 0.05$; 'Moderate' for $W = 0.26$ to 0.38, $P < 0.05$ and 'strong' for $W > 0.38$, $P < 0.01$.

RESULTS AND DISCUSSION

Socio Economic Factors Affecting Donkey Utilization: The result showed that in both rural and urban areas the prices of donkey had increased as their importance in local likelihood status increased. One contributing factor was that they remain more affordable than oxen, especially considering that their maintenance exists were low. While oxen were needed for the land preparation, the donkey had a vital role in the transport of crops off the fields at harvest time, in transporting grain to markets and crop residues to the farmstead. Changing the rural conditions has generally convinced farmers that donkeys provide greater assistance against food insecurity than oxen. This was based on their experience that oxen are only used for few days of the year to prepare the land. Donkeys, however, were used year round to ease the burden of domestic transport and enable water to be obtained from distance areas. During time of discussion attendants have tried to compare the donkeys from the oxen and they concluded that at the time of famine donkeys are likely to survive than oxen. Those participants of the rural area supported the idea by saying "If you do not have a donkey, you are a donkey yourself" (Table 1).

Role of Donkeys in Rural and Urban Areas: During the focus group discussion participants were asked about role of donkeys and to rank their services in order of importance. All members of the focus groups gave with proportion similar responses about the role of donkeys putting transport of cereals and stone as primary, followed by transport of water and transport of feed in addition to other tasks (Figure 1). This observation agrees with that of Howe and Garba [3] who reported that in remote areas of Ethiopia (Kaffecho Zone) households were highly dependent on pack animals to develop an exchange economy. In contrast, another study showed that donkeys also involved in activities concerned with agricultural land preparation like ploughing, consolidation and harvesting of teff fields [9]. Similar result also reported by Mwakitwange *et al.* [10], in which donkeys are being increasingly used for field operations and to some extent in transport in Tanzania.

Management Constraints in Keeping Donkeys as Perceived by Donkey's Owners: Wound problems, lack of treatment, lack of training, lack of appropriate harness and shortage of feed were the major management constraints reported in the study area. During the focus group discussions Results of simple ranking and proportional piling indicates that wound problem was ranked first (48%) as the major constraint, followed by lack of appropriate harness (13%). Limitation of training (7.7%) was the least important constraint cited by the respondents (Figure 3). This idea disagrees with the result of Sisay and Tilahun [11] reported that feed shortage was the most important constraint in keeping donkeys in Keffecho. This variation might associate with difference in attitude of donkey owners towards their animal.

Major Health Problems of Working Donkeys Raised by Participants: The common health problems which were mentioned during the focus group discussions was back sore, ranking first (49.67%) as a major health problem.

Table 1: Summary of the FGD response pertaining socio economic factors affecting donkey utilization

Question	Urban place	Rural place
What are local Costs of donkeys?	In 1995, the price of donkey was 300-350 birr. Now (2011/12) the price is 800-1400 birr which is not different from a young bull (1700 birr).	Current cost of donkey is between 1200 to 1500 birr.
How do you see donkeys as Compared to oxen?	The respondents unanimously agreed that in those times of stress, their oxen would be sold before their donkeys. They also stressed the decisive role of donkeys by complementing "*If you do not have a donkey, you are a donkey yourself"*.	Over all, the groups agreed that donkeys are more likely to survive than oxen in times of famine. There was heated debate on whether oxen or donkey would be the last animal sold in a crisis. Current market analysis shows that donkey have high price.
How do you perceive donkeys now, as compared to past?	In the past donkey could not be part of a dowry payment to go with a new bride. This attitude has changed and now donkeys are considered as acceptable for income generation.	In the past, oxen were crucial as land size was large and grazing field was plentiful. However, this is no longer the case. Donkeys are now crucial for livelihood of humans, as they can be used for income generation.

Table 2: Matrix scoring of causes or sources of major health problems of working donkeys

	Health problems				
Causes or sources	Back sore (Getaba)	Lameness (Manikes)	Emaciation (Mekichech)	Coughing (Sal)	Ectoparasite (Yewichi tebay)
Poor harness (*W* =0.34**)	•••••••••••••••••	••••			
Worms (w=0.45***)			••••••••	•••••••	
Biting fly (*W* =0.54**)	•••••••••		••••••		
Ticks (*W* =0.63*)	••	••••••	••••		••••••••••••
Lack of food (*W* =0.35**)		•	••••••		
Hygiene of house, material and food (*W* =0.43**)	••••••			••••••••	••••

Number of informant groups=8. W=Kendall coefficient of concordance (*p=0.05; ** p< 0.01; ***p< 0.001); this is a measure of agreement between the eight informant groups.

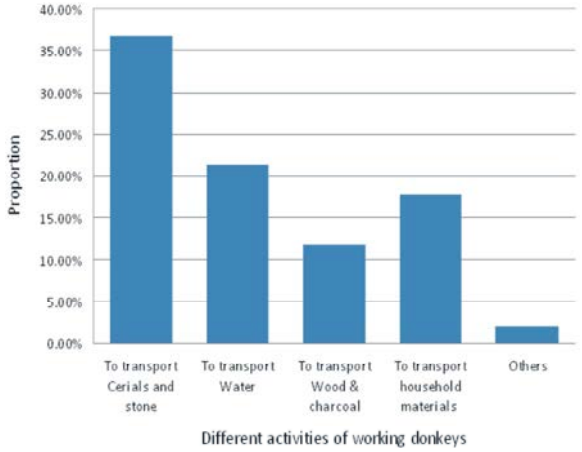

Fig 1: The major roles of donkeys in order of importance based on the proportional piling

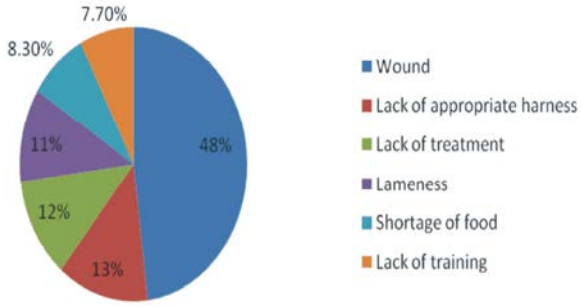

Fig 2: Proportion of major management problems of working donkeys

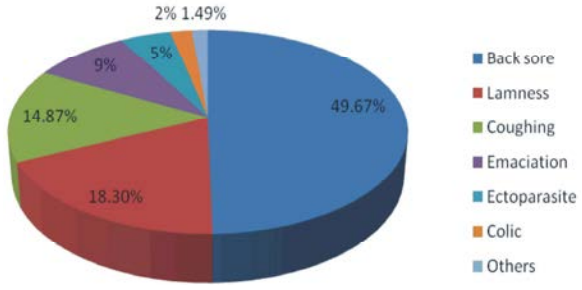

Fig 3: Major health problems of working donkeys

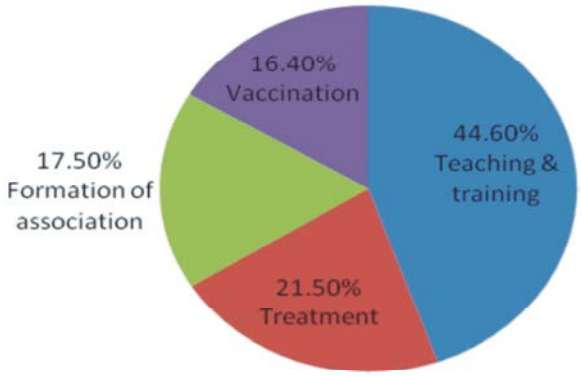

Fig 4: The possible solutions forwarded by the participants to alleviate health and management problems.

Additionally, lameness, Emaciation and coughing were given 18.3%, 9%, 14.87% weights, respectively (Figure 4). This idea disagree with the report of Sisay and Tilahun [11] in which pneumonia, worms, external parasites, rabies, anthrax, skin tumor and foot rot were the major health problems encountered in West and East Shewa zone. This variation associated with different in management practice within the community and the practice of vaccination.

Matrix Scoring and Ranking of Causes Major Health Problems: The summarized major five health problems of working donkeys identified and prioritized by eight informant groups, in five PAs of Kombolcha district were Back sore, Lameness, Emaciation, coughing and Ectoparasite. Back sore and Emaciation were found to be more important than other health problems due to their high case fatality rate. In this district, community groups ranked the health problems according to the cause and source. This indicates that the knowledge of community to major health problems in the area is good and they well explained the health problems prevailing in their locality.

Possible Solutions and Measures Given by the Participant at Government, Community and Nongovernmental Organization Side: During the focus group discussion, possible solutions and measures to be taken were forwarded by the participants to alleviate health and management problems, which are important for efficient utilization of working donkeys. In line with this, the possible solutions were ranked based on the proportion they earned. The result showed that teaching and provision of training was pointed as a major solution (44.60%), followed by treatment of diseased animals (17.5%) and formation of association within the community (17.50%).

CONCLUSION

In conclusion, result of participatory appraisal between groups revealed that working donkeys were exposed to different health and management problems which hinder for efficient utilization. The participants of the district were providing that donkeys perform different activities. The participants also suggested that to alleviate thus health and management problems there should be coordination between different stakeholders.

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