

Management, constraints and prospects of indigenous horse development in Bangladesh

M. P. ALAM¹, M. S. A. BHUIYAN AND A. K. F. H. BHUIYAN¹

Members of the Research Forum

Associate Author :

¹Department of Animal Breeding and Genetics, Faculty of Animal Husbandry, Bangladesh Agricultural University, MYMENSINGH, BANGLADESH

AUTHOR FOR CORRESPONDENCE :

M. S. A. BHUIYAN

Department of Animal Breeding and Genetics, Faculty of Animal Husbandry, Bangladesh Agricultural University, MYMENSINGH, BANGLADESH
Email : bhuiyanbau@gmail.com

Abstract : The study was conducted to reveal the management system, prospects and constraints of indigenous horses at 20 villages of 4 districts in Bangladesh. A total of 200 horse keeping households were one-to-one interviewed using a pre-tested questionnaire. Horses are solely reared under semi-intensive system (100%). Different types of houses are used such as tin-shed (28%), polythene (36%), fencing (36%). Feed ingredients such as rice polish (7.14±0.19), rice crushed (0.13±0.07), paddy (0.04±0.01), salt (0.1±0.01), wheat bran (1.13±0.07), molasses (0.23±0.01), gram (0.55±0.02), maize bran (0.27±0.07) and grass (ad libitum), respectively kg/day are supplied twice or thrice in a day. Natural breeding (100%) is practiced. Source of breeding male are own village (95%) followed by homebred (3%) and other places (1.5%), respectively. Farmer prefers red colour (99%) horse. Vaccination is not practiced by 100 per cent farmers whereas 4.5 per cent of them practices de-worming programme. Abortion, thelaziasis, calcium deficit and skin dermatitis or manze are common disease in horses. The market price of an adult stallion or mare ranges from 20,000-80,000 BDT and a colt or filly ranges from 5,000-20,000 BDT. The market price of sport or racing purposes horses ranges from 80,000-4, 50,000 BDT (crossbred) and 60,000-80,000 BDT (highly vigorous indigenous breed). Easy management, adaptability, cost effectiveness; disease tolerance and good income are the indicators of prospects of horse rearing. In spite of its great prospect, more solid information on horse husbandry in different parts of Bangladesh is required.

Key words : Indigenous horse, Management system, Prospects, Constraints

How to cite this paper : Alam, M. P., Bhuiyan, M. S. A. and Bhuiyan, A. K. F. H. (2017). Management, constraints and prospects of indigenous horse development in Bangladesh. *Vet. Sci. Res. J.*, 8(1&2) : 13-19, DOI : 10.15740/HAS/VSRJ/8.1and2/13-19.

Paper History : Received : 08.02.2017; Revised : 02.09.2017; Accepted : 16.09.2017

INTRODUCTION

Livestock can provide one or more pathway out of poverty through ownership of livestock assets and generation of employment, output, income and allowing fulfillment of social function (Leitch *et al.*, 2014). In Bangladesh horse is widely used in pulling cart, transportation, land tillage and racing purposes (Alam *et al.*, 2015). Recently, Horses

and ponies are also used in biomedical procedures to produce bioactive compounds such as hormones, vaccines, anti-toxins and anti-venoms (Valerie *et al.*, 2015). Bangladeshi Indigenous or non-descript horses has been influenced genetically by Arabian and Persian horses which have been immigrated through India from the west but their numbers are not known (Nozawa *et al.*, 1984). Management system of this non-descript horses is very much poor. People have no idea about scientific knowledge on horse rearing, feeding, housing that's why horse owner do not get maximum output in horse occupation. Fazili and Kirmani (2011) reported that poor body conformation and nutritional status, use of improper cart and saddles reduced life of the horse. But it is true that in horse pocket area, farmers depends their livelihood on mostly horse pulling cart. According to Alam *et al.* (2015), in study areas the income from horse pulling cart was different from season to season which ranged from TK 3,000 to TK 20000 per month. So it is necessary to evaluate the said information about good management system of indigenous horses to increase their income level for livelihood in horse pocket areas in Bangladesh. In this context, this study was designed to evaluate management system, prospects and constraints to indigenous horse development in Bangladesh.

RESEARCH METHODOLOGY

Experimental sites, animal and period of study :

The study was conducted for a period of 60 days at randomly selected of 200 horse keeper's households of 20 villages of Mymensingh, Jamalpur, Sherpur and Tangail districts in Bangladesh. Villages were selected following stratified random sampling according to the information on the availability of horses and their use in the area.

Data collection :

Data were collected from 200 horse-owning households by one-to-one interview of the farmers that were related to management system using a pre-tested questionnaire. The observed management parameters were rearing system, housing type, feeding and watering system, breeding system, source of breeding male, vaccination, deworming, colour preference and disease prevalence.

Statistical analysis :

The data generated from this experiment were entered in Microsoft Excel Worksheet, checked, organized and processed for further analyses. Means with standard errors (SE) for different traits were estimated with the help of Statistical Analysis System (SAS), 9.1.3 (2004).

RESULTS AND DISCUSSION

The results obtained from the present investigation as well as relevant discussion have been summarized under following heads and Fig. 1 to 3.

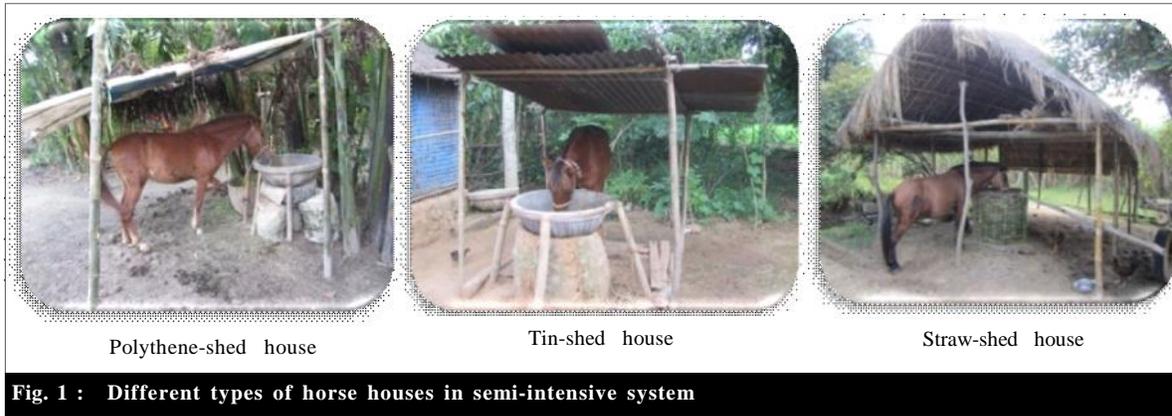
Management system :

Rearing and housing system :

In the studied area, horses were mainly reared in semi-intensive system (100%) where they got proper ventilation, adequate space for exercise. According to Valerie and Jonckheer-Sheehy (2015) housing systems should provide fresh air and light, food and water, adequate space and opportunities for exercise, conspecific social contact and general security that is similar with present study. In semi-intensive system, horses were kept in different types of houses such as polythene shed house (36%), straw shed house (36%) and tin-shed house (28%) (Fig. 1 and Table 1). During free days, horses were kept in the field 12 hours for grazing and during working days horses were kept in the field 5 to 6 hours for grazing. Horses were kept in the field by tethering system.

Breeding system :

In the studied area, natural breeding (100%) was done in which there was no cost for breeding. According to Pal



et al. (2013), natural mating was practiced where spliti horses were used for breeding purposes at Pin valley in India that is similar with present study. But in India the respondents had to pay between Rs. 1100/- to 5100/- as covering fee with no guarantee of conception (Pal *et al.*, 2013) which is dissimilar with present study.

Source of breeding male and colour preference :

In the studied area, the source of breeding male (stallion) was own house (3%), followed by own village (95.5%) and outside places (1.5%) (Table 1). About 99 per cent farmers preferred red colour horses and the rest 1 per cent farmers preferred white colour horses that are given in the Table 1.

Vaccination and de-worming :

In study areas, there was no vaccination programme (100%) indicating unawareness of the horse rearers (Table 1). In India, vaccination, insurance and use of disinfectants were not adopted in the study area indicating the least awareness among the horse owners about the importance and disinfectants (Pal *et al.*, 2013) which is similar with this present study. Almost 95.5 per cent farmers were practicing de-worming programme and rest 4.5 per cent farmers

Table 1: Management practices for available horse resources in rural areas				
Parameter		Frequency	Per cent	Total
Rearing system	Intensive	0	0	
	Semi-intensive	200	100	100
	Extensive	0	0	
Housing type	Tin shed	56	28	
	Polythene	72	36	100
	Fencing	72	36	
Breeding system	Natural	200	100	100
	Artificial	0	0	
	Homebred	6	3	
Source of breeding male	Own village	191	95.5	100
	Other places	3	1.5	
Vaccination	Yes	0	0	
	No	200	100	100
De-worming	Yes	191	95.5	100
	No	9	4.5	
Color preference	Red	198	99	100
	White	2	1	

were not practicing this programme (Table 1).

Feeding and watering system :

In the study area, the horse keepers used to supply rice polish (7.14±0.19) kg, wheat bran (1.13±0.07) kg, molasses (0.23±0.01) kg, maize (0.27±0.07) kg, rice crushed (0.13±0.03) kg, paira (0.08±0.02) kg, gram (0.55±0.02) kg, paddy (0.04±0.01) kg, bit salt (0.1±0.01) kg, rice straw (ad libitum) and grass (ad libitum), respectively (Table 2) in which the average price of ingredients were recorded as rice polish (5 BDT/kg), maize bran (35 BDT/kg), molasses (20 BDT/kg), paira (35 BDT/kg), gram (70 BDT/kg), wheat bran (20 BDT/kg) and rice crushed (20 BDT/kg).

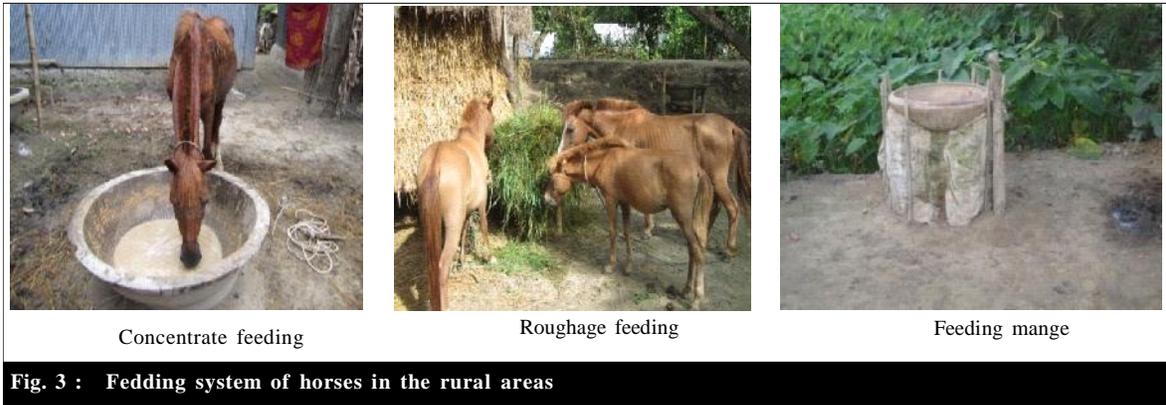
During working day feed were supplied thrice a day and resting day feed were given twice a day but maximum family could not provide balanced feed according to horse's body requirement. They provided feed on the basis of their assumption not body requirement. Water intake was recorded as 26.79±0.70 lit per day (Table 2) though horse requires 20 to 76 lit of water a day depending on the type of horse and prevailing meteorological condition (Hinton, 1978).

Table 2 : Amount of feed ingredients (kg) supplied to horses daily

Feed ingredient	Mean ± SE
Rice polish (kg)	7.14±0.19
Wheat bran (kg)	1.13±0.07
Molasses (kg)	0.23±0.01
Maize (kg)	0.27±0.07
Rice crushed (kg)	0.13±0.03
Paira (kg)	0.08±0.02
Gram (kg)	0.55±0.02
Paddy (kg)	0.04±0.01
Bit salt (kg)	0.1±0.01
Rice	Ad libitum
Grass (Tethering system)	Ad libitum
Water intake (Litter)	26.79±0.70



Fig. 2 : Breeding male



Mixture feed was provided to the horse in which all kinds of feed ingredients were mixed with water. Pal *et al.* (2013) reported that the average concentrate offered was 2.81 ± 0.138 , 2.452 ± 0.145 , and 2.93 ± 0.160 and 1.950 ± 0.200 kg per horse in Hanumangarh, Churu, Jhunjhunu and Jalore at Rajasthan in India, respectively which is dissimilar with present study.

Disease prevalence :

In the present study, most prevalent diseases observed and reported were manze, pneumonia, diarrhea, ca deficit, myasis, equine colic, big headed disease, enteritis, leg lameness, alopecia, allergic dermatitis, mastitis, anestrus, thelaziasis (eye worm) and abortion. Among these diseases the most common diseases in the field were abortion, myasis, thelaziasis (eye worm), ca deficit and skin dermatitis or manze. Kacker and Panwar (1996) reports indicated that equine influenza, equine viral rhinopneumonitis, equine viral arteritis, equine viral encephalo-myelitis, anaemia, rabies, strangles, tetanus, anthrax, glanders, laminitis, colic, babesiosis, are common diseases in horse.

Constraints of indigenous horse development in Bangladesh

Based on the field survey/observation and review of scientific literature on horses of Bangladesh the following constraints are identified:

- There is no small or large horse farming in our country due to lack of knowledge, unknown about its economic contribution, ignorance of government, NGO and research institution.
- The facilities regarding veterinary and extensive service are not efficient and sufficient.
- Suffering from malnutrition and reduction of productive and reproductive performances.
- High mortality of foal was another constraint. The main reason for this mortality is pulling cart during pregnancy in addition with lack of consciousness or knowledge among horse keepers.
- There was no vaccination programme in the rural areas that's why horse in family level often faces different kinds of diseases.
- Another major problem is that there was a lack of veterinary surgeon in rural areas that's why horse keepers relied on quack doctor or traditional treatment. Quack doctor treated the horse in rural areas at high fee or commission.

Prospects of indigenous horse development in Bangladesh :

Horse genetic resources in Bangladesh showed diverse phenotype and morphology and positive reproductive performance which indicates their potential for improvement. In the study area horse owners are interested to get training on horse rearing.

Horse pulling cart can help a family easily that was observed in studied areas. Not only transportation but also horse sports that are arranged in different region such as Sylhet, Rangpur, Mymensingh, Tangail, Sunamgonj, Natore, Bogura etc in every year traditionally even recently in some region like Rangpur, Sherpur farmers use horses in agricultural purposes. It is estimated that in Brazil the use of horses directly employs more than 600 thousand people

involved around 3.1 billion dollars per year (Lima *et al.*, 2006) constituting an important chain in the national agribusiness, strongly correlated with leisure, culture, sport and tourism (Guerra, 2003).

It has a good marketing demand at study areas. Most of the market side is own village or other villages. The biggest market place of horse selling is situated at Tulshipur bazar in Jamalpur district. The price of an adult stallion or mare ranged from BDT 30,000-80,000 and a colt or filly ranged from BDT 5,000-30,000. In India at horse pocket areas selling price varied from 10,000 to 30,000 depending upon age, sex and physical condition of the horse (Pal *et al.*, 2013) which similar with present study.

In the developing world, horses are the most important source of agricultural energy and transport for resource-poor communities in both urban and rural areas (Biffa and Woldemeskel, 2006 and Swann, 2006). Indeed, research suggests that working animal supply approximately 50 per cent of agricultural power needs globally (Swann, 2006). Anonymous (2003) reported that one adult horse produces about 10 t of farm waste annually and Fazili and Kirmani (2011) reported that the horse manure has been improving the agricultural and forest land of Kashmir and Jammu states in India.

Horse pulling cart can be used widely in rural areas alternative as motor vehicle. It is possible to minimize fuel cost on future aspects. Internationally, over the past 20 years there has been consistent growth in numbers of equine with the largest increases in the north of the Indian sub-continent and the tropical highlands of Latin America (Starkey and Starkey, 2004). For example in, Mauritania the number of donkeys carts has been risen from around 1,000 to more than 75,000 in the past 40 years; and in Tanzania the number of the drought animals has almost doubled in 20 years (The Brooke, 2007).

The recent world wide surge in fuel prices has hit impoverished people especially hard and consequently, in many developing countries, notably Pakistan and India, rising fuel prices are causing significant numbers of urban workers to switch from motorized vehicle to equine power carts (The Brooke, 2007).

In the studied areas, one effective farmer can earn easily 6,000 to 8,000 per month from one horse pulling cart. Fazili and Kirmani (2011) said that in Kashmir, a pony is an important and generally the only earning member (on a day to day basis) of the poor family and for the poor owners of the horses, safe animal means safe family and safe families means safe village. Again, Yousef *et al.* (1991) reported that horses are efficient uses of low quality, high fibre food, and can tolerate upto 20 per cent dehydration.

Conclusion :

Horse is not economically equally important species compared to cattle, buffalo, goat, sheep etc in context of Bangladesh but as a working animal it is very important to horse owners for their livelihood because safe animal means safe family and safe family means safe village and safe village means safe Bangladesh. In rural areas horse shows genetic diversity. Farmers keep this domestic species with only traditional knowledge day after day. So, government and private institution should come forward to conserve and highlight this deprived species in our country where this research will be helpful to take any step.

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