

Socio-economic status of mule producers and management practices of mule production in rural areas

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ABSTRACT

The mules are widely used for carrying men and luggage in the hilly terrains and for pulling carts in the plains. Some people living on the banks of Yamuna and Ganga river rear mares for mule production. The study was planned to know socio-economic status of mule producers and managerial practices followed by them. The primary data were collected from 50 mule producers belonging to Haryana, Uttar Pradesh and Uttarakhand states. The people engaged in mule production belong to mainly minority community. Majority of them were poor and illiterate. Mean family size was observed as 8.48 ± 0.40 . Mule producers sale mule foals in local animal fairs and selling price varied from Rs 10000 to 40000. Contribution of women and children in mule production was significant. Non-availability of free grazing common land and loss of libido in donkey stallions were the major problems reported by the equine owners. They provided 3 to 4 kg concentrate per day to the donkey stallions during the winter. Most of the equine owners decanted the colostrums from the udder of the mare and did not allow the foals to suckle the colostrum. Most of them were ignorant to diseases tetanus, glanders, rabies, influenza, herpes etc. and their prophylactic control. Problem of colic and worm infestations in their equines was very common. Equine owners showed keen interest in getting their mares artificially inseminated with the frozen semen of superior exotic donkeys for the production of superior mules because the equine owners were getting good prices from the sale of mule produced through AI.

Key words: Managerial practices, Mule, Production, Socio-economic status

Mules are sterile cross born out of donkey stallion and horse mare. They inherit speed, strength and appearance from mare and docility and sturdiness from the donkey stallion. It is worth mentioning that mules are widely used for pulling carts in plains (Haryana, Punjab and Uttar Pradesh) and for carrying men and luggage in difficult hilly terrains (J&K, Himachal, Uttarakhand) as pack animals, where motorized vehicles cannot reach. To some extent motorized vehicles are replacing mules in plains and hilly regions where there is road network. In spite of slight downward trend of equine population from 1966 to 2003 in India, there has been increasing trend of mule population. In spite of mechanized transport and all unfavourable circumstances, the mule population has shown significant increase to the extent of 675% over 1956. This clearly indicates the distinct role played by the mule as a draught animal for transporting the agricultural commodities and household goods in the states where agricultural and horticultural produce is affluent requiring transport from the point of production to the point of sale and consumption. Some people are engaged in producing, rearing and maintaining mules for their livelihood.

They rear mares for mule production, maintain mule foals from birth till 4 to 6 month of age and then sale out these foals and thus earn their livelihood. The buyers of these foals rear them till they become adult and then sale them out to the actual users, who uses mules for various load carrying activities. The study was planned to know socio-economic status of mule producers and managerial practices followed by the mule producers.

MATERIALS AND METHODS

Some minority people living on the banks of Yamuna and Ganga river rear mares for mule production. These equine owners were localized to Karnal and Panipat districts of Haryana, Meerut and Muzaffarnagar districts of Uttar Pradesh and Udham Singh Nagar district of Uttarakhand. Primary data were collected through specially structured proforma by personal survey method from randomly selected mule producers (50) belonging to Haryana, Uttar Pradesh and Uttarakhand. The proforma included the general information about the mule producers, their source of earnings, family inventories, land holdings, equine herd strength, reproductive parameters, feeding and grazing practices, marketing of mules and other constraints regarding

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the growth and development of these enterprises. The questions were posed to the equine owners in the form of a personal interview to collect data.

RESULTS AND DISCUSSION

Military farms are producing mules for their own use only. There is no organized civil farm producing mules because of social taboos especially in Hindus, in mule production due to its being an interspecies cross. The people engaged in mule production belonged to minority community and locally they are being called as Seikhs or Kalandars. They are producing mules individually and not in an organized manner. Majority of them were poor and illiterate and only 6% of them were literate. Their major occupation was only mule production, while a few of them (26%) also played the magic tricks along with mule production to earn the livelihood. Very few mule producers were also rearing one or two goats for milk production and poultry for eggs. Mean family size was observed as 8.48 ± 0.40 (range 4 to 15). The average age of mule producers was 41.55 ± 1.86 (range 25–65 year) indicating that people of various age groups were involved in this enterprise. One mule producer generally maintained on an average 9.26 ± 0.98 (range 1 to 30) non-descript mares/ponies. Majority of the equine owners (74%) were engaged in this enterprise with their own mares. It was also observed that 26% of mule producers maintained the mares on sharing basis and they shared the amount received from the sale of mule foal in a ratio of 50:50 with the owner of mare. Any expenditure involved on treatment of mare or foal was fully borne by the owner of the mare. The average cost of the pony/mare maintained by the equine owners for mule production was reported as Rs $21,406 \pm 1,596$ (range Rs 2,500 to 82,000). It indicated that most of equine owners used the poor quality mares for mule production. Shape and size of mule depends upon the size of mare and stallion used. To get good quality mules the farmers must use good quality mares and stallions. It was observed that mule producers prefer to sale the mule foals in local animal fares to get higher prices. The selling price of mule foals varied from Rs10,000 to 40,000 depending upon the body size, vigour and colour of the mule foal. Most of the mule producers were of the opinion that mule produced through AI with the frozen semen of superior jacks provided by the NRCE fetched high price from the market as compared to the mules produced from the local jacks available with the equine owners. Because the mule produced from the frozen semen of exotic jacks were well built and of dark body colour. It was observed that mule buyers had preference for dark coloured mules. The poorest of the poor engaged in load carrying operations in plains and hills are the buyers of mules. Hence, there is lot of scope in increase of the potential buyers as most of the labourers carry loads on their back especially in hilly areas.

The equine owners lived in *kutchha* and *pucca* houses and during migration period they lived in polyethylene huts. It

was observed that 44% mule producers provide *kutchha* thatch shed to their equines, 54% keep them in open and only 2% owners had *pucca* sheds for their equines. It indicated that majority of equine owners were not maintaining their equines in good conditions. Only one mule producer was having agricultural land while all others graze their equines on the grasses around roadsides, river sides or on other farmers' field. During rainy season 12 out of 50 mule producers migrated to the areas where they could have plenty of green fodder for their equines. Migratory mule producers belonged to Haryana. Majority of equine owners (82%) reared their mares absolutely on grazing, while 18% reared the mares stall-fed along with exercise of 1 to 2 h daily. Concentrate was not offered to the mares by any respondent because of one or the other constraints. Non availability of free grazing common land had forced these equine owners to stall fed their equines. They provided *dub* (*Cynodon dactylon*) and *nari* (*Panicum distichum*) as green fodder during rainy season. They also used these grasses for making hay and this hay was offered to equines during winter season and other lean months when there was scarcity of green fodder. All the arrangements of green fodder in the form of *dub* or *nari* for equines were made by the women of the family. Women not only collected the *dub* or *nari* grass from the fields or road sides but also brought it up to the house on their heads or sometimes on the horse cart. The horse carts were also being driven by women. Grazing of equids was performed mainly by children; most of them were not going to school. Thus, women and children contributed significantly in mule production. However, owners of donkey stallions provided 3 to 4 kg concentrate per day for 4 months during the winter which is the non-breeding season in equines. The donkey stallions were also occasionally fed other energy giving feeds like jaggery during winter season in particular. This may be just to cope up the energy losses of the donkey stallion engaged in covering the mares during the preceding breeding season. It was observed that all the donkey stallion owners offer crushed grains rather than whole grain to their donkeys. The practice of feeding soaked or boiled grains was also common. Four to five families collectively had born the expenses of concentrate fed to the donkey stallion. In a few cases they purchased the donkey stallions collectively for covering their mares for mule production. In some cases, they demanded for cash or some per cent in the amount received from the sale of mule foal as covering charge.

Four to five families collectively maintained one pony teaser to detect estrus mares and thus avoided unnecessary expenditure incurred on the maintenance of teaser. Most of them were not well acquainted with common estrus symptoms of mares as previously described by Singhvi (1992). All of them had used teaser for detection of estrus in mares as estrus mare urinates frequently in the presence of teaser. Average age at covering of mares used for mule production was observed as 2.5 years (range 2 to 4 years).

Average age at first foaling was observed as 3.5 years (range 3 to 4 years). It indicated that majority of equine owners got covered their mares at an early age that could be one of the reason of ill health and poor body conditioning of the mares. Majority of equine owners (82%) got their estrus mares covered on the 3rd day of estrus in the morning and evening and then in the morning of fourth day of estrus. It indicated the over use of the donkey stallions. The average duration of estrus in mares was reported as 5 days ranging from 3 to 8 days (Pal and Gupta 2005). Also the life of spermatozoon in mare's reproductive tract is 3 to 5 days (Hafez 1987). It clearly indicates that covering the mare at very frequent intervals is useless and is due to ignorance. So, for efficient use of stallion, the estrus mare needs to be covered from day third onwards on alternate days till the mare remains in estrus. By following this schedule of covering more number of mares could be got covered by a donkey stallion in a season. By adopting this technique not only the fertility rate will increase but also the stallion will get rid off the unnecessary burden of service. Also as a standard practice a stallion may be used for service twice a week or on alternate day throughout the breeding season. Over use of stallions not only reduces the number of sperms per ejaculate but also the immature sperms start coming in the ejaculate which is the major reason of reduced fertility of the donkey stallions as well as loss of libido. Average service age of donkey stallions was observed as 2.5 years (range 2 to 3 years). The donkey stallion becomes adult at an age of 3-3½ year. This showed that equine owners started using their stallions at an early age. The loss of libido in donkey stallions was a major problem reported by the most of equine owners. The possible reason might be excessive use of donkey stallion as well as the use of donkey stallion for service before attaining sexual maturity.

Natural method of breeding was the common practice being followed by the equine owners. The equine owners were well acquainted about breeding through artificial insemination (AI) technique. Because, NRCE provided AI services to the mule producers during last 4-5 years. It is interesting to note that almost all the equine owners were willing for getting their mares artificially inseminated with the superior exotic germplasm for the production of superior mule because the equine owners were getting good prices from the sale of mule produced through AI. But, presently the equine breeding services through AI in the field were limited and NRCE was only its sole source. Superior exotic donkeys and AI facilities are not available at veterinary hospitals and dispensaries. Availability of exotic donkeys for natural covering and facilities of AI are the main constraints in mule production. Some state governments are providing exotic donkeys for natural service at district or block level in the areas where mule production is in full swing, but it is not always possible for the poor equine owners to avail the facility due to long distance and migratory in nature particularly during the breeding season.

Colostrum provides passive immunity against various diseases during neonatal period. Most of the equine owners (76%) decant the milk of first milking from the udder of the mare and did not allow the foals to suckle the first milk i.e. colostrum. They generally allowed the foals to suckle the milk of second milking onwards. The mule producers were of the view that colostrum feeding creates problem in the new born foal in the form of diarrhoea and sometimes death of new born foal took place. This is just a misconception and due to illiteracy, mule producers are depriving the mule foals of the first milk, which is rich sources of antibodies required for passive immunity. Only a few mule producers (24%) reported of having knowledge of feeding colostrum to newborn foals and they allowed the mule foals to suckle the colostrum. But, they also reported some death of mule foals after consumption of first milk. According to them in some cases after consumption of colostrum the blood of foal turned into water and finally it died. The possible reason of death might be different blood factors of mother and foal, which needs to be taken care before colostrum feeding. It would be better to educate the equine owners about the importance of first milk and precautions required.

Equines are disposed to various diseases like tetanus, glanders, rabies, influenza, herpes etc. Majority of the equine owners (80%) were ignorant of these diseases and their prophylactic control. In this study, none of the equine owners responded that they had got their equines vaccinated. But, 20% of respondent were aware of prophylactic vaccinations but not got their equines vaccinated due to one or other constraints. Importance of equine health was well understood by the equine owners, but the facilities they avail were mainly curative rather than preventive. The major problem faced by majority of the equine owners (74%) was colic and worm infestations. It was noted that deworming of equids was a common practice among the equine owners. But they were not aware about the deworming schedule. They generally used same dewormer every time; while it is important to change the dewormer as parasites become resistant to the dewormer if it was repeated. It was also observed that even though they were deworming their equines, but still faced the problem of worm infestations. It might be due to use of same dewormer every time and at irregular intervals. The sick equines were being treated by equine owners themselves through previous prescriptions of same or other equine. They reused the needles and syringes for injecting injections. This practice was highly unscientific and might be a source of disease transmission from one animal to another. Chances of morbidity were higher when the equines were left uncared for grazing. Thus, there was need for public awareness of the equine diseases and their preventive measures. Being less educated, they generally use the inherited knowledge for mule production. They are not following important scientific practices of feeding, breeding, health and management which greatly affect the foal growth, mortality, libido of jacks and

conception rate etc. Technical and professional knowledge of mule producers has great impact on superior mule production. The knowledge may not only improve the reproductive efficiency of equids but also reduce the mortality in mule foals. Socio-economic status of mule producers directly affects the quality and quantity of mule production. Poorest of the poor mule producers generally had non-descript pony mares for mule production which produces inferior quality mules. Hence, state governments should come forward for imparting trainings in the areas to enhance their know how for scientific mule production and management. Such trainings need to be organized in veterinary hospitals. Trainings are being imparted by the NRCE to field veterinarians on equine health and management aspects.

Most of the owners didn't use their mares for any work and maintained the equines exclusively for mule production. However, a few of them used one mare in carting for bringing the fodder from the field. The equine owners might increase their income by using the mares for various draught operations including carting. No respondent was found to insure their equines. In case of death of the equine, the poor equine owner is doomed to starve. Equine owners lack awareness of insurance facilities. There is need to create awareness about animal insurance among equine owners.

Constraints

Most of the mule producers were landless. Increasing human population and family size had led to decline in space required for animal housing. Lack of space for animal housing and depletion of common grazing lands were the important problems in maintenance of equines. As donkeys and mares were often left for free grazing on common land and harvested fields. With the intensification of agriculture there had been a significant decline in grazing sites and common lands. This had forced equine owners to the stall feeding. There was lack of veterinary facilities in rural areas. Veterinarian were also not well trained for AI in equines, treatment, husbandry practices of equines as they were not exposed with equines during their basic degrees. Poverty and illiteracy was another factor that they couldn't rear equines with scientific know how.

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