

A study on some aspects of equine husbandry in the Punjab-Pakistan ¹

Arshad Iqbal,² Asif Hameed, M.Younas, Bakht B.Khan and S.A.Bhatti

Faculty of Animal Husbandry, University of Agriculture, Faisalabad-Pakistan

ABSTRACT: The present survey study focused mainly the aspects of equine husbandry around Faisalabad city (Punjab-Pakistan) involving 300 observations (100 each of horse, mule and donkey) on equines with different work assignments through multi stage sampling technique. The data was recorded about feeding/watering, shoeing, trimming and grooming, housing during summer and winter. Injuries inflicted due to improper harness / saddle fitting, goads/spiked sticks and nail piercing were 80.7, 15 and 4.3 % respectively. The study inferred that equines welfare need priority not only for themselves but for the prosperity of their owners too.

Key words: equines, welfare, husbandry, Pakistan

INTRODUCTION

Equines are an important segment of animal agriculture and playing vital role since centuries in multiple ways especially in the developing world. They are a momentous source of draught power, transportation, recreation etc.

There are over 93.6 millions equines in the developing world, the highest population concentration in central Asia and east Africa (Burn *et al.* 2010). In Pakistan there are 0.4 million horses, 4.5 million asses and 0.2 million mules respectively (GOP, 2009-2010). Despite recognized significance, draught animals are raised under primitive conditions. Animals are underfed and forced to work beyond their capacity.

The careless handling, over crowding, overloading and long hours of transportation without proper feeding and watering not only cause stress to animal but sometimes also cause serious injuries which may amount to death (Lindberg *et al.*, 2003). Consequently these issues lead to reduce the working efficiency of these animals, indirectly reducing the income of the very poor community who rely on them (Burn *et al.*, 2010). The efficiency of these animals can substantially be improved by careful task scheduling, making use of the cooler parts of the day, using improved implements and machinery, etc.

Vindictiveness to animals is not only inhumane but it also makes cumbersome to achieve the desired objectives from the animals. The present study therefore was envisaged to assess the equine welfare state through identification of common deficiencies and weaknesses in their husbandry.

MATERIALS AND METHODS

The multistage sampling technique was used for data collection from Faisalabad district in the present survey. In Phase-I, two areas viz. Jhumra road and Jhang road, Phase-II Narwala and Samundri roads and in Phase-III, Satiana and Jaranawala road(s) were selected. The sample size consisted of 300 respondents (100 each of horse, mule and donkey), viz. 75 from Samundri road, 50 each from Jaranawala, Satiana, Narwala and Jhumra road and 25 from Jhang road. The animals were classified in different categories with respect to the type of work performed. They included viz: TPC=Transportation of people on carts; TGC= Transportation of goods on cart TGP= Transportation of goods as pack and BKC= Brick kiln transportation on cart. The equine welfare assessment in respect of husbandry aspects was through interview of the owner(s). The data thus collected was analyzed with the help of SPSS (Statistical Package for Social Sciences) (SPSS, 2004).

¹ Authors of this manuscript are extremely grateful to Brooke Hospital for their assistance in conducting the survey from their working sites.

² Corresponding: aiqbal_uaf@yahoo.com

RESULTS AND DISCUSSION

Feeding

The equines are usually fed available green fodder such as Lucerne (*Medicago sativa*), Berseem (*Trifolium alexandrinum*) and oats (*Avena sativa*) along with dry roughages in the form of wheat bhussa. Most of the owners fed low quality concentrate mainly consisting of rice husk plus wheat bran with small quantity of damaged wheat or crushed grams to their animals. About one quarter of the total equines 24 % were fed green fodder > 12 Kg /day in summer while 33.3 % during winter Donkeys were offered minimum fodder < 8 Kg in 20 % cases .In different work types, > 12 Kg green fodder were given in TPC (33.3 %) followed by 25 % in BKC in summer and in winter 40 % in TPC and 34.1 % in TGC. Equines in TGC were given least green fodder (< 8 Kg) both in summer and winter season.

Majority of the equines (74.7 %) were not fed dry feeding material locally called as wheat bhussa (wheat straw) in summer .A quantity of 1-3 kg wheat bhussa was given to 32 % donkeys as compared to mules(20 %) and horses(24 %), 32 % to TGP as compared to other working groups and to older animals 30.6 %. In winter season 52 % equines were given wheat bhussa. Wheat bhussa were given more to donkeys (52 %), to TGP (52 %) and to older animals (66.7 %) in winter season. During winter wheat bhussa was fed maximum to mature animals (> 15 years) followed by the middle age and the youngsters. This seems to be rationale keeping in view the requirements of the animals with respect to their age.

All equines received 5-10 Kg concentrate daily during summer and winter. Concentrate feeding during winter and summer was maximum in middle age equines. In different work types, least concentrate > 5 Kg were given to TGP group (24 %) followed by 10.0, 9.4 and 6.7 % in BKC, TGC and TPC group, respectively. Younger animals got minimum concentrate followed by middle age group and older animals.

As a digestion mixture, each class of the equine was given 200-300 grams of salt massala twice or thrice in a week .Donkeys were given least (<200 g daily) both in summer and winter. Minimum quantity of salt were given to TGP (16 %) both in summer and winter season, while the younger animals were also given least salt massala (<200 g) both in summer and winter. Adult and middle aged animals in majority got 200-300 gram daily during winter season. Ramaswamy (1998) also reported that draught animals in developing countries are fed with crop residues, poor quality pastures and straws. Mostly they are kept on low maintenance diet resulting into body weakness which ultimately affects their work efficiency.

Watering

Majority of animals had access to water >5 times a day irrespective of their species. Watering frequency was maximum (> 5 times) in mules (92 %) followed by 84 % in donkeys and 80 % in horses during summer. Animals placed in TGC showed the highest frequency of watering (87.1 %) as compared to others in summer season. During winter TGC, TGP and BKC followed same trend during the winter.

In different age groups, older animals showed higher drinking frequency as compared to other groups of animals in summer season. In winter season watering frequency was > 3 times (68 %) in equines. Mules, BKC and older animals had higher watering frequency in winter season. Zeyner *et al.* (2004) have emphasized the need of fresh clean water for all draught animals. During summer, depending upon the nature of work performed water requirements should be met with. Water requirements in general vary widely, depending on age, body weight, air temperature and humidity, the work, state of health and type of diet of the equine (Fleurance *et al.* 2005).

Shoeing

Shoeing in equines is being practiced by 80 % of owners in summer season. Equines were shod between 10-30 days, while 18.7 % of the owners do late shoeing (> 30 days). Delayed shoeing was

mostly found in donkeys (32 %) followed by 16 % in mules and 8 % in horses. Delayed shoeing is common in TGP (32 %) as compared to other work type. Delayed shoeing is common in older animals i.e. 52.8 % followed by 11.8 % in younger and comparatively less in middle aged groups (6.4 %). In winter season, delayed shoeing is more common (22.7 %). Delayed shoeing is more prevalent in donkeys (32 %), in TGP (32 %) and in older animals (41.7 %). As donkeys and older animals is the neglected one, there by increasing chances of delayed shoeing. . Shoeing within 10-30 days during summer and winter was found to be accomplished mostly in middle age animals. A small number (11.5 %) of equines of middle age were shod after one month duration during the winter season.

It is hard fact in equines husbandry that animlas working on hard or metallic surface require more shoeing to avoid excessive wear and splitting of their hooves (Back *et al.* 2007). Delayed shoeing leads to cow hocked conformation, abnormal hoof horn quality and abnormal sole surface and gait (Pritchard *et al.* 2005). The findings of the present study indicated highest prevalence of cow hocked, abnormal hoof and horn quality, improper sole shape and structure. This might be attributed to delayed shoeing reflecting careless attitude of the owner, or unawareness about the consequences of delayed shoeing. Pritchard (2007) noticed highest prevalence of welfare indicators including shoeing in equines and stated that delayed shoeing leads to elongated hoof wall along with abnormal sole shape and structure, which ultimately affects their gait.

Trimming

As a whole equines majority (at least 80 %) got trimmed with a frequency of 1-4 times irrespective of the season. All animals following under TPC were got trimmed with similar frequency both during winter and summer. A small fraction of animals (About 6 %) under TGC got trimmed >4 times in both seasons. The youngest animal was not found to be treated more than 4 times. The middle aged animals have almost the similar trimming frequency during summer and winter. The older animals in majority were found to undergo for trimming 1-4 times irrespective of the seasons.

In winter season almost same trend was found in equine species, age groups and work types. Van Heel *et al.* (2005) emphasized the trimming of hooves to maintain the health of foot. Age, season, nutrition, work performed, management and injury are the deciding factors towards frequency of trimming (Pickeral, 2003).

Grooming

Seldom grooming was practiced in 54.7 % equines. It was done on daily basis by 30.7 % owners while in 14.7 % it was not done in summer season .The donkeys (28 %) were groomed with lesser frequency than that of mules and horses. TPC and older animals received less grooming as compared to other work types and age groups during summer seasons. In different age groups young animals (18-24 %) were found to be groomed on daily basis over the year whereas, middle aged animals ranged between 36-39 % winter and summer respectively. During winter season, animals were less groomed, while it is followed with same frequency in equines of different species in summer season Most of the owners do not groom their animals regularly as reflected by their poor coat condition. Donkeys were found to be most neglected in this regard in which more than 1/4th of their population was not groomed at all whole year. The highest prevalence of rough coat is positively correlated with grooming. Pickerel (2003) was of the opinion that regular grooming of equines can alert any signs of skin disease, infections and injuries. Good brushing and wiping once a day helped improved appearances, general cleanliness and disease prevention.

Type and Condition of Harness

Leather harness for equines was found to be the commonest in use i.e. 89.7 %, while 10.3 % owners go for plastic harness .Leather harness was found to be common in donkeys, in TGP and in middle aged groups 92, 92 and 98.1 %, respectively. About 73.7 % harnesses were found in bad condition and were common in donkeys (86 %), TGP and in younger and older animals respectively. Burn *et al.* (2007) noticed that poor saddle fitting and design lead to the development of body lesion

especially on wither and back. Helen (2001) also reported higher prevalence of injuries in equines associated with poorly designed and ill-fitted harness. Moreover, injuries were found commonly distributed on wither and back coinciding with poorly designed and ill-fitted harness and saddle. Burn *et al.* (2007) in a study on donkeys noticed body lesions predominantly at the areas of withers and back, largely due to poor saddle fitting.

Housing Facilities

As a whole 64.7 % equines were kept in open houses. Donkeys, TGP animals and middle aged grouped were mostly kept in open houses. As whole 60 % owners do not cover their animals with blanket at night in winter season. Donkeys, TGP animals and younger animals were more prone to cold as these animals were not provided with blanket at night as compared to other species, age group and work types. Donkeys as compared to other animal species were mostly raised in open conditions irrespective of the season. The results of this study correlates with that of Wambui *et al.* (2004). They reported that 80 % of the farmers did not provide any shelter to their donkeys during summer and winter.

Causes of External Injuries and Fate of Injured Animal

Use of improper harness and saddle fitting caused 80.7 % injuries, while 15 % injuries were due to use of goads or spiked sticks and 4.3 % due to nail piercing. Majority of the owners (70 %) deprived their animals from rest and use them continuously even when they are injured. Only 25.3 % owners provide short term rest and 4.7 % owners provide complete rest to their injured/diseased animals until recovered.

Table 1. Causes of external injuries and fate of injured animals

Welfare indicators ¹	Causes of external injuries			Fate of injured animals		
	Improper harness and saddle fittings	Nail piercing	Use of goads, spiked sticks	Rest provision until recovered	Short term rest	Use continuous
Species						
Donkeys	76 (76 %)	6 (6 %)	18 (18 %)	6 (6 %)	14 (14 %)	80 (80 %)
Mules	82 (82 %)	4 (4 %)	14 (14 %)	4 (4 %)	28 (28 %)	68 (68 %)
Horses	84 (84 %)	3 (3 %)	13 (13 %)	4 (4 %)	34 (34 %)	62 (62 %)
Type of work performed						
TPC	30 (100 %)	-	-	2 (6.7%)	9 (30 %)	19 (63.3%)
TGC	60 (70.6%)	6 (7.1%)	19 (22.4%)	4 (4.7%)	21 (24.7%)	60 (70.6%)
TGP	20 (80 %)	1 (4 %)	4 (16 %)	1 (4 %)	3 (12 %)	21 (84 %)
BKC	132 (82.5%)	6 (3.8%)	22 (13.8%)	7 (4.4%)	43 (26.9%)	110 (68.8%)
Age groups, years						
< 5	49 (68.1%)	-	23 (31.9%)	-	12 (16.7%)	60 (83.3%)
5-15	134 (85.9%)	6 (3.8%)	16 (10.3%)	12 (7.7%)	45 (28.8%)	99 (63.5%)
> 15	59 (81.9%)	7 (9.7%)	8 (8.3%)	2 (2.8%)	19 (26.4%)	51 (70.8%)
Total	242 (80.7%)	13 (4.3%)	45 (15 %)	14 (4.7%)	76 (25.3%)	210 (70 %)

¹TPC=Transportation of people on carts, TGC=Transportation of goods on cart, TGP=Transportation of goods as pack, BKC= Brick kiln transportation on cart.

Detail of various external injuries and fate of injured animals is given in Table 1. Improper harness and saddle were major causes of injuries in equines (Biffa and Woldemeskel, 2006). Burn *et al.* (2007) reported that poor saddle fitting and design lead to body lesion especially on wither and back. Helen (2001) also reported higher prevalence of injuries in equines related with poorly designed and ill-fitted harness. Injuries were demonstrated to be commonly distributed on wither and back coinciding with poorly designed and ill-fitted harnesses and saddles. Manufactured by unskilled artisans, equine-drawn carts are often designed unbalanced and too heavy and do not consider load distribution in relation to the body balance and style of movement. Wooden- or iron-made saddles are constantly put on the back/shoulder and strongly tied to the body by plastic rope, which causes persistent irritation and injuries. Yilma *et al.* (1991) reported 33.7 % prevalence of back injuries in donkeys loaded without a saddle. A higher proportion of the owners (80 %) did not provide any treatment to their equine, regardless of the presence and severity of injuries.

These facts speak about the recurrent welfare issues of equines prevailing in the study area. Few owners managed their sick equines differently by allowing them to have access to appropriate veterinary care and long-term rest until recovery. In case if some animal is brought to the veterinary hospital, they were found extremely in miserable condition and were unable to work longer.

CONCLUSIONS

The study concluded that equines are still being raised on traditional and primitive ways in which they are confronted with multiple problems. As a result welfare is neither perceptible on the part of animals nor their owners. So realizing equines momentous role in animal agriculture towards rural development in particular, their welfare needs to be addressed on top priority. This will not only lead to their well being but will a major step towards socio-economic uplift of their owners too.

LITERATURE CITED

- Back, W., A. Barneveld, P.R.V. Weeren and A.J.V. den Bogert. 2007. Kinematic gait analysis in equine carpal lameness. *Acta. Anat.* 146:86–89.
- Biffa, D. and M. Woldemeskel. 2006. Causes and factors associated with occurrence of external injuries in working equines in Ethiopia. *Int. J. Appl. Res. Vet. Med.* 4 (1): 1-7.
- Burn, C.C., J.C. Pritchard, M. Farajat, A.A.M. Twaissi and H.R. Whay. 2007. Risk factors for strap-related lesions in working donkeys at the world heritage Site of Petra in Jordan. *Vet. J.* 12(2):200-210.
- Burn, C.C., T.I. Dennison and H.R. Whay. 2010. Relationship between behaviour and health in working horses, donkeys and mules in developing countries. *Appl. Anim. Behav. Sci.* (doi:10.1016/j.applanim.2010.06.007).
- Fleurance, G., P. Duncan, H. Fritz, J. Cabaret and I.J. Gordon. 2005. Importance of nutritional and anti-parasite strategies in the foraging decisions of horses: an experimental test. *Oikos.* 110(3): 602-612.
- GOP. 2009-10. Economic Survey of Pakistan. Ministry of Finance. Economic Advisor Wing, Islamabad.
- Helen, B. 2001. The Gharry horses of Gonder. *Draught Animal News.* Centre for Tropical Veterinary Medicine: University of Edinburgh, Scotland: 35:23-24.
- Lindberg, A.C., C. Leeb, J.C. Pritchard, H.R. Whay and D.C.J. Main. 2003. Determination of welfare problems and their perceived causes in working equines. In: *Proc. Universities Federation for Animal Welfare*, Edinburgh.
- Pickeral, T. 2003. *The encyclopedia of horses and ponies.* Paragon Publishing, Queen Street House, UK.
- Pritchard, J.C., A.C. Lindberg, D.C.J. Main and H.R. Whay. 2005. Assessment of the welfare of working horses, mules and donkeys, using health and behaviour parameters. *Prev. Vet. Med.* 69: 265-283.
- Pritchard, J.C., A.R.S. Barr and H.R. Whay. 2007. Repeatability of a skin tent test for dehydration in working horses and donkeys. *Anim. Welfare.* 16: 181-183.
- Ramaswamy, N.S. 1998. Technology and management for increasing productivity and welfare of donkeys. *CARTMAN Journal*, December. Centre of Excellence, Animals and Environment, Bangalore.
- SPSS. 2004. *Statistical Package for Social Sciences.* Release 10.0.1 Version. SPSS Inc.
- Van Heel, M.C.V., M. Moleman, A. Barneveld, P.R. Van Weeren and W. Back. 2005. Changes in location of centre of pressure and hoof-unrollment pattern in relation to an 8 week shoeing interval in the horse. *Equine Vet. J.* 37:536–540.

- Wambui, C.C., S.A. Abdulrazak, J.O. Ondiek and P.B. Ogore.2004. Role and management of donkeys at farm level in Nakuru district, Kenya. *Draught Animal News*. 41:24-29.
- Yilma,J.,J.A.Feseha,E.D.Svendsen and A.Mohammed.1991.Heath problems of working donkeys in Debre-Zeit and Menagesha regions of Ethiopia.In:Proc.Colloquim on Donkeys, Mules and Horses.Centre for Tropical Veterinary Medicine,UK.
- Zeyner, A., C. Geissler and A. Dittrich. 2004. Effects of hay intake and feeding sequence on variables in faeces and faecal water (dry matter, pH value, organic acids, ammonia, buffering capacity) of horses. *J. Anim. Phys. Anim. Nutr.* 88(1-2): 7-19.