Mongolian camels

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Summary

In the world there are about 19.1 million head of camels, including 0.8 million of bacterian; about 30% of this last one bred are in Mongolia. In 1954, there were 895.3 thousand head of bacterian in the country but last years the number of camels decreased by 3 times, as result of increased production for camel meat and losses of them after livestock privatization. Nowadays, Mongolian two humped camels are endangered species.

Key words: characteristics, Mongolia breeds, Galbiin Goviin ulaan, Khaniiin khetsiin khuren, Tokhom-tungalag, behaviour, semen collection, semen evaluation, parturition.

Biological characteristics

The two native humped camels have excellent potential as they are used for draught power, transport, wool production, and meat. The high resistance of the camel to the hot desert climate in summer is due to the economic use of reservoir water. Camel reduces the frequency of respiration and they are not subjected to sweating through the nose cavity; paunch of camel also favour the economic use of water. Camel can survive without food and water for 3 to 4 days.

The Mongolian camels have the following morphologic characteristics: elongated roundish muzzle, large forehead, hare lip, short ears, well developed muscles, mobile body, long ribs, short tail and strait legs.

Body weight is in progress up to 7 years old. Most intensive development of the younger animals happens during the first 3.5-4 years and depends on the natural and climatic factors.

The Mongolian bacterian puts on weight from May to October and the average daily gain ranges from 338 to 475 g. Adult castrated male weighs 424-600 kg. Killing-out percentage is 54.6-60.3, including 30-60 kg fat. Mongolian camels are well adapted to severe continental climate of Gobi area and they have a high ecologic and physiological plasticity to resist to the extreme conditions: hot summer and cold winter during which they loose 20-25% of their body weight.

Colour of Mongolian breed of camel is mainly brown, light-brown. About 80% of camels have brown coat. Camels with white and light-bay coat are found rare. Wool yield in adult she-camel and castrated male is 5.2

Figure 1. Distribution of camels in Mongolia.

kg/year, while wool production in bull-camel averages 8.1 kg, bat can reach 16-18 kg. The fibre diameter and lengths for under coat from she-camel are reported to be 20.8 micron and 81.2-98.4 mm respectively, for outer coat-22.69 micron and 73.4-140.4 mm. The diameter of wool in camels becomes coarser according to their age. Clean yield of wool varies up to 84.3-94.2%.

The Mongolians have tradition that use camel milk as curative. In the Gobi desert, lactation period of she-camel is 528 days /17.6 month/. She-camels are dried up after 5 months from conception. Average milk yield during lactation period is reported to be more than 300 litres (174-576 litres) The camel milk contains 14.56% dry matter, 5.65% fat, 3.17% lactose, 3.81% protein 0.67% ash. The milk of she-camel is rich in amino-acids, P, Ca and vitamin C. Killing-out percentage of adult camel is 54.5-60.3%. Weight at slaughter ranges from 209 to 301 kg. Fat weight in the humps is reported to be around 13.4-43.4 kg. On average, camel meat of castrated male contains 60.2% moisture, 21.1% fat, 17.8% protein and 0.9% ashes. Weight of a warm hide is 27.2 kg. Castrated camels are able to transport 200-240 kg of load and travel at 30-40 km per day.

Reproduction biology of Mongolian camel is particular interest. Mating season begins at the beginning of the winter season. Behaviour of the male camel is getting aggressive. Female pregnancy period is 387-415 days long.

Optimal structure of camel's herd is considered to be as follows: she-camels - 35-38 %, the males - 2 %, the young animals - 30-38 % and castrated - 25-27%.

Breeds of Mongolian camels

There are a number of outstanding local breeds of camel such as Galbiin Goviin ulaan, Khaniiin khetsiin khuren and double maned Tokhom-tungalag. These breeds are widely used for the genetic improvement of native Mongolian camels.

Figure 2. Galbiin goviin ulaan.

Galbiin goviin ulaan

The tables 1 and 2 report the main physical characteristics of the Galbiin Goviin ulaan, while figure 2 shows an adult Galbiin goviin ulaan .

Table 1. Body measurement of Galbiin goviin ulaan.

Sex	Height, cm	Length, cm	Girth, cm
Adult castrated male	174.5	150.9	233.1
Adult she-camel	167.3	139.8	213.0

Table 2. Live weight and wool characteristics of Galbiin goviin ulaan.

Sex	Live weight, kg		Wool yield, kg
	Spring	Autumn	
Adult castrated male	569.4	667.5	6.4
Adult she-camel	413.2	523.1	5.3

Khaniin khetsiin khuren

This breed is characterised by a lighter weight compared to the other camel breeds. It is found in Khanbogd and Bayan-ovoo soums of Omnogobi province. About 60% of breed have red brown color. Tables 3 and 4 summarise the physical characteristics of the Khaniin khetsiin khuren. Figure 3 shows an adult Khaniin khetsiin khuren.

Table 3. Body measurement of Khaniin khetsiin khuren.

Sex	Height, cm	Length, cm	Girth, cm
Adult castrated male	171.9	151.0	230.3
Adult she-camel	164.7	138.1	208.2

Table 4. Live weight and wool characteristics of Khaniin khetsiin khuren.

Sex	Live weight, kg		Wool yield, kg
	Spring	Autumn	
Adult castrated male	549.7	622.6	7.2
Adult she-camel	378.1	465.4	6.0

Figure 3. Khaniin khetsiin khuren.

Double maned Tokhom-Tungalag

It is found in Togrog soum of Gobi-Altai province. Main pecularity of the breed is the double mane. There are three types in the breed: A (woolly); B (heavuer in live weight); and C (standard).
Tables 5 and 6 summarise the physical characteristics of the double maned Tokhom-Tungalag. Figure 4 shows an adult double maned Tokhom-Tungalag.

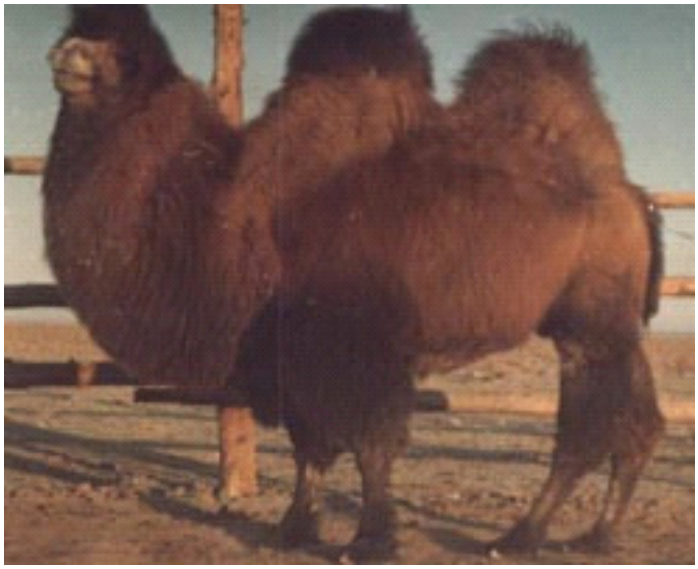

Figure 4. Double maned Tokhom-Tungalag.

Table 6. Body measurement of double maned Tokhom-Tungalag.

Sex	Height, cm	Length, cm	Girth, cm
Adult castrated male	173.8	147.5	239.0
Adult she-camel	167.1	139.5	226.3

Table 7. Live weight and wool characteristics of double maned Tokhom-Tungalag.

Sex	Live weight, kg		Wool yield, kg
	Spring	Autumn	
Adult castrated male	540.0	600.0	7.6
Adult she-camel	372.1	440.5	5.9

The sexual behaviour of Mongolian wild and Indian bull camelids

A humped bull camel was tame and calm in non-breeding season. The reproductive behaviour of a one/two-humped bull camelids (*Camelus bactrainus, Camelus ferus* and *Camelus dromedarus*) becomes more aggressive during the rutting season. The mating behaviour of bull camelids is preparative to sexual activity during the rutting season. The preparative (*zengerleh*) stage before sexual activity (occurring between non-breeding and breeding season) is different from that of other ruminant male animals.

Approaching the time of the sexual activity, the behaviour of humped bull camelids modifies: saliva forms a foam at the mouth blowing, teethes produce acute sounds, emitting a gurgling or blubbering vocalisation, flipp urine up over the back, accumulation of dirt in the urine soaked hair fibres a crush on the back of hump, snuff secreting of poll glands of the typical symptom. The intensity symptom of mating behaviour of wild bull is more evident than that of both domestic Mongolian and dromedary bulls.
The dulaa protrudes and two parts of secreting of poll glands of the dromedary bull has to contrast symptom with domestic and wild bactrian bulls. The poll gland of the bull camels is more developed than in castrated male camel.

Semen collection, evaluation of Mongolian bull camel in breeding season

Attempts for semen collection in Mongolian and dromedary bull camels produces a refusal to ejaculate or an incomplete ejaculation in the artificial vagina. Sometimes at the collection of semen it is possible to recover aspermic bulbourethral, dead spermatozoa and dust contamination.
Typical camel semen is sparkling white, milk colour with partially released from liquefacting coagulum. The semen volume of wild bull camel is higher that that of both Mongolian and dromedary bulls. The spermatozoa concentration of domestic Mongolian bull is higher than that of both dromedary and wild camels.
Some characteristics of the semen are the following: mean volume 5.78±1.96 ml, sperm mobility 0.6, medium density, pH=7.5, sperm concentration is 706.34 h 10^6/bl. The total and the head length of the spermatozoa is 42^36±1^09µ and 6^62±1^32µ. Dilution with an extender (sacrose/lactose+egg yolk+glycerol) is feasible and diluted semen shows a reasonable mobility allowing a deep freezing.
The sperm mobility in raw semen is similar in both Mongolian and dromedary bull camels.
The morphology of the spermatozoa of Mongolian bull camel is determined to be 89.86% normal and the remain 10.14% are abnormalities in rutting season. The most preminent abnormalities are non-headed or non-tailed spermatozoa , a sharp demarcation of head, bending or curling of tail.
A study carried out to determine the acrosomial status of spermatozoa in fresh condition revealed that acrosome integrity was 69.2-74.0% in intact healthy spermatozoa. The remaining 26.0-30.8% of all intact acrosomes were loosen or detached, swollen and lost acrosome with spermatozoa.

Histological studies of the skin of the gland

The three layers of the skin of gland are epidermis, dermis and hypodermis. The structure of the skin glands were similar to that of other portion's of body. The simple coiled tubular sweat glands are associated and deeply embedded in the dermis with primary hair follicles. The secondary hair follicles are not associated with sweat glands. The sweat

glands of the bull camel are more developed than those of the females and of the castrated male camels. During the breeding season the sweat gland of the bull camel excretes a coffee-colored and acrid smelling fluid.

Parturiton of Mongolian female camel

The behavior of female camel before parturition changes from calmness and quietness to unstable. The female camel begin to reduce the grazing time, look into distance and emitting a specific sound and secluding just before parturition The vulva swells up, the udder and teats increases in size. The female camel is unease and tends to seek solitude by wandering out from the herd. She laid down and get up quickly sometimes, she urinates many times small amount of urine, she whinnies many times.