Draft Animal Power – Our Nation's Wealth

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Since ancient times man has always utilized animals like cattle, buffaloes, horses, elephants etc. for carrying out different types of work. India has about 70 million draft animals. (Shastry and Thomas, 2006). Cattle as well as buffalo bullocks are the backbone of the agriculture and served as a means of transport in rural areas. Camels, elephants, horses, donkeys and mules are also used as draft animals in various regions of our country.

A vast herd of about 80 million bullocks and male buffaloes together provide approximately 32,000 million watts of power and help to cultivate 90 million of farm holdings which accounts to approximately 65 percent of total cultivated area of the country. The market value of these draft animals is estimated as Rs. 34,500/- crores and replacement of animal drawn implements etc. by tractors requires an investment of Rs. 1, 60,000/- crores (Fakhruddin, 2004).

Draft power is the capacity to pull cart loads or to perform agricultural operations.

At an optimal replacement rate of 10 bullocks per tractor the herd of draft power equals to 8 million tractors which saves about 26 million tones of diesel per year (Fakhruddin, 2004). Also the DAP (Draft Animal Power) saves about 20 billion tonnes of petroleum per year.

The capacity of performing in different animals for different types of work is variable. The approximate power developed by various animals in terms of Horse Power (HP) is as follows:

ANIMAL	CAPACITY (HP)
Horses	1.0
Bullocks	0.74
Buffaloes	0.75
Mules	0.75
Cows	0.45
Donkeys	0.35

{Source: Food and Agriculture Organisation (FAO) Development Paper No 91, Rome, 1969.}

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Cattle and Buffalo as draft animals:

Bullocks are still a main source of motive power of all agricultural operations and transportation. About 80 % of the cultivators in India are dependant upon the bullocks for power, field work such as ploughing, seed distribution, weeding and other field operations.

The average draft (carrying) capacity of bullocks varies from $1/5^{th}$ to $1/6^{th}$ of their body weight and average speed of a pair of bullocks pulling a cart is around 4-5 kms per hour and can travel even up to 40 kms/day under favourable conditions (Shastry and Thomas, 2004).

In case of buffaloes, swamp buffaloes which are stocky animals are primarily used for draft purpose in paddy fields and for hauling, particularly in Punjab, Haryana and Middle Asian countries. The male Murrah buffaloes have efficient capacity especially for pulling heavily loaded carts. Though buffalo bulls are slower in movement as compared to cattle, they can pull heavier loads. They cover about 3.2 kms/hr as compared to 4.8-6.4 km/hr by draft bullocks (Taneja, 1999).

Draft power of buffalo varies with breed, species, size and body weight. The large buffalo bulls are difficult to manage but are able to pull heavy loads like iron sheets, iron equipments and instruments, hence move slowly. (Upadhyay, 1999). Buffaloes generally work for 6-8 hours continuously when employed for light work, 4-6 hours for sub maximal work and 3-4 hours for heavy work.

Another advantage of buffalo bulls is that they are strong and can work in deep muddy soil in comparison to any other animals. The usual load carrying capacity in buffaloes is 1.5-2 tonnes continuously for 2-3 hours and for 6-8 hours in a day during winter and 5-6 hours in summer (Upadhyay, 1988). However, she buffaloes can work for a period of 1-2 hours continuously without affecting their milk yield (Bhoite and Deokar, 2004), indicating that females have lesser draft ability as compared to males.

In case of cross bred cattle, the cross bred bullocks have a greater stamina and capacity to work than indigenous cattle due to heavy body weight and hefty body size of the animal. Cross bred cattle have a faster growth rate and are heavier than local bullocks; hence they can be put to work at maturity at the age of 2-3 years. The only drawback of crossbred bullocks is that they cannot tolerate excessive heat, hence cannot work from 11.00 am to 4.00 pm the hottest part of the day, especially during summer months and in tropical country like India.

Bull calves which are to be used for heavy work should be castrated at an early age of 6-9 months to increase their docility and to build a heavy musculature so that they can be employed for heavy work. It is essential to provide proper

training for developing a good temperament and ability to carry load for smooth and efficient day to day working in the field.

The working capacity of different breeds is mentioned below in a tabular form:

SN	Breed	Work	Capaciy
1	Local pair of bullock	Sowing	2 hectare/day
2	Local pair of bullock	Ploughing	¼ hectare/ day
3	Local pair of bullock	Transportation	25-32 km/day
4	Hallikar, Amrit Mahal Khillar	Sowing, Ploughing with iron plough	3-3.5 hectare/ day
5	Buffalo	Transportation/ Ploughing	45-50 km/day

Camel as draft animal:

Camel is commonly called as the "ship of the desert" as it is the most valuable beast of burden and transport in the sandy areas. Indian camels are divided into two types: Riding camel and Baggage camel depending upon the purpose for which it is used. The main advantage of using camels in the desert regions is that they can survive without water for 3- 4 months and can work in hot, humid, adverse climatic conditions of the desert.

The baggage camel is more heavily built and can carry 3-4 quintals of load over a distance of 35 km in a day with an average speed of 3-4 km/hr. Riding camels can cover a distance of 50km/day at an average of 10km/hr. Males which are not proposed/ selected for breeding purpose are generally castrated. The age of castration is 4-6 years. Training is provided to these camels and then they are initiated for regular work by six years of age. Camels can carry minimum 100 kg load and maximum up to 240 kgs depending upon the body weight and sex of the animal.

Horses, Donkeys and Mules as draft animals:

The average load which horses, mules and donkeys can carry is 60 kgs, 65 kgs and 54 kgs respectively. The average speed of all these animals is 6 km/hr.

Horses are better draft animals than oxen and are mainly used for riding. Donkeys and mules are very well known for their endurance and hard work. Donkeys and mules are generally used for transportation of goods as well as people in mountain and hilly areas, also in remote places of Himalayan ranges and at border areas of the nation. The transportation of food, water, arms and ammunition is done with the help of horses, mules (khacchars) and donkeys in places where the military resides or at battlefield.

One more important point regarding donkeys is that they are available at a very low cost and can be maintained very easily under adverse environmental conditions and in areas of non-availability of feed and fodder too (drought conditions). They can survive without water in moderate ambient temperature (26 ^{0} C) for up to 72 hours.

Proper care of the feet of all draft animals is very essential as they have to walk for a long distance with heavy loads on different types of roads (tar, muddy, kacchha roads with uneven surface etc.), hence proper shoeing, especially of cattle, buffaloes and horses, trimming of hooves and proper feet care is very essential.

Yak as draft animal:

Yak is one of the domesticated animals in the Himalayan ranges and is mainly used for transportation as pack animal and especially in Leh and Laddakh regions for transport of arms and ammunitions of the army unit. Yaks have capacious lungs and a roomy thorax. The legs are strong and sturdy with hooves having a larger surface area and smooth pads due to which they can cover long distance in the hilly areas without losing their balance. The hemoglobin % in the yak's blood is very high due to more RBC production, hence can sustain adverse climatic conditions in higher altitude areas.

According to Prevention of Cruelty to Animals Act, the owner of the draft animal should keep in mind that he should not over ride, over drive, overload and/or over burden the animals. He should not beat and kick the animal; he should not employ weak, emaciated, diseased animals having wound, sores which will cause unfit for bullock cart work. The owner willingfully and unreasonably cannot employ the injured animal which is kept in domestic or in captivity. He cannot compel or forcefully depute the draft animal for transport or conveyance. Starvation and keeping the animal thirsty, undernourished should be banned. The owner should behave in such a manner which will not give physical or mental unnecessary pain and suffering to the animals.

Thus scientific management of work animals will keep them in prime condition for longer periods. Proper care and upkeep of work animals is must, then and only best can be received from them.

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