



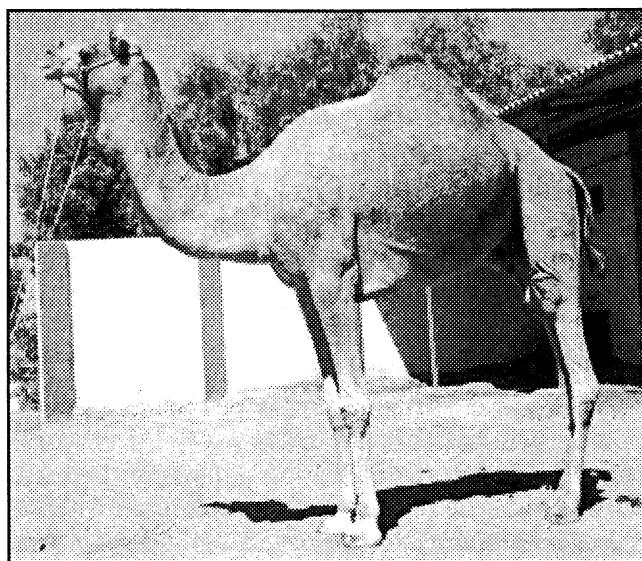
Camel: An Overview

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Camel has some unique features which make this species altogether different from other livestock species. The RBCs are nonnucleated but oval in shape. The special symptoms during breeding season are exhibited by males rather than females, which are induced ovulators. The service to a female is given in sitting posture. Males urinate in reverse direction (i.e. backwards) due to the sheath, which points backward. The bony structure is huge but the bones are weak. It can vary its normal body temperature over a considerable range. In contrast to other ruminants, camel is hornless, has no gall bladder and has got fused omasum and abomasum. The camel is also known for its potential to travel long distances and carry loads even during extreme summer or winter in desert where feed and water resources are meager.

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The single humped camel, popularly known as the *dromedary*, belongs to the family *Camelidae* in the sub order *Tylopoda* of the order *Artiodactyla*. The fossil records indicate that early evolution of the camelidae family (Camel, Lama, Alpaca, Guanaco and



Vicuna) took place entirely in North America from where they became extinct probably after the glacial period (ice age) about five million years ago. From North America one group migrated to South America (new world) and other group to Asia (old world). In the New World camel is represented by two species in the high Andes, the Vicuna (*Vicugna vicugna*) and the Guanaco (*Lama guanacoe*). The vicuna is now very rare and found in the high lands of Peru and Bolivia whereas the Guanaco has discontinuous distribution from Bolivia to Tierra del Fuego. From the Guanaco (wild) two domesticated species, Lama (*Lama glama*) and Alpaca (*Lama pacos*) have developed. In the course of evolution the Lama and Alpaca have lost their hump. In the old world there are two species, two-humped bactrian camel (*Camelus bactrianus*) which inhabits the desert of central Asia reaching up to Mongolia and Western parts of China and single-humped arabian camel (*Camelus dromedarius*) widespread throughout the middle east, India and North Africa (Rathore, 1986; Banerjee, 1998).

The population of camel is 19.286 m in the world and 1.52 m in India (FAO, 1996). In terms of population India ranks third in the world. The Indian camel population consists mainly of single humped





camel (*Camelus dromedarius*), which are found mainly in Rajasthan, Gujarat, Hariyana and adjoining states (Fig. 1). About 105 double humped camels (*Camelus bactrianus*) exists in the cold desert of Ladhak (Fig. 2). There are about eight breeds of dromedary camel in India but good number exists for Bikaneri, Jaisalmeri and Kachchhi breeds. Other breeds are Marwari, Mewati, Sindhi, Shekhawati and Sanchori.

Growth

Average birth weight of camel calf is 34.76 ± 1.24 kg. The body weight at 3, 6, 9, 12, 24, 36 and 48 months of age is 102.42 ± 4.61 , 161.74 ± 5.36 , 190.48 ± 6.32 , 219.44 ± 6.32 , 278.97 ± 6.14 , 354.49 ± 8.03 and 448.19 ± 15.44 Kg., respectively. In general, the Bikaneri camels are heavier than the Jaisalmeri and Kachchhi camel. The growth phase in camel is up to 4 years and the life span is about 25 years. The body weights in different breeds and sexes in different age groups has been presented in Table 1.

Reproduction

Camel is a seasonal breeder. The breeding season starts from November and lasts up to March. A female is mated at an age of about 4 years where as the males give successful service only after 5 years of age. Since females are induced ovulators, generally 2-3 services are required per conception. The males exhibit typical symptoms during breeding season, generally termed as "rutting season". The males become violent and they blow up their soft palate, which hangs out of their mouth at one side. They also produce typical sound during rutting season. The age at first calving is about 1765 days. The gestation length is around 13 months. Kachchhi females take relatively less gestation period than Bikaneri and Jaisalmeri females. The research information on gestation length and calving interval along with the means for different breeds is presented

At the centre the conception rate and calving has been observed to be about 64% and 74% respectively. The research information belonging to the last three years (2000-2002) has been presented in Table 3.

Production & Utility

The Bikaneri breed is known for its potential to carry loads where as the Jaisalmeri breed is known for long distance traveling and race. The Kachchhi breed has good milk production potential. The hair

production is maximum in Bikaneri breed (933.85 ± 17.99 gm) followed by Jaisalmeri (733.43 ± 17.84 gm) and Kachchhi (623.22 ± 25.97 gm) (Bhakat *et al.*, 2002). Camel hair is being utilised by villagers in making their daily use items such as floor covering, ropes, blankets etc. Research has indicated that apart from nutritional values the camel milk has some medicinal values especially in the treatment of tuberculosis and diabetes (Annual Report, 2000-2001 and 2001-2002). Camel hide and bones are being used for making decorative show-pieces.

Housing and Nutrition

Camels in Rajasthan are kept in two different conditions. First consists of camels that are either used for draught or safari and second consists of full sized camel herds. Under first type the camels are stall fed and they are kept in open corner of the house or near the house. This open area invariably has some trees to offer natural shelter. Under second type the camels are kept near a water source in the jungle (Fig. 4). They leave in open conditions only. The camel keepers also leave along with the camel herds in temporary houses) They return to their houses in exchange of some other member of their family. The major communities involved in rearing of camel are Rajput, Muslim, Meghwal, Jat and Raika. The chief fodder available to camel in the desert area includes Sewan (*Lasiurus indicus*), Jal (*Salvadora oleiodes*) and Phog (*Calligonum poligonoides*), where as Guar chara (*Cyamposis tetragonoloba*), Groundnut chara (*Arachis hypogea*) and Mothchara (*Phaseolus aconitifolius*) are generally offered to stall- fed camels.

Diseases

In the field, mange is a major health problem followed by digestive disorders, which included tympany, constipation, abdominal pain, diarrhoea and gastrointestinal obstruction. Trypanosomiasis is also a problem. Other health problems included wound & abrasions, saddle gall, cataract, kumari (weakness in legs), pneumonia, mastitis, lameness, pica, ectoparasite-other than mange, tumour and poisoning. Most of the camel keepers (70.06%) first go for local treatment followed by allopathic treatment (21.33%) and herbal treatment (8.59%). The choice of line of treatment depends on the nature and severity of the disease and economic status of the farmer (Project Report, NATP-

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