

Donkey conservation in Pakistan: Research and welfare needs in rural and semi-urban areas of Kyber Pakhtoon Khawa, Pakistan

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ABSTRACT

Even though donkeys are found in all the environmental zones of world. In Pakistan the larger part is found in the rural, semi-urban, hilly and arid zone of the country. In the rural areas of Khyber Pakhtoonkhwa, Pakistan, donkeys are mostly used for transport. The low level of expansion of the roads network makes the donkey most valuable pack animal under the small holder farming systems. The great value of donkeys to rural, urban and semi-urban population has been largely overlooked by the different governmental, semi governmental as well as private organizations. In most communities, especially among rural and agricultural workers, in agriculture societies the donkeys have a bad illustration and are slightly make fun of character in rural societies. This includes factors such as the affordability of animals and the labor of owning donkeys. A better understanding of this could manipulate the ways of donkey consumption and research output relating to the support, services and policy issues. Despite the importance of the donkeys in the country's financial system, it is very important to make research linkage leading to fulfillment of welfare needs of donkeys has been acknowledged. This review article recommends researchable topics to get enhanced use of donkey power usage in semi-urban, rural and urban populations of the province. This includes socioeconomic studies in the contribution of donkeys to the farming and agro based production systems and suggestions in making policy issues to the donkey production, health and breeding policies. It is stressed that there are real opportunities for research on donkeys in Pakistan.

Key words: Donkey, Pakistan, Welfare, Kyber Pakhtoonkhawa

INTRODUCTION

The donkey is widely distributed throughout subcontinent. Pakistan has about 4.7million donkey population [1]. The growth rate figure of donkey rises by means of 2.95 per annum in Pakistan [2]. They are present in the higher number in the rural areas and semi rural areas but present in small number in urban areas of heavily populated urban and modern cities of Pakistan. The total population of donkeys in Khyber Pakhtoon Khwa was estimated 409185 in previous years [3]. Total figures of donkeys, their increasing statistics in relation to the social residence values and their dominant role in the total numbers of household herbivores, which well thought-out to be useful indicators of their socio-economic growth. The number of donkey increases with a growth rate of 2.95 per annum (1956-2001) as

reported by Hasnain and Usmani [2]. It has been acknowledged, that there has been enormous upsurge in the donkey masses from 0.9 million in the year (1970) to 3.9 million in the year (1996) in Pakistan [4].

The donkey belongs to the genus *Equus* and the species is *asinus*, the entire latin name, *i.e. Equus asinus*. The horse and donkeys belong to the same family known as *Equidae* [5]. Domestic donkey in Pakistan traced from its heritage towards the wild asses found in India, Africa, Egypt, the Sudan, Somalia and Ethiopia, namely *Equus hemionus*, *Equus asinus africanus* and *Equus asinus somalicus in general* [6]. The Asiatic Wild Ass be able to be separated into two poles apart species - *Equus hemionus*, and *Equus kiang*. Nearby about six differentiating subspecies of *Equus hemionus*, of which one is the Syrian species (*Equus hemionus hemippus*), that became extinct in 1927. The others are from the North Mongolian Dziggetai (*E. h. hemionus*), from the Gobi Dziggetai (*E. h. luteus*), Onager (*E. h. onager*) from Iran, from the areas of Turkmenistan and Kazakhstan Kulan (*E. h. kulan*), and the Indian Khur from Iran (*E. h. khur*) [7]. Donkey is main source of transport in rural and hilly areas of Pakistan and in the current era its milk has been consumed for the immune system associated diseases in the human beings [8]. They pull water carts and carry goods (particularly in arid and mountainous areas) [9]. In the rural and semi urban areas of country, donkeys are mainly used for carrying water carts and other goods like fire wood, which use domestically and commercially [10] Fuel, bricks, gravel, sand, mud, manure, grains and vegetables like potatoes and onions [11].

By tradition, animals like donkey and camels have been categorized rendering to their role, for example, riding animals or pack type's animals [12]. The donkeys are stronger animals, survives with much less attention, derives sustenance from deprived quality food and can bear considerable heat and thirst, are very popular in rural farming systems, as the donkeys are the source of carriage for different commodities like, water, gravel, sand, fodder, and manure as fertilizer etc. [13]. This makes it a proper animal for insensitive environments and difficult working conditions. Feeding behavior of donkeys is consideration by large intakes with low nutrient extraction. About 1 kg of legume and 4 kg of straw and 0.5 kg of cereal bran should be provided for each donkey [14]. Greater amounts of food consumption can be achieved by rapid mastication and large bites which has been possible effective chewing per bite, or sacrifice in size reduction [15]. Dry matter consumption of the donkey is higher as equated to other larger herbivores which is being about 3.15% of living mass comparatively [16]. Most donkeys indeed get the majority of their foodstuff and nutrients from free grazing. Donkeys eat indiscriminately and because of this nutritional routine the crude protein content of their food can be to a large amount less in dried out season circumstances. Donkeys are good quality grazers as well as browsers [17]. The structure of teeth and lips of donkeys allow them to graze very close to the soil; thus they are capable of graze small vegetation competently.

It was reported that donkeys were an important component in the pastoralist societies surveyed, although donkey numbers and transportation capability were not limiting factors in pastoralists actions. Its main role is that of an animal of weight, typically transporting materials such as water carts. Pack donkeys were observed, mainly transporting water in two 20-litre plastic containers [18], grain, bricks, fire wood (Photo 1) and animal manure to farm and playing a main role for dwelling water to house hold uses (Photo 2) in the arid and hilly areas of the country.

In rural and the semi urban areas, donkeys are generally highly appreciated, but many people living in big towns and cities have the impression and poor views about the donkey. The donkey has not been given the consideration it deserves in terms of research, development and expansion but unfortunately no non-governmental organization or animal welfare teams working in this underprivileged area even though the very important job it does in the socio-economic conditions of the country's agricultural, rural and underprivileged residents [19]. Exception is the Brooks Hospitals of Pakistan [9] which has done some work on the improvement of health status of donkeys. It has successfully resolved the health concerns of donkeys and other equine species but to the limited area.

2. Recommendations for research on donkeys

Recommendations are built on the critical observations and findings of authors, their discussion with the natives and the practical methodologies that were recommended for South Africa [20]. It is very important that from the outset investigators put on their plan programs in discussion with extension scientists, researchers and farmers. It will also help to remove any past barriers between researchers, extension scientists and farmers.

2.1 Research approach and initiatives

Research initiatives should be established with comprehensive analyses of obtained experiences. Such analyses with information of the target areas should direct to the exact definitions of the necessary responsibilities and the

available capital that is essential to make sure that the research output is suitable. The research should be farmer-oriented and focused on agro bio based. Farmers have need of machinery that is efficient and more useful having low cost and that can be well maintained and updated in their own areas because technology that is very essentially excellent may not be suitable [9].

The studies should, however, be simulated on farmers' fields at a premature stage. For example draft animals maintained on research stations should often from good breeds than towns animals specially, investigations on donkeys and draft animals should likely under taken by different veterinary research institutions collaborating in networking ventures [13]. Agriculturalists are probable to provide the most precious information in their specific society's environments. Thus give the impression essential that investigators and extension scientists should regularly discuss among farmers about their troubles, thoughts and reactions.

2.2 Institutional and Organizational research

As discussed above, whatever small amount of research was conducted on donkeys in the past was done without any management. Therefore the helpfulness of the separated research activities was not as effective as it should have been. There is thus an urgent need to organize future study and exploration accomplishments at large level and to have a premeditated investigation and extensions programs to provide guide lines to the veterinary and animal organizations doing in donkey welfare and equine diseases investigation. Primarily research work on donkeys should likely to be carry out by numerous diverse animal health and research institutions, collaborating through networking and joint programs [13]. Those concerned are likely to include universities, veterinary research centers, veterinary hospitals, research councils, non-government and semi-government organizations and regional agricultural and livestock intuitions. In the long-term, the plan should be a stable multi-disciplinary research oriented aspects with its own organization centre [19].

2.3 Recommended areas for research, development and extension

Extension and research work backed by sound on-farm and rural research is essential to establish ways of optimizing the value of draft animals to the farmers and workers who are their owners. Pakistan is a developing country with lot of man-power growing infrastructure. That means the use of donkey will carry on to play a significant role in the development of rural, semi rural and farm in the expected future. Donkeys have reduced the domestic transport burden of farmers especially for those women involved in farming systems of Ethiopia and have created employment and income generating opportunities for many people [21].

Current work gives less due attention to the donkey keeping and management. Establishment of the long-term economical and financial gains from the use of the animal work and identification of suitable implementations and animals most well-matched to the agro-ecologies and socio-economic needs of specific regions [19]. A established research and extension environment that recognizes the history and current and possible future contributions of donkeys and other draft animals will be recognized as a expensive option allowing rural and farm communities. The donkey specially wishes to should be described with optimistic representation and its role in agriculture, rural and arid sector must be appreciated. There is also a need for research to the categorization and the legislation needed to support animal footing at the local and national level [21].

Many of the health problems in donkeys are traumatic, mechanical as well as infectious in origin, resulting from the environmental causes and ill-treatment by owners and from critically considered attaches of the working apparatuses [13]. They are for all time obviously exposed to the cestodes [22]. The ticks are always there on the skin of donkeys [23]. The dirty environment exposes this animal to some prolonged diseases like infectious metritis [24]. Because the environmental factors play a major role in the epidemiology and prevalence of an infectious or parasitic disease. And the above mentioned diseases are frequent in all countries including Pakistan due to lack of management practices [13]. Several Parasitic diseases has an economic significance while donkeys are concerned e.g. Piroplasmosis. Due to this disease, working capability of the donkeys is considerably decreased [25]. Horses and donkeys belong to the similar genus, so adequate knowledge of diseases of donkeys is often extracted from statistics of diseases of horses [21]. Although the diseases that equines be capable of have might be comparable, the behavior of diseases is from time to time different. For example, donkeys are a smaller amount at danger to African Horse Sickness than horses [26], but both are equally prone to *Trypanosoma brucei* [27]. Their vulnerability to disease may be somewhat divergent from horses, and may be close to that of equine species.

The major mechanical disorders of the working donkeys are lameness and saddle sores [9]. There is lack of knowledge among the owners of the working animals and they suppose in getting work out of the poor creatures at any price. Lameness is caused by mechanical and traumatic injuries and strain caused by weight bearing. Saddle sores are caused by the pressure, abrasions, and rubbing of the saddle or girth alongside the skin of the animal during manual labor [13, 19].

Epidemiological surveys are conducted to get information on the prevalence, occurrence and economic significance of donkey diseases. Donkeys undergo from sustained chronic under nutrition conditions especially during the dry season which coincides with the time of agricultural and work operations that require most of the work production from the donkeys. The deviation may be recognized to the managing observations, and the on the bases of animals examined [28].

There has been less research work on suitable food for donkeys under conditions of maintenance, breeding and reproduction, lactation, labor work and other activities. Most donkeys certainly get most of their food and nutrients from free-range grazing [13]. Agriculture agri-business methods exploration is necessary to discover the systems of producing sufficient amount of food for draft animals on the farm and to choose types of locally available add-ons which may provide satisfactory amount of food. The dietary necessities of female draft animals are more important and research is required to find out the other sorts of home-grown foodstuffs, which can be finest maintenance in the time of pregnancy and lactation and in addition to the work physical activities [15, 16].

2.4 Recommended areas for research in the genetic resource and breed improvement

Recognizing and categorizing of the donkey types and breeds in province. Assessment and selection of the local breeds with particular reference to conserving wanted genes keeping in home by farmers and community workers of different provinces and parts of the country. There is need of Management of breeding and the effect of work on reproduction, health and the other physical activity for small land farmers and community workers. There is need of research on the donkey's capability to live in the harsh environments, weather and its resistance to certain diseases [2, 5].

2.5 Recommended areas for technological research implementations

Carrying goods by means of donkey is an economical and easy system of transporting cargo, especially over bumpy and mountainous territory. As long as the pack is correctly placed on the back of the donkey and other working equines and an appropriate loading method is used, a donkey can easily bear up to 40% of its own weight [29].

It is a requirement for a research program to incorporate farmers' needs into the implemented design. There is a critical need for the design and testing of appropriate implements for various activities motorized by donkeys. From the beginning, one extension and research target should be to identify designs and resources that can be manufactured and repaired in rural areas [13, 30]. The development and evaluation of lighter and more effortlessly handled farm-carts and equipment with less specialized buckles that are acceptable. Reasonably priced and durable the design of pack animals saddles for the use in remote areas unreachable by carts. Design of the harnesses and equipment's, that are comfortably designed and supply of suitable farm cart and wheels for use in rural areas should be given much priority [13, 19]. The socio-economic importance of donkey in the rural area is still high but it requires good management and removal of health issues by development of rural livestock and animal welfare network [31].

Table I: Population growth of donkeys in Pakistan (1956-2001)

Split Period (5-Yearly)	Base Population (Million)	Average Annual Growth Rate (%)
1956-1961	1.15	5.22
1961-1966	1.45	2.07
1966-1971	1.60	3.75
1971-1976	1.90	3.15
1976-1981	2.20	2.00
1981-1986	2.42	4.87
1986-1991	3.01	3.32
1991-1996	3.51	0.28
1996-2001	3.56	1.91
Overall (1956-2001)	-	2.95

Source: Hussain and Usmani (2006)



Fig. I: Donkey carrying fire wood at a remote village of KPK



Fig. II: Donkeys carry water carts in a village of southern district of KPK

CONCLUSION

Fewer opportunities of research and extension programs on donkeys in Khyber Pakhtoonkhwa Pakistan in the past means, that there were less existing modern arrangements and infrastructure of animal research and extension institutions which need to be modified. The opportunity therefore exists to design new completely different research and extension programs and strategies related research programs on donkey keeping, management, breeding, and health concerns.

4. Suggestions

4.1. Management and husbandry research

1. Survey of different genders and age groups of donkeys in different regions of the province.
2. Basic research into the efficiency to use draft animals for working in different areas and environments of the province.
3. Estimation of the work load of donkey's in different parts of the province as well as different regions of the country.
4. Assessment of the role of donkeys in the socio-economic policies and implementations of the farming communities in different rural and remote areas of the country.
5. The assessment about attitude of the farmers, workers and of the different areas of the country.

4.2. Research needs for donkey utilization and welfare

1. There is a need for an accessible centre. So that investigators and operators from anyplace of the country be able to come to view and attempt them out.
2. There is need to identify the agro based socio-economic, technical, environmental and agricultural factors of donkey use which facilitate the trainings of technology and on working facilities for working equines on farm research.
3. There is need to use innovative farmer's ideas to publicize facts and the significance of rural and community credit patterns and other encouragement packages on the machinery usage and training issues.

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