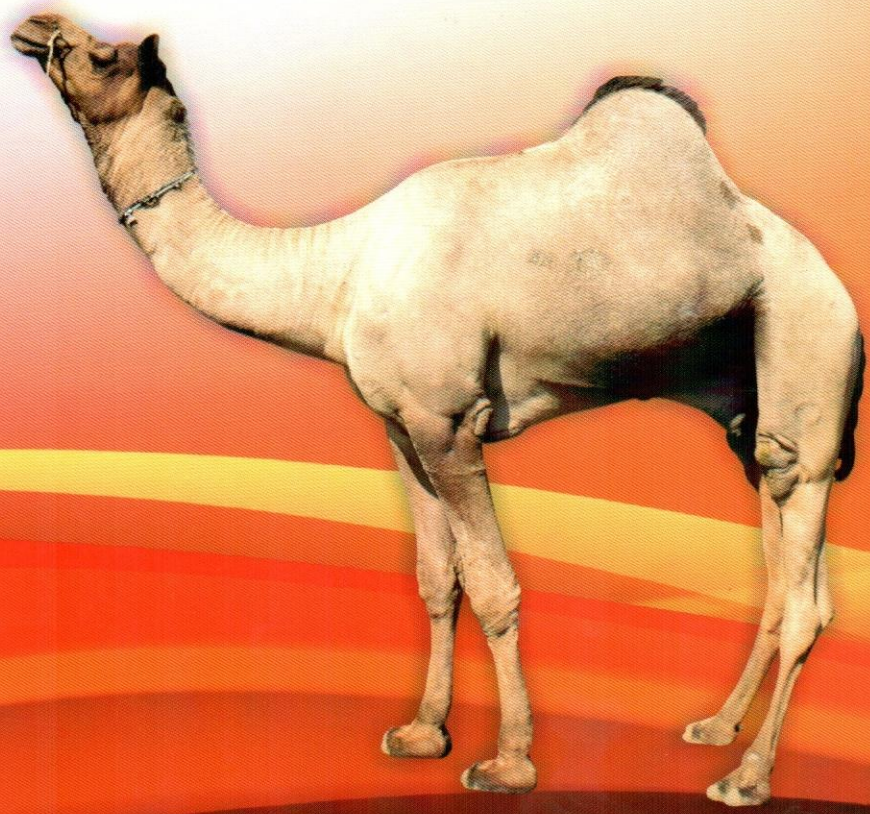
CAMEL GENETIC RESOURCES OF INDIA

JALORI CAMEL

S C Mehta, S S Dahiya, Rekha Sharma, M S Tantia & Arjava Sharma



NETWORK PROJECT ON AnGR
CHARACTERISATION OF MEWARI AND JALORI CAMEL

ICAR- NATIONAL RESEARCH CENTRE ON CAMEL
Post Box-07, Bikaner-334001 (Rajasthan), India

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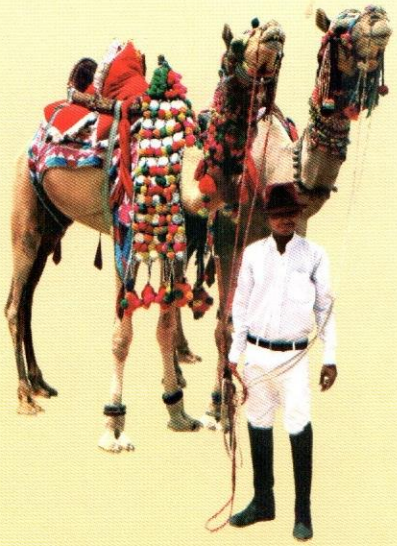

Assisted By : Pankaj Kumar Singh

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PREFACE

Camel, an iconic animal to symbolize the state of Rajasthan, is now the State Animal of Rajasthan. It has a very glorious history and by virtue of several adaptive features, it has served the mankind for centuries under harsh climatic conditions. Though, the traditional use of camel for travelling long distances has gone down but its use in riding and safari has increased significantly in recent past. However, the use of camel in transportation of goods, in the religious and ceremonial processions and by the border security force of the country is still continuing and contributing to its sustenance in this digital era.

The population of the camel has gone down mainly because of change in life style and mindset of the people. The camels do not compete with other livestock species in grazing because of the height at which they graze, also vast unutilized land is still available in this country, unemployment is a big problem, nutritional status of the human population needs to be increased, per-capita milk availability needs to be tripled to achieve the figures of developed countries. The camel husbandry has contributed and can further contribute in supporting the country on above issues but the time has come to organize the sector and modernise it.

The Jalori, Sanchori and Sirohi camels were covered for the first time for characterisation and documentation. The glorious camel march and programmes by the border security force during Jalore festival is worth seeing. The use of camel in religious processions and camel dance on other ceremonial occasions is very common in this area. The sale of camel milk for human consumption has also been observed in the tract but the market links are relatively weak as compared to the one established in the Mewari tract. However, the milk production potential can act as boon for its sustenance under changing scenario.

The policies, planning's and road-maps for improvement and conservation of any breed or species, even though prepared with enough technical competence, will not be successful unless it reaches the masses, the end users, the animal owners. A continuous live connection and interaction needs to established and maintained for a long period. Inspired by the "Mann Ki Baat" programme of Honourable Prime

Minister, "Talks of Camel : A Mission for Conservation of Camel" was conceptualized and executed with great success by starting a Radio programme "Untan Ri Bataan" and synchronizing it with the latest information technology tools to reach every corner of the society in this project. The kind of connect and faith that was established with the camel farmers and other stakeholders during the programme was overwhelming.

The success of any programme depends on the concept and the team. The support received by me, Co-PI Dr.S.S. Dahiya, Scientist (SS) and Supervisors Sh. Pankaj Singh, Rajendra Kumar, Ashish Kumar, Kalpesh Awasthi, Arjun Kumar and Jitendra Singh in execution of the project from committed officers of Animal Husbandry Department viz. Dr. Laxman Lal Rathore, Additional Director; Dr.Dinesh Mathur and Dr.B.L.Dashora, Joint Directors; Dr. Abdul Karim, Dr.Bhupendra Bhardwaj, Dr.Rakesh Pokharna, Deputy Directors; Dr. C.P. Sethi, Dr. Surendra Chhangani, Dr. Chandrashekhar Bhatnagar, Dr.Sharad Arora, Senior Veterinary Officers; and the camel owners is highly acknowledged. The All India Radio Team of "Untan Ri Bataan" programme and all experts who delivered the talks deserve hearty appreciation.

The contribution of Professors of Rajasthan University of Veterinary and Animal Sciences, Bikaner Dr. R. K. Tanwar, Dr. A. K. Kataria and Dr. T. K. Gahlot for the technical support they have extended to me in solving the clinical problems and the honourable Vice Chancellor Prof. (Col.) Dr. A.K.Gahlot for moral support is highly solicited.

Sincere thanks are due to the higher authorities of Indian Council of Agricultural Research, New Delhi for sanctioning the project and to Dr. M.S.Tantia, Principal Scientist & In-charge and Dr.Arjava Sharma, Project Coordinator & Director, ICAR- National Bureau of Animal Genetic Resources, Karnal for the kind of support they have extended in execution of the project. The Director, Scientists and all officers and staff members of ICAR-National Research Centre on Camel, Bikaner who have extended their whole hearted support in successful execution of the project, is duly acknowledged.

S. C. Mehta
Principal Scientist & Principal Investigator
Network Project on AnGR
Characterisation of Mewari and Jalori Camel

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JALORI CAMEL

INTRODUCTION

The evolution of camelids took place around 45 million years ago in North America. The earliest camelids was the rabbit-sized Protylopus. Around 35 million years ago, camelids such as Poebrotherium were about the size of a present day goat. The family diversified and prospered but remained confined to the North American continent until only about 2 or 3 million years ago, when representatives arrived in Asia, and South America.

Camelids across the world are reared for milk, meat, draught, race and tourism. They are distributed in the South American, African, Arabian and Asian countries. Apart from this a feral population exists in Australia and recent reports indicate that a few animals of the species are also being reared in Europe. Camel (*Camelus dromedarius*) is the predominant species of the camelids. The world has 27.73 m camels spread across 48 countries. Of the 48 camel rearing countries, 29 produces milk to the tune of 2.9 m tonnes per annum and 36 produces 0.53 m tonnes of meat per annum. Looking at the country wise statistics 27 countries produce both milk and meat and 10 countries produce only meat. Ukraine and Qatar produces only milk. Nine countries, including India, have neither been listed as milk nor meat producing countries. There are about 83 populations of the dromedary camel in the world spread mainly across African and Asian countries. There are about 3.04 m Alpacas in world with Huacaya and Suri as the two main populations and 3.24 m Llamas with Chaku and Kara as the two main populations. The Guanaco population in the world is about 0.5 m and that of Vicuna is 0.35 m. The wild Bactrian camels are around a thousand but the domesticated Bactrian camels are about 0.6 m.

The camelids occupy most difficult lands on the earth and hence they have developed several unique adaptive features for sustenance. Some of the important features are:-

1. They have a three-chambered rather than a four-chambered digestive tract.
2. The upper lip splits in two, with each part separately mobile.
3. The red blood cells are elliptical in shape.
4. They also have a unique type of antibodies lacking the light chain, in addition to the normal antibodies found in other mammals. These so-called heavy-chain antibodies are being used to develop single-domain antibodies with potential pharmaceutical applications.
5. Tylopoda means "padded foot". They do not have hooves.
6. The two Afro-Asian camel species have developed extensive adaptations to their life in harsh, near-waterless environments.
7. Wild populations of the bactrian camel are even able to drink brackish water.

The dromedary camel or Arabian camel (*Camelus dromedarius*) is a large, even-toed ungulate with one hump on its back. Dromedaries use a wide set of vocalizations to communicate with each other. They have various adaptations to help them exist in their desert habitat. Dromedaries have long eyelashes and the unique ability of closing their nostrils to face sandstorms. They can fiuctuate their body temperature to avoid excess perspiration and have specialized kidneys, which make them able to tolerate even more than 30% water loss. The unique Red Blood Cells (Erythrocytes) of camel (*Camelus dromedarius*) are non-nucleated but oval in shape. The camels are so adapted to the hot and arid climate that it can go days without drinking water, surviving extreme dehydration and safely losing 40% of its body weight. The oval Red Blood Cells (carrying oxygen) cross over the smallest blood vessels, even when blood thickens during severe dehydration. Further, the camel's Red Blood Cells are capable of expanding up to 240% of their original volume without rupturing, whereas most animals' cells can expand only up to150%. This makes it possible for the camel to drink the necessarily large amount of water to recover from dehydration. The dromedaries are beneficial as beasts of burden, and their docility and toughness are additional advantages. The hair is an excellent source material for woven goods.

Globally there are 83 population of dromedary camel of which nine populations have been listed for the country. They are Bikaneri, Jaisalmeri, Sindhi, Kutchi, Marwari, Mewari, Malvi, Mewati and Shekhawati. But, since the

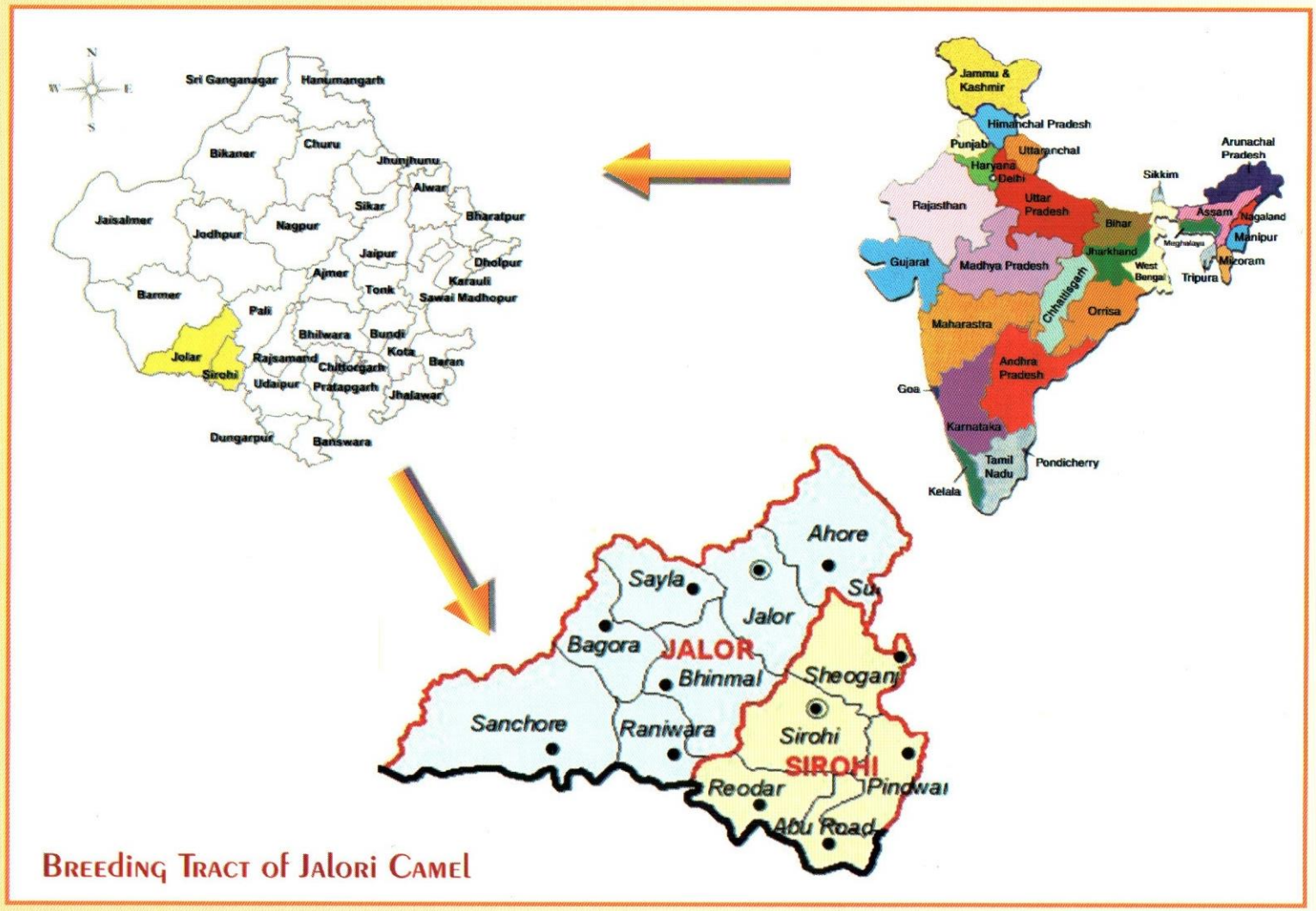
population of camel in India has gone down from its ever highest of 1.10 million in 1977 to 0.4 million in the year 2012, several of the camel rearing tracts now possess very few animals without any breeding group. The dwindling camel population in the country is a matter of major concern for the conservation biologist, policy makers and the state governments. Still, the efforts of the Indian Council of Agricultural Research –National Bureau of Animal Genetic Resources, Karnal has helped the scientists to reach to those areas which were not covered earlier but still maintaining sizable population of the camel.

ORIGIN OF JALORI CAMEL

The natural habitat of Arabian camel (*Camelus dromedarius*) is the desert areas of the World spread across Africa, Middle East and Asia. The Jalori camel derives its name from the place of rearing, i.e. Jalore, since long. Geographically the Jalore district of Rajasthan is bounded by Barmer district in the North-west, Pali district in northeast, Jodhpur district in extreme north, Sirohi district in southeast and Banaskantha district of Gujarat in southwest. The three districts surrounding Jalore, i.e. Barmer, Jodhpur and Pali, constitutes a major portion of the *Thar* Desert in the country. Thus spreading of camel from the *Thar* Desert to the Jalore and Sirohi appears natural extension to cater the human needs of baggage and transport in the region. The Sirohi district is bounded by the Jalore, Pali and Udaipur districts but the frequent movement of the man and animals from Sirohi had been more towards Pali and Jalore rather than toward the Udaipur region probably because of the big patch of hills between the two places. The Jalore region is generally plain but has scattered hills, rocks and at some places it is dotted with sand dunes & ridges. Thus, geographically the hard land of Jalore and Sirohi districts has *Thar* desert in north, hills in the southeast and *Rann of Kachchh* in the southwest direction. Thus due to adaptation and interbreeding, probably the Jalori camel has originated. The Jalori camels are reared mainly by the *Dewasi* community.

GEOGRAPHICAL DISTRIBUTION AND BREEDING TRACT

The geographical distribution of the breed encompasses chiefly the Jalore and Sirohi districts of Rajasthan. Luni is the major river of the area. Its tributaries are Jawai, Khari, Sukri, Bandi, and Sagi. The Jawai dam, situated in the Pali district



Breeding Tract of Jalori Camel

is the nearest sizable water body. The breeding tract extends in east from 72°58' to 71°3' longitude and in north from 24°22' to 25°22' latitude with fair vegetation and average annual rainfall ranging from 40 to 58 cm. Average elevation of the breeding tract from main sea level ranges from about 268 meters to 321 meters. The breeding tract of Jalori camel in northwest is closely placed with the breeding tract of Jaisalmeri camel and in the northeast with the breeding tract of Marwari camel. The *Rann of Kachchh*, which is known for the Kachchhi breed of camel is attached with the breeding tract in the southwest. The town Sanchore is like a junction point between the Rajasthan and Gujarat in the extreme western part of the country.

Extent of Survey

Characterisation is an integral part of the conservation because only after proper characterisation the availability of breeding males, females and the population of a breed can be estimated. Hence, in order to have the true picture of the breed, the entire breeding tract was covered. The survey work was carried out in 75 villages of 8 tehsils belonging to 2 districts of the breeding tract (Table 1).

Table 1: Extent of survey for characterisation of Jalori camel

S.No.	District	Tehsil	No. of Villages
1.	Jalore	Ahore	12
		Jalore	12
		Sayala	2
		Sanchore	10
		Raniwara	7
		Bhinmal	11
2	Sirohi	Sirohi	3
		Pindwara	18
Total	**2**	**8**	**75**

STATUS OF JALORI CAMEL

The status of a particular breed with respect to its age-wise and sex-wise distribution in different zones of the breeding tract is very important. As per the

Livestock Census 2012 (GoI), the total population of the Camel in the entire breeding tract is 9235, out of which about 35% population belonging to 188 households was covered in the present survey. The morphometric traits were recorded for 1209 camels. Individual camel was judged for the breed characteristics and it was observed that in the Jalore district, Jalori camels were 86.08 % and in Sirohi district, the Jalori camels were 85.03 %. The majority of the crossbreds were showing the features of Bikaneri breed which is preferred because of better look and physic. The overall population of Jalori camels in the breeding tract was estimated to be 7906 heads.

In the present survey the ratio of breedable males to females was 1:18. The ratio is alarming and indicates the danger of loss of genetic variation in the future generations. The age-wise and sex-wise population of Jalori camels covered under the survey and status of the Jalori camels in the two districts and the breeding tract as whole is presented in Table 2 & 3 below.

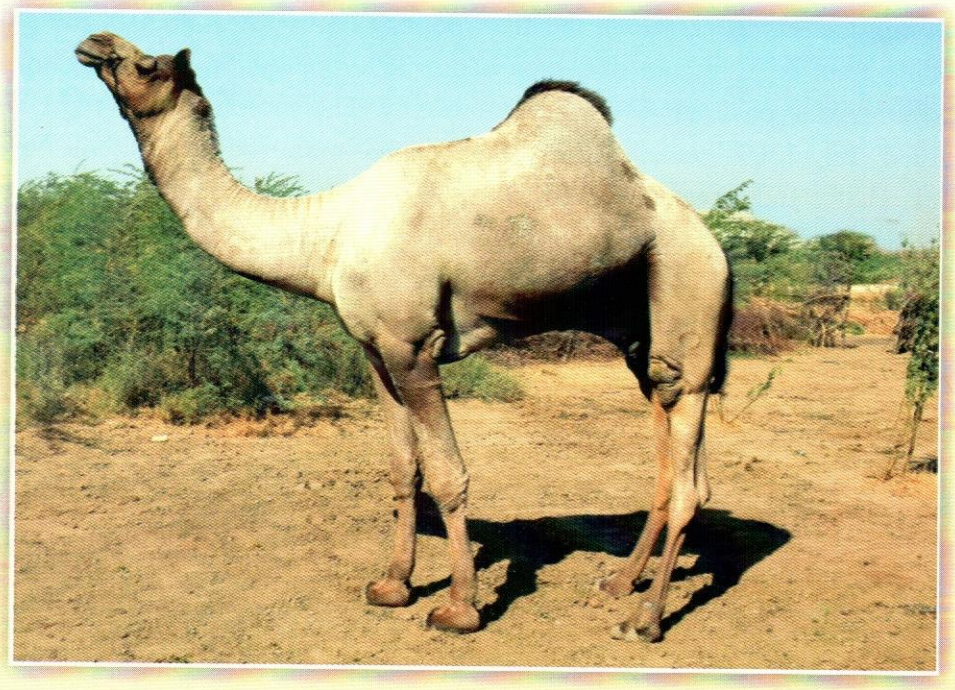
Table 2 : Age-wise and sex-wise population of Jalori camels covered under the survey

Sex	Age Group-wise Number of Camels Covered			
	≤1 Year	1-4 Years	>4 Years	Total
Male	336	293	88	717
Female	429	485	1556	2470
Total	765	778	1644	3187

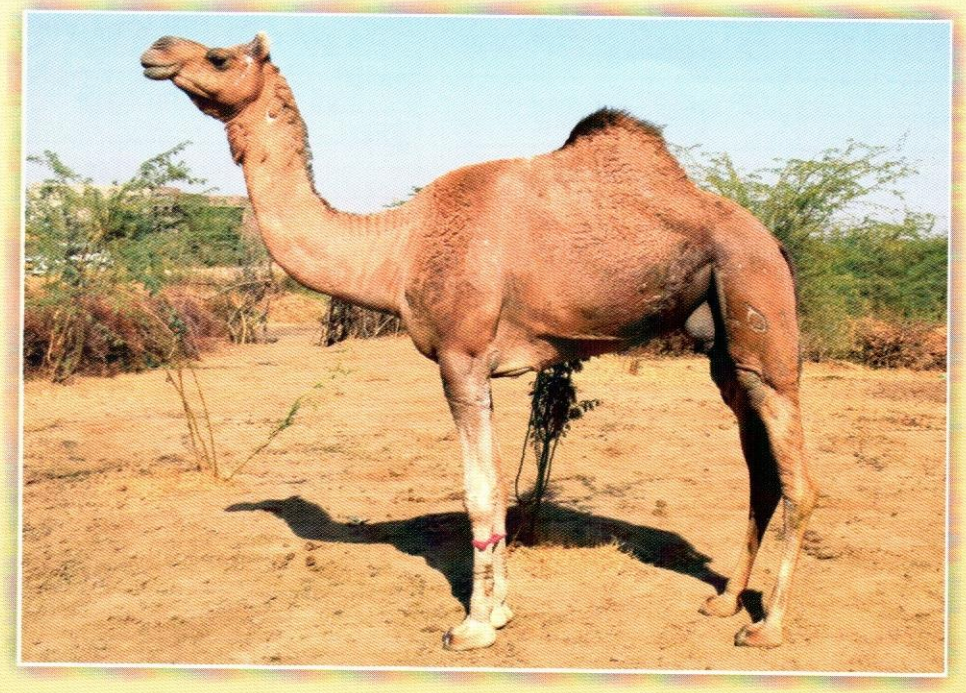
Table 3: Status of Jalori Camel in the breeding tract

District	Camel Population*	Population Covered	Jalori Camels				Jalori (%)	Estimated Population of Jalori Camel
			≤1 year	1-4 Years	Adults	Total		
Jalore	5114	1954	416	410	856	1682	86.08	4402
Sirohi	4121	1770	349	368	788	1505	85.03	3504
Total	**9235**	**3724**	**765**	**778**	**1644**	**3187**	**85.58**	**7906**

* Livestock Census 2012



ADULT JALORI MALE



ADULT JALORI FEMALE

BREED CHARACTERISTICS

Body Colour

The physical appearance of any animal is chiefly defined by the body colour followed by stature and other phenotypic characteristics. The predominant colour of Jalori camels is brown. However, it varies from light brown to dark brown. When the calves are born, the body colour is generally lighter in shade and the hairs are curly. The body colour gets darker and the curls, they open with increase in age.

Head Profile

In camel, the distinguishing features of head are more pronounced and used for distinguishing the breeds more often than colour. The head in Jalori camel is medium in size and is well carried on a thin neck. The eyes are prominent. Unlike the Bikaneri camel, in Jalori camel, the forehead is not dome shaped and has no *"Stop"*, which is a name given to a depression on the frontal bone at the upper edge meeting the parietal bone. The supraorbital foramen, which is in the form of a deep fissure at the rostromedial margin of the orbit, is normal in depth as compared to the Bikaneri camel, where it is deep. The muzzle is narrow and mostly pointed in camels of Jalore district but rounded in the camels of Sirohi district. Ears are up-right and set well apart. The typical adaptive feature of desert camel, the *"Jheepra"* character i.e. the luxuriant growth of hairs on eye lashes, ears and around the neck, which is often observed in Bikaneri camel is absent in Jalori camel. The lower lip is not droopy as seen in Kachchhi camel.

Body and Stature

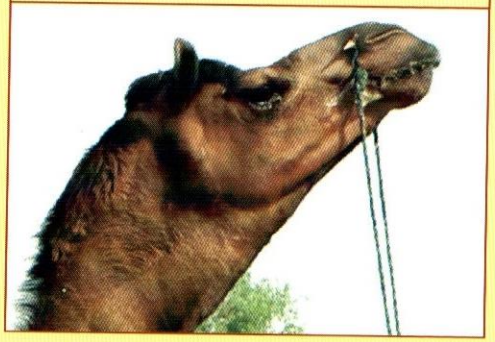
It is a medium sized breed of camel. The Jalori camels are of active temperament and their body is well built. The neck and legs are train. The body hairs are coarse in quality and medium in length. The chest pad is well Developed.

Udder Characteristics

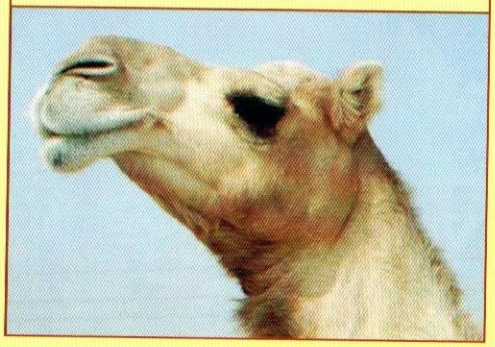
The milk vein is small to medium in size. The udder is mostly round in shape. There are four quarters and each quarter has a small cone shaped teat with

Defining Phenotype in Camel

STOP (Depression) - Present



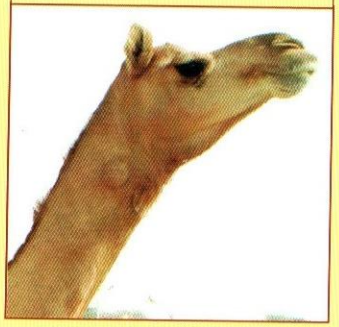
STOP (Depression) - Absent



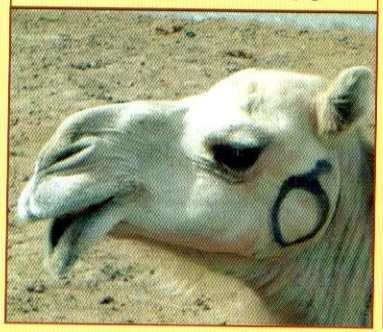
Jheepra (Luxuriant Growth of Hairs)

Present

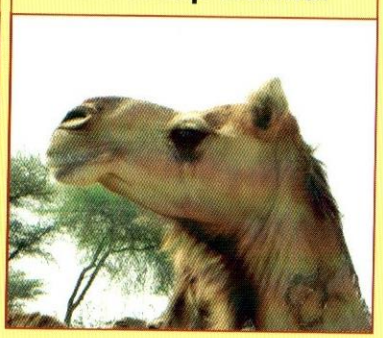
Absent



Lower Lip-Droopy



Lower Lip-Normal



two canals in it. The Jalori breed is a multipurpose breed of camel and the animals of this breed are being utilised for milk production, tourism, riding and safari.

Morphometric Characteristics

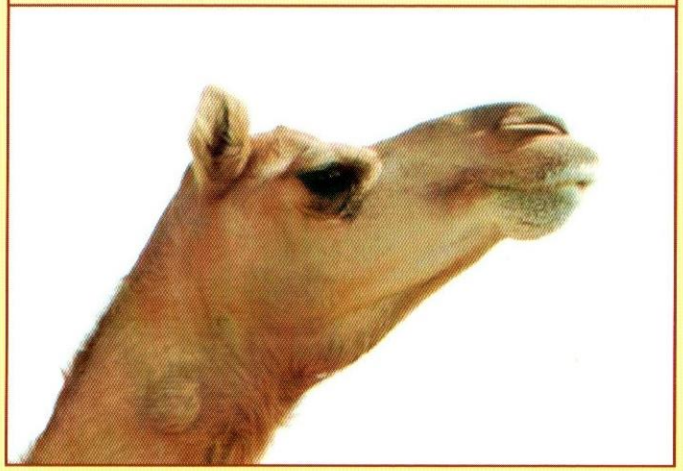
The camels of four year and above age are considered adult as the females as well as the males they attain puberty at this age and the permanent incisors start erupting. However, the camels continue to gain weight significantly over previous year till eight years of age, which is generally noticed by the presence of prominent canines in the month. Looking at the length of growth phase, the morphometric traits have been presented separately for the calves of up to one year age, followed by adolescent camels of 1 to 4 years of age and then for adult male and female camels of above four years of age (Table 4-7).

Table 4 : Morphometric measurements (cm) of ≤ 1year Jalori camels (N = 262)

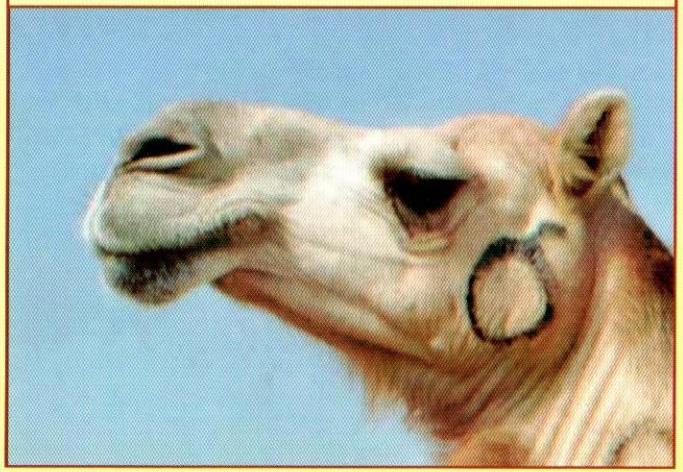
S.No.	Character	Mean ± S E	Minimum	Maximum	CV%
1	Heart girth	150.55 ± 1.34	86	189	14.39
2	Body length	102.23 ± 1.11	54	152	15.84
3	Height at wither	151.57 ± 1.03	78	182	11.05
4	Tail length	40.56 ± 0.33	24	54	13.32
5	Neck length	77.13 ± 0.64	40	102	13.45
6	Face length	32.04 ± 0.34	16	43	17.05
7	Distance between eyes	16.95 ± 0.15	8	25	14.42
8	Ear length	8.41 ± 0.10	5	19	19.49
9	Fore leg length	124.23 ± 0.86	90	152	11.17
10	Hind leg length	133.61 ± 0.93	96	162	11.28
11	Foot pad (L/W)				
	I. Fore Leg (Length)	12.72 ± 0.12	8	23	15.88
	(Width)	13.66 ± 0.12	9	20	13.86
	ii. Hind Leg (Length)	11.10 ± 0.11	5	17	15.91
	(Width)	12.09 ± 0.11	6	18	14.64

Defining Phenotype in Camel

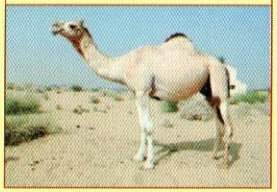
Muzzle-Pointed



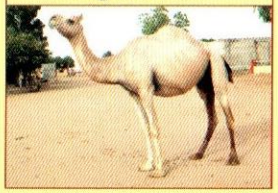
Muzzle-Normal



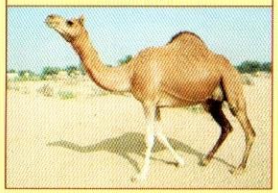
Off-white



Light Brown



Brown



Dark Brown

Dark Brown to Black

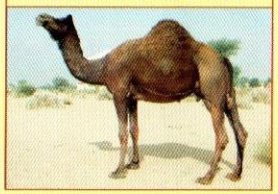
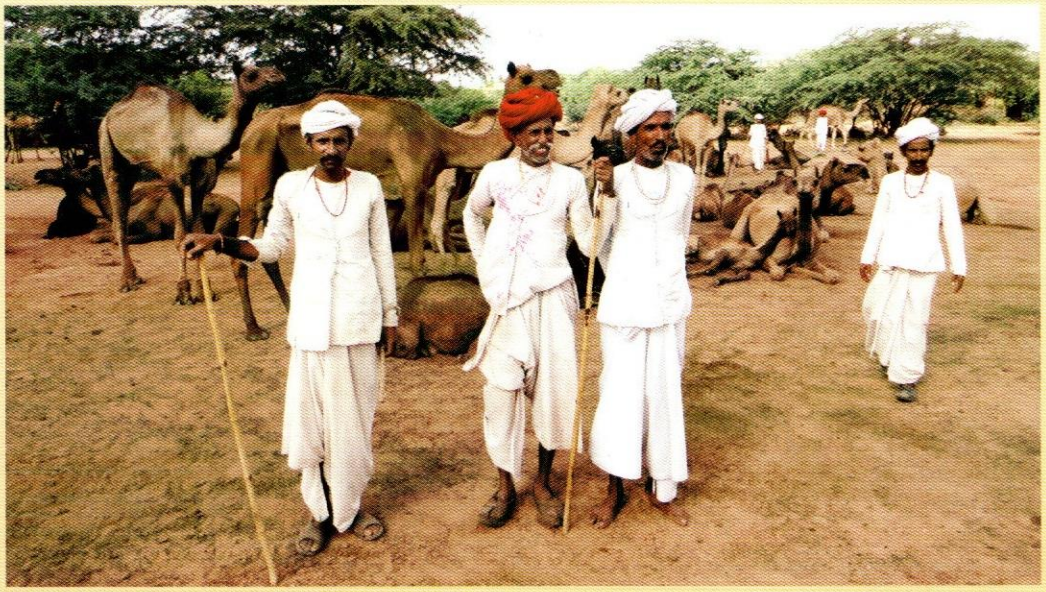
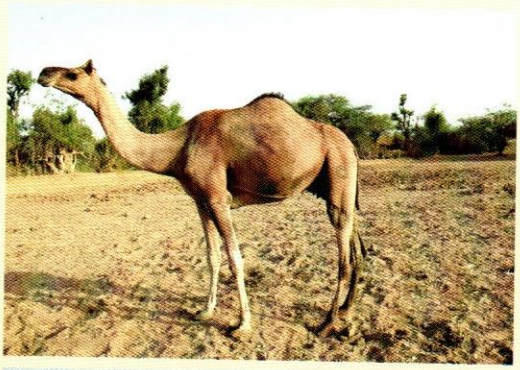


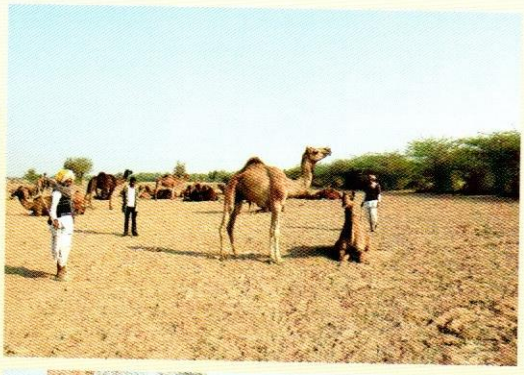
Table 5 : Morphometric measurements (cm) of 1 to 4 year Jalori camels (N = 319)

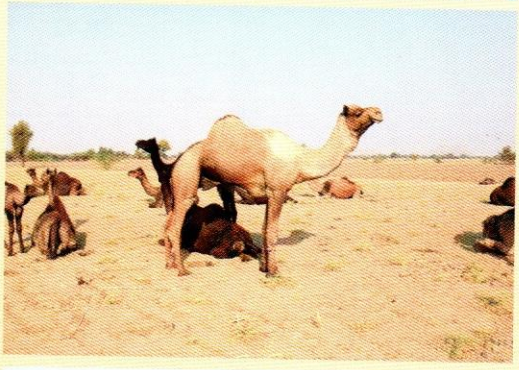
S.No.	Character	Mean ± S E	Minimum	Maximum	CV%
1	Heart girth	184.46 ± 1.20	104	224	11.63
2	Body length	139.00 ± 0.94	82	169	12.13
3	Height at wither	183.03 ± 0.88	110	210	8.58
4	Tail length	49.37 ± 0.32	26	65	11.67
5	Neck length	93.24 ± 0.59	62	112	11.40
6	Face length	42.28 ± 0.24	29	53	10.16
7	Distance between eyes	19.87± 0.12	15	25	10.42
8	Ear length	9.18 ± 0.07	6	12	13.54
9	Fore leg length	139.84 ± 0.62	96	162	7.86
10	Hind leg length	150.59 ± 0.66	106	178	7.87
11	Foot pad (L/W)				
	I. Fore Leg (Length)	16.78 ± 0.11	10	22	11.76
	(Width)	17.79 ± 0.11	11	23	11.04
	ii. Hind Leg (Length)	15.14 ± 0.11	8	20	13.49
	(Width)	16.15 ± 0.12	9	21	12.84

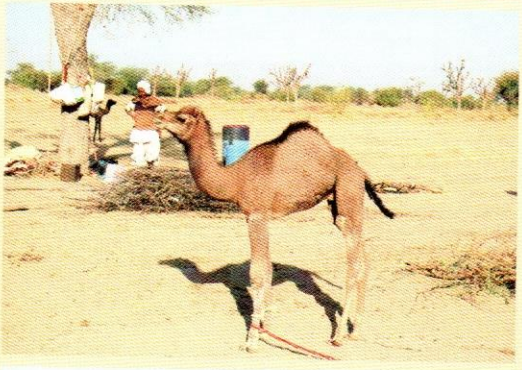


Jalori Camel in the Breeding Tract









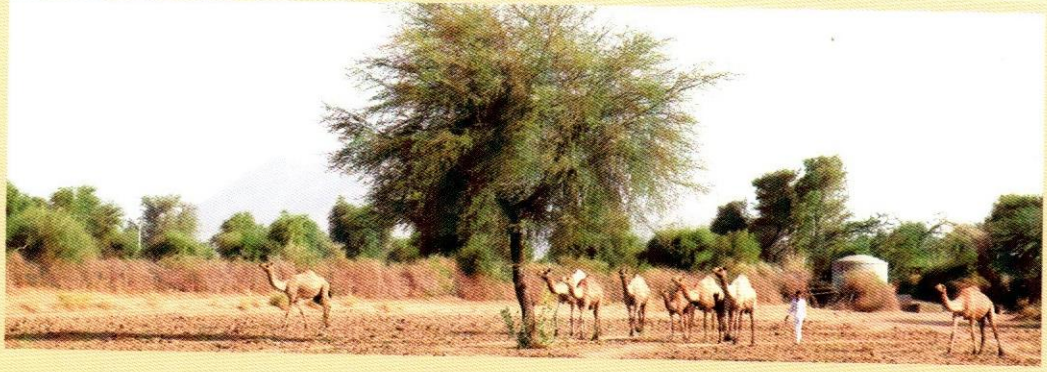


Table 6 : Morphometric measurements (cm) of adult Jalori Males (N = 69)

S. N.	Character	Mean ± S E	Minimum	Maximum	CV%
1	Heart girth	205.72 ± 2.12	140	240	8.75
2	Body length	155.01 ± 1.38	110	184	7.42
3	Height at wither	199.12 ± 1.73	163	230	7.21
4	Tail length	54.45 ± 0.75	40	66	11.38
5	Neck length	103.54 ± 1.16	72	125	9.31
6	Face length	46.75 ± 0.43	35	53	7.70
7	Distance between eyes	22.58 ± 0.24	18	27	8.90
8	Ear length	11.22 ± 0.13	8	14	9.28
9	Fore leg length	149.33 ± 0.85	125	172	4.72
10	Hind leg length	160.7 ± 0.92	136	182	4.76
11	Foot pad (L/W)				
	I. Fore Leg (Length)	18.42± 0.23	12	23	10.31
	(Width)	19.43 ± 0.23	13	24	9.96
	ii. Hind Leg (Length)	16.77 ± 0.27	10	22	13.18
	(Width)	17.80 ± 0.27	11	23	12.59

Table 7 : Morphometric measurements (cm) of adult Jalori Females (N = 559)

S. N.	Character	Mean ± S E	Minimum	Maximum	CV%
1	Heart girth	207.58 ± 0.66	142	240	7.50
2	Body length	154.90 ± 0.40	108	184	6.13
3	Height at wither	199.12 ± 0.60	133	230	7.14
4	Tail length	54.99 ± 0.28	38	68	11.84
5	Neck length	105.47 ± 0.43	70	124	9.70
6	Face length	46.38 ± 0.15	35	54	7.48
7	Distance between eyes	22.09 ± 0.08	16	27	8.18
8	Ear length	10.85 ± 0.04	7	14	8.58
9	Fore leg length	149.86 ± 0.22	125	175	3.51
10	Hind leg length	161.18 ± 0.28	135	182	4.07
11	Foot pad (L/W)				
	I. Fore Leg (Length)	18.92± 0.08	12	23	9.49
	(Width)	19.95 ± 0.08	13	24	9.22
	ii. Hind Leg (Length)	17.23 ± 0.09	10	23	12.60
	(Width)	18.27 ± 0.09	11	24	12.08

Growth Profile

Growth of an animal is considered as an index of its health, production potential and reproductive performance. Thus, maintenance of proper body weight is essential for work performance as well as milk production. The body weight of healthy Jalori camels from birth to adulthood were measured in the breeding tract and are presented in Table 8 below.

Table 8 : Body weight of Jalori camel

Age	Body Weight (Kg)			
	Body Weight ± SE	Minimum	Maximum	Standard Deviation
≤1 Year	260.64±0.00 (1)	160	160	-
2 Years	282.50±22.93 (12)	170	470	79.44
3 Years	328.89±21.24 (9)	220	420	63.73
4 Years	452.50±24.98 (8)	360	590	70.66
≥5 Years	510.67±17.71(15)	380	650	68.61

Figures in parenthesis indicate number of animals

Molecular Characterisation

The molecular characterisation of Jalori camel was done using twenty five microsatellite markers. The genotype data generated in present study showed that significant amount of genetic variation is maintained in the Jalori populations. A total of 196 alleles were detected in Jalori with VOLP67 presenting the highest number of 20 alleles. The mean observed and effective number of alleles across all the loci was 7.840±1.048 and 4.019±0.483. Lower values of expected number of alleles as compared to observed number of alleles suggested that there were many low frequency alleles in the population. Number of loci deviating from Hardy Weinberg Equilibrium ($P < 0.05$) was thirteen in Jalori camel. Estimates of observed heterozygosity, 0.604±0.061 for Jalori confirmed the existence of remarkable level of diversity in the studied population. Observed heterozygosity was lower than expected heterozygosity and correspondingly analysis of F_{IS} evidenced some heterozygote deficiency (0.055±0.055). The studied population did not suffer any recent genetic bottleneck. The analyses showed that a significant amount of genetic variation is maintained in Jalori camel population.

MIGRATION OF JALORI CAMEL

The Jalori camels are being used for dancing, tourism, milk production, riding by the Border Security Force personnel and in the religious and ceremonial processions. In spite of the fact that camels cannot be fed on natural resources at one place for longer time, the milking females need to be in reach so that everyday in the morning their milk can be collected and sold in the market. These camels generally move in the range of about 40-60 km throughout the year. Enough land and vegetation is available in the tract because the human population density in the Jalore and Sirohi districts is 172 and 202 persons per square kilometer respectively, whereas the population density of the country and the state of Rajasthan is 325 and 200 persons per square kilometer. The average grazing distance is about 5 kilometer and the average grazing hours are 9-10 per day. However, the other camels travel higher distances and hence the average grazing distance is around 9 kilometer per day. The camels graze mainly on the shrubs, trees, grasses and crop residues.

Irrespective of the breed and location, the camels in the Rajasthan are reared by *Rebaries,* which are also known as *Dewasi* or *Raikas.* During migration sheep can be seen accompanying the camel herds. Mostly, the camel owners of nearby locality put their camels in one herd during migration, so that the management becomes easier and the manpower can be utilised efficiently.

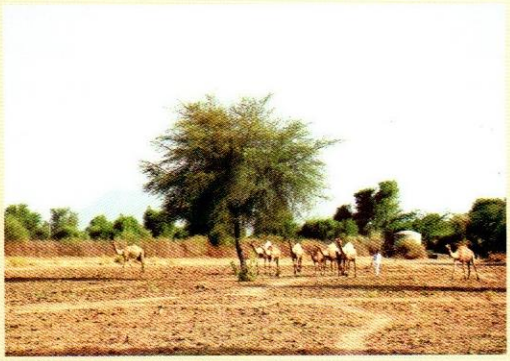
MANAGEMENT SYSTEM

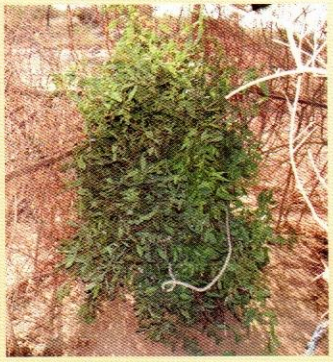
Housing and Grazing Management

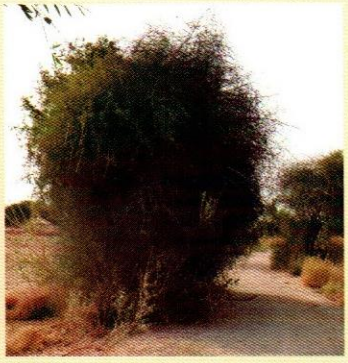
Camels are mostly reared under extensive system of management. No housing is provided during day as well as night time except to those which are reared for transportation, tourism or entertainment. The camels are kept in open and some shelter may be provided during night time. Generally, the camel owners identify a place for temporary living for a period of about 4-5 days or longer depending on the availability of vegetation in the area. This place is referred as *Dera* in local dialect. This place can be any barren land or an agriculture field after harvesting of the crop. From this *Dera*, they run their life for the period of stay. The animals move out from here for grazing and return in the evening. The average daily grazing distance is around 5 km and grazing hours are around 9-10 depending on the season and feed and fodder resources available in the tract. However, the migratory camels travel higher distances and hence the average grazing distance is

Fodder Resources in the Breeding Tract







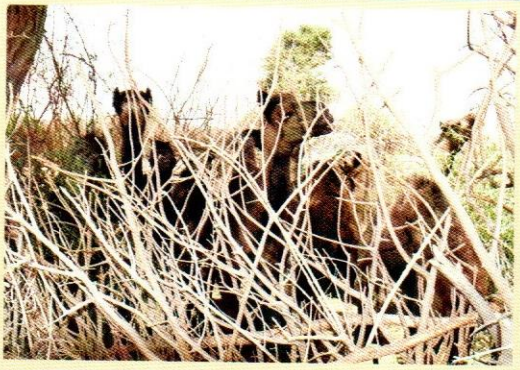


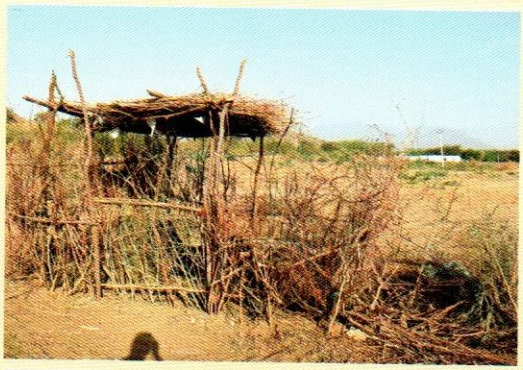
around 9 km per day. The calves stay at the *Deras*. Since, the Jalore area has sandy and rocky land, the heat intensity during day time is very high in summer months, so a *kachcha* enclosure with the help of dried grasses, stems and other woody material is prepared by the camel owners under a shady tree to confine the calves and protect them from high temperature. The young calves are allowed to suckle their dams immediately when they return to this place in the evening. Depending on the demand, the camel owners milk the she-camels in the evening. The evening milk is generally consumed by the camel owners and their families and is not sold in the market. In the late evening, the camel owners tie the legs of their camels in sitting position so as to restrain them for the night time as well as to prevent the calves from suckling their dams. In the early morning, the camel owners milk the she-camels and the collected milk is sold in the market either by the camel owners themselves or by their relatives. The camel owners tie one bell in the neck of a leader camel, generally the adult male camel, which helps the camel owners in locating the camels during grazing. The foot marks and lying camel dung is also utilized for tracking the camels during grazing and migration.

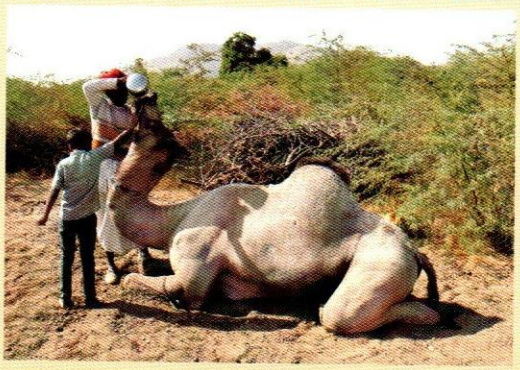
Feeding Management

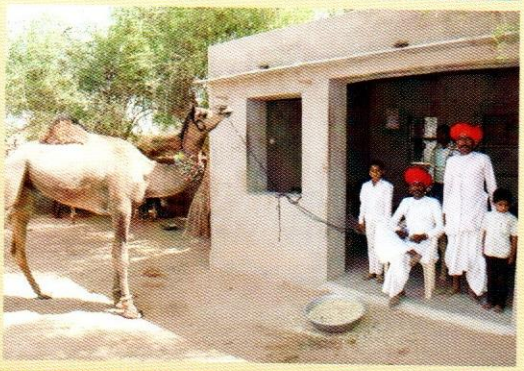
An adult camel requires about 10-12 kg of dry fodder per day for maintaining its body weight and performing normal physiological functions. The concentrate feed containing about 18 % crude protein can be supplemented in varying quantity depending on the production and work requirement. It is also recommended that the micro and macro nutrients, such as minerals and vitamins, are also provided to the camel in required quantity. However, it has been seen that apart from the camels which are being maintained for tourism, cart pulling and entertainment, the camels are not being stall-fed in the breeding tract of Jalori camel. However, the calves and animals requiring special attention may be fed at the place of temporary stay i.e. *Dera.* The feed and fodder resources in the Jalori breeding tract are ample enough to feed the camels because of the vegetation available in the unoccupied land, river course and road-side land. The camels graze mainly on the trees and the tree lopping's offer by the accompanying grazier. Neem (*Azardirachta indica*), Khejri (*Prosopis cineraria*), Kikar (*Acacia tortlis*), Roheeda (*Tecomella undulata*), Babool (*Acacia arabica)*, Fig (Peepal) (*Ficus religiosa*), Unth-Kantalo, , Kaldo, Lungta are the common trees and Phog (*Colligonum pologonoides*), Jal (*Salvadora oleiodes*), Ker (*Caparis deciduas*), Bui (*Areva tomentosa*) , Sinio

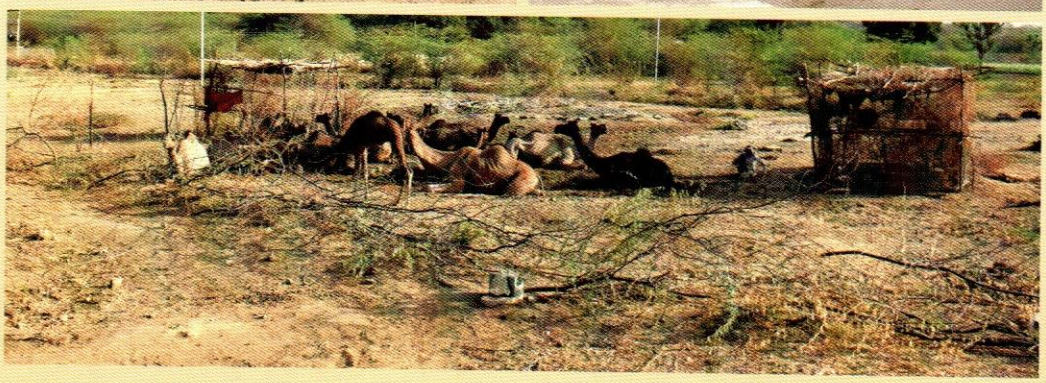
Housing and Management











(*Crotolaria burhia*) and Ber (*Zizyphus mauratiana*) are the common bushes found in the tract and utilized by the camels. The crop residues and fodder of locally grown leguminous crops like Guar Phalgati (*Cyamopsis tetragonoloba*), Moth chara, (*Phaseolus aconitifolius*), Wheat straw (*Tritium aestivum*), Ground nut fodder (*Arachis hypogea*), Cadvi of Jowar (*Sorghum vulgare*), Bajra (*Penniseteum typhoideum*), Chana (*Cicer arietinum*) chara etc. are generally available and utilized by the camels. Sewan (*Lasiurus sindicus*) and Dachab (*Cyperus rotundus*) are the perineal grasses and Ganthia (*Dactyloctenious aegyptium*), Bakeria (*Indigofera corifolia*), Kanti (*Tribulus terrestris*), Sata (*Trianthema portulacastrum*) are the annual grasses available in the breeding tract. A good number of camel owners provide jaggery, turmeric and sweet oil to their camels and a few offer Ajwain and very few offer butter oil to their camels. The quantity and frequency of offering sweet oil (Groundnut, Mustard, Sesame, Linseed) not only depends on the know-how and economic status of the farmer but also on the physiological state of the individual animal and economic returns expected out of it. Offering of sweet oil and jaggery to the breeding males, especially when are used for mating, is commonly seen to maintain their energy level.

Required quantity of palatable water is available. Ponds, *Khelis*, *Tanka*, Tube wells and Rivers are the sources of drinking water for camel. Luni is the major river of the area. Its tributaries are Jawai, Khari, Sukri, Bandi, and Sagi. The Jawai dam, situated in the Pali district is the nearest sizable water body.

Breeding and Reproductive Management

In Jalori females, generally the signs of puberty are seen at 3.5 years of age, successful mating takes place at an age of about 4 years and the first calving takes place at 5 years of age. Accordingly the number of calving in life time goes up to 6 - 7. The gestation period is 13 months and the inter-calving period is about 2 years. The females do not exhibit the signs of oestrus and are induced ovulating i.e. the ovulation is induced by seminal plasma and it generally takes place within 48 hrs. of mating. However, a receptive female is considered in oestrus. The Jalori male camels show puberty at an age of about 4 years. In male camels vocalisation, lack of appetite, frequent micturition and restlessness can be seen during this period. They through their inflated soft palate out of the mouth making lot of noise. The mating takes place, when the female camel is in sitting position. Human assistance in

guiding the penis facilitates the mating. The average copulation time is about 4-5 minutes and the semen volume ejaculated per copulation is about 2.5 to 3 ml. The camel owners generally maintain one breeding male per herd, which may have about 15-20 breedable females. They do share the males for breeding. Generally, 1-2 males of 1-3 years are also kept in the herd as a replacer of the main breeding stud. However, the camel owners use their own wisdom and purchase adult male camel from other herds or from Camel Fairs for breeding their females, as per the need. The Biggest Animal Fair of the breeding tract is *Baba Raghunathpuri Pashu Mela* which is held every year in the month of April and May at Sanchore (Jalore) and another fair, which is relatively smaller, is organized in village Sewadiya, Raniwara (Jalore) in the month of April every year.

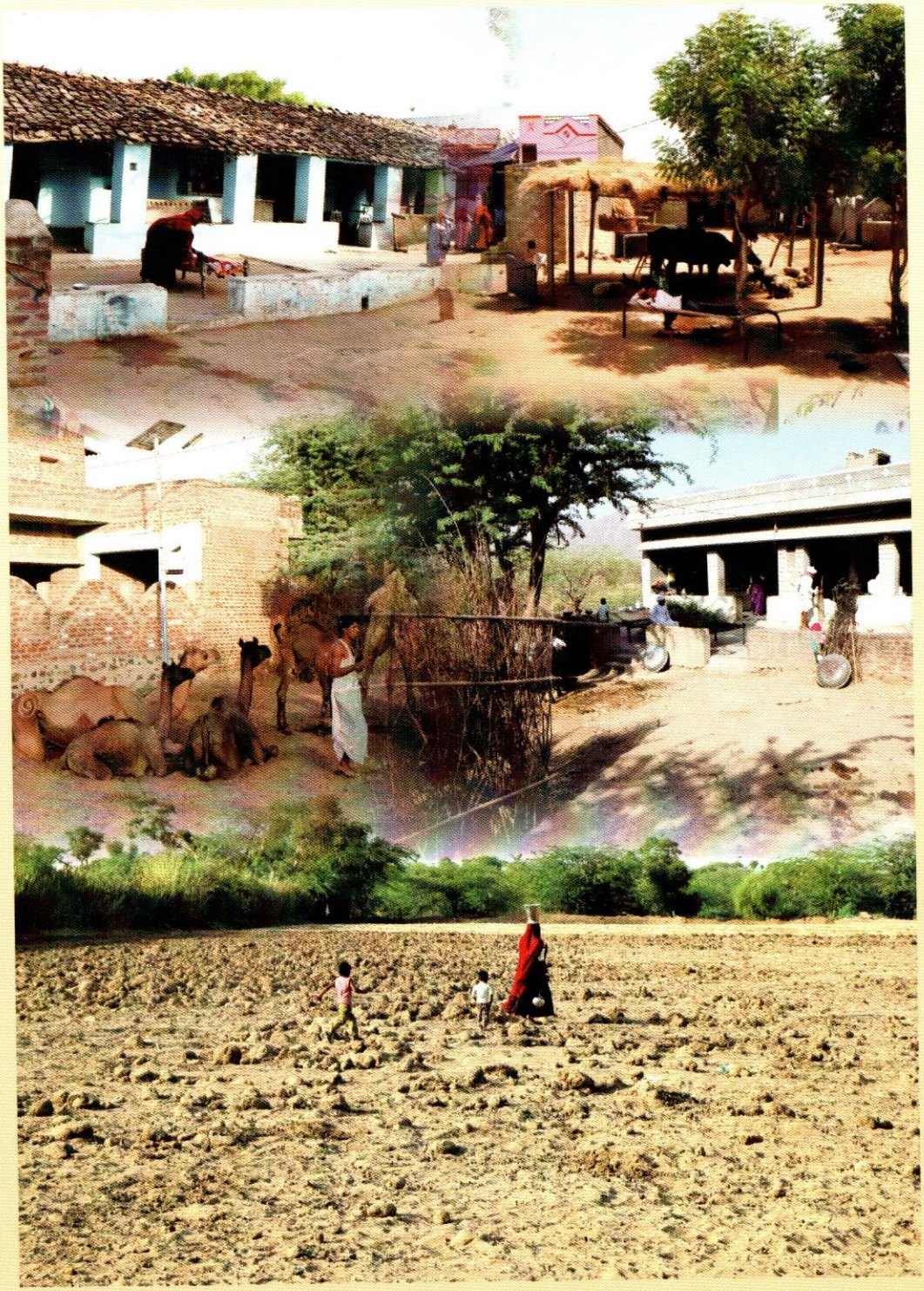
Health Management

Irrespective of the breed and breeding tract, the camels suffer from Trypanosomiasis, which is popularly known as *Surra* or *Tibarsa* because the disease causes progressive weakness and lasts for about 3 years. It is caused by a blood protozoa *Trypanosoma evansi*. Almost every camel owner goes for prophylactic as well as curative treatment of this disease. A number of chemo-therapeutic ingradients are available in the market but the combination of Quinapyramine Sulphate and Quinapyramine Chloride is one among the safest drug. It is also recommended that the camel owners should not use Diminazine Aceturate, which is used in other livestock species against blood protozoans, because of the toxicity it causes in camels.

Mange is the second cause of worry to the camel breeder across the breeding tracts of different breeds of camel. It is caused by sarcoptic mite *Sarcoptes scabiei* var. *cameli*. Mange spreads by contact with infected animals or soil or surrounding. Improper management, malnutrition and overcrowding are generally the predisposing factors. It has been observed in the breeding tract of Jalori camels too. Fungal infection was also found associated with it. Ivermactin or doramectin injections along with antifungal treatment and external spray of Deltamethrin was found effective in curing the animals from this ailment.

Pneumonia in young and adult camels is often observed in the camels. The camel owners go for systemic treatment in consultation with the veterinary officers. Round worms were not a big cause of worry and only the progressive camel farmers

Socio - Economic Status



were going for prophylactic medication with Fenbendazole or Albendazole.

However, when clinical signs were observed the camel owners were going for the treatment. Generally, the broad spectrum antibiotics along with antipyretic and vitamins therapy cures the camels. Contagious ecthyma was also seen in young animals and the symptomatic treatment generally cures the animals. Very few cases of Mastitis and skin candidiasis were also seen in the tract.

Apart from the above infectious and systemic diseases, the Still Birth, Abortion, Dystokia and Retention of placenta have been reported as the other important health issues commonly faced by the camel owners in the breeding tract.

SOCIO ECONOMIC PROFILE

The average annual income of the camel farmers in the tract has been recorded as ₹ 37758. The camel farmers mainly belong to the *Dewasi* community. The other livestock species reared by them are also sizable in number (Table 9). About 51 % of the camel owners also rear cattle, 52% rear buffalos, 48% rear sheep and 54 % rear goat. The average land holding is also very less (Table 10). In the entire breeding tract the camels are being reared for milk production. Sale of camel milk is the chief source of income to the breeders. However, the sale of extra animals, use of camel for domestic purpose and in tourism adds to the income of camel breeders. The marketing chain for camel milk is good in Mewar area but it is relatively weak in Jalori area. The use of camel hairs for preparation of items of domestic need contribute indirect income to the camel owners. Due to frequent change of place or continuous migration of the camels, the life of the accompanying person is very difficult and this is why the young generation is not opting the camel husbandry.

Total 9 : Livestock species reared by the camel owners in the tract

District	House-Holds	Cattle	Buffalo	Sheep	Goat	Poultry	Horse	Donkey	Camel
Jalore	117	105 (62)	104 (55)	1596 (65)	1378 (78)	40 (5)	2 (2)	6 (3)	1954 (117)
Sirohi	71	75 (33)	137 (42)	1070 (25)	559 (23)	0	0	0	1770 (71)
Total	188	180 (95)	241 (97)	2666 (90)	1937 (101)	40 (5)	2 (2)	6 (3)	3724 (188)

Figures in parenthesis indicate number of camel owners

Table 10: Average land holding of camel farmers in the Jalori tract

Land in Bigha (0.625 Acre)

District	House-holds	Irrigated	Unirrigated	Total
Jalore	117	0.59	2.73	3.32
Sirohi	71	0.85	0.25	1.10
Overall	188	1.22	1.26	2.48

PRODUCTION OF JALORI CAMEL

Milk Production and Quality

Since, the Jalori camels are mainly being reared for the production of milk, 37 she-camels were continuously recorded for a period of 14 months in the field area for their milk production potential (Table 11). Weekly recording of milk yield was carried out at the farmers door step. No special feed was being given by the farmers. Health was monitored throughout the lactation and milk production of only healthy animals was recorded. A few animals were dropped in the process. As per the practice adopted in the breeding tract, the farmers allow the calves to suckle in the evening and there after they tie the legs of the female and thus disallowing further suckling. In the morning they milk the animals and after that they allow the calves to be with them for few hours and then separate the calves and take the dams for grazing. The morning milk production was measured and this amounts to about a half of the milk produceed by the animal. In this manner, the average per day milk yield in Jalori camels was observed as 4.86 litres. The milk yield was comparable for about 9 months indicating very good persistency of lactation. The highest average per day milk for a month was 5.38 litres and it was 3.6 litres per day in the 14th month of lactation. It is clear from the data (Table 11) that the Jalori camels are producing on an average 10 litres of milk per day and during peak months the production is still higher. The selection of elite animals for breeding and proper feed supplementation can further increase the milk production and add to the income of camel farmers in the breeding tract. The camel milk in the breeding tract is sold for human use and is generally used for the preparation of tea and coffee. However, ICAR-National Research Centre on Camel, Bikaner has prepared a variety of products from the camel milk, the preparation and sale of such products may further add to the income of the farmers.

Milk Production

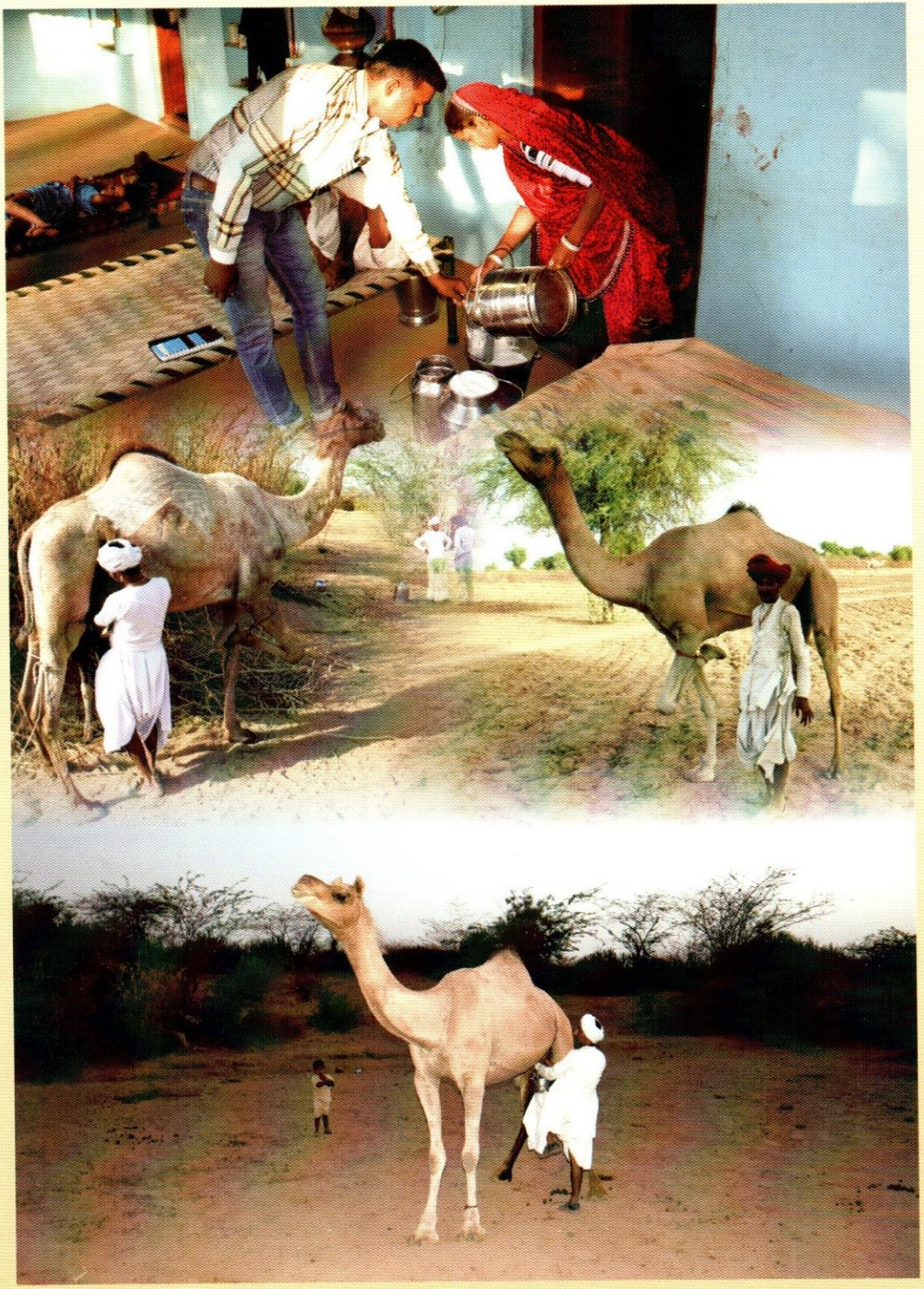


Table 11. Average per day milk yield of Jalori camels in the breeding tract

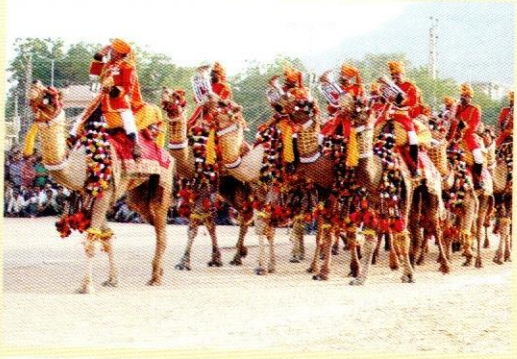
(Milk yield in ml)

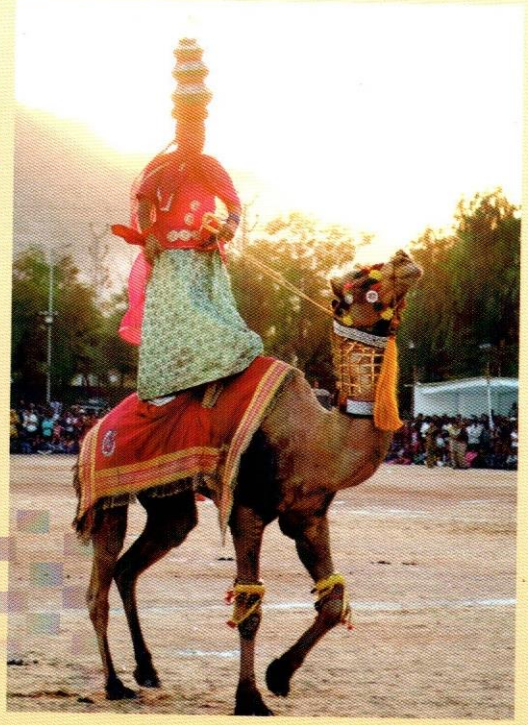
Month of Lactation	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
1	77	4977.27	835.265	95.187	3500	7000
2	89	5148.88	747.837	79.271	4000	7250
3	110	5381.09	876.953	83.614	4000	7250
4	89	5143.26	1001.340	106.142	2000	7250
5	94	4938.83	779.169	80.365	3000	6500
6	112	5040.09	703.531	66.477	2500	6500
7	114	5129.39	643.408	60.261	2250	6500
8	105	5145.24	745.806	72.783	1000	6500
9	101	5165.84	787.621	78.371	3000	6250
10	108	4546.48	784.738	75.511	3000	6000
11	99	3985.05	727.543	73.121	2500	6000
12	79	3623.67	615.188	69.214	1500	5250
13	13	3596.15	545.230	151.220	2500	4500
14	3	3666.67	288.675	166.667	3500	4000
Pooled	1193	4858.52	921.202	26.671	1000	7250

Table 12. Month-wise fat content (%) in Jalori camel milk

Month of Lactation	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
1	10	3.47	0.60	0.18	2.60	4.60
2	32	3.58	0.68	0.12	2.60	5.40
3	7	3.84	0.37	0.14	3.10	4.30
4	44	3.73	0.57	0.08	2.40	4.70
5	64	3.75	0.55	0.06	2.40	4.70
6	68	3.83	0.50	0.06	2.80	4.70
7	60	3.83	0.51	0.06	2.80	4.70
8	46	3.54	0.57	0.08	2.00	4.60
9	31	3.49	0.52	0.09	2.00	4.10
10	12	3.56	0.56	0.16	2.40	4.20

Camel : The Pride of Rajasthan





JALORI CAMEL

Month of Lactation	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
11	1	3.60	0.00	0.00	3.60	3.60
12	1	3.60	0.00	0.00	3.60	3.60
Total	376	3.70	0.56	0.02	2.00	5.40

The analysis of milk quality was also carried out and the concentration of Fat (Table 12), SNF (Solid Not Fat), Protein, Lactose and Ash was recorded as 3.70 %, 7.6 %, 2.76%, 4.01% and 0.81%. The pH was recorded as 6.4.

Hair Production and quality

The camel hair is used in making carpets, blankets, ropes and other items of day to day use. Fine quality hair is utilized for blanket making whereas coarse quality hair is used for carpet and rope making. These carpets and blankets are very cheap and durable. The life of a carpet is approximately 50 years and that of a blanket is 15 years. The rope made of camel hair is used for tying the animals and in making cots. The annual hair production from an adult camel is about 700 gm. The average fibre length was 6.69 cm, the average diameter is 42.49 μ and total medullation was 94.75% (Table 13).

Table 13. Hair quality parameters of Jalori camel

Parameters	N	Mean± SE	Std. Deviation	Minimum	Maximum
Fibre Length (cm)	49	6.69±0.14	1.83	4.00	12.40
Diameter (μ)	49	42.49±2.31	16.19	19.53	100.00
Pure Fibre (%)	49	5.25±0.00	1.08	0.00	29.67
Medullated : Hetero (%)	49	38.37±2.95	20.68	5.00	81.00
Medullated : Hairy (%)	49	56.39±3.32	23.27	17.66	95.00
Total Medullation (%)	49	94.75±1.08	7.57	70.33	100.00

DRAUGHT

Jalori camels have multipurpose utility and they are being used for milk production, riding by the Border Security Force personnels in the religious and ceremonial processions, for dancing and tourism etc. The use of Jalori camels for milk production is relatively more in Sirohi district as compared to the Jalore district but the camel show by Border Security Force persons on the eve of Jalore

festival and use of trained camel for riding, dancing and processions on ceremonial and religious occasions in Jalore district leave a memorable impression in the minds of viewers. Camel carts are still being used in the tract for transportation of goods. Camel carts act as a source of livelihood for landless and poor farmers especially during drought and lean period.

TOURISM

The use of camel in tourism is increasing significantly as it allows a person to live in the city area and due to increased inclination of the tourists to go for camel riding and safari, enough income is being generated by the camel owners. With the increased craze for taking selfie and for doing photography, people have started paying for taking photographs with camel. Though, the number of camels engaged for this purpose in this area is less but the trend indicates increase in the demand for the purpose.

EFFORTS FOR CONSERVATION

Rajasthan State Government Initiatives

Camel: Declared as the State Animal of Rajasthan

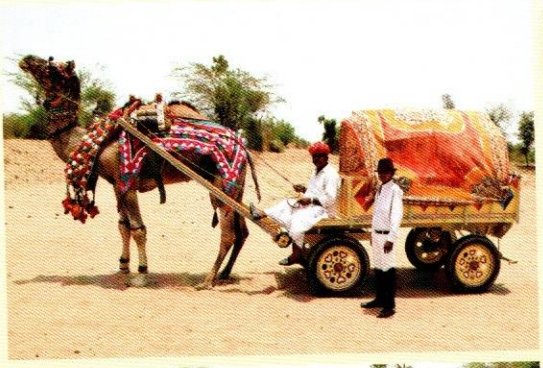
The camel has so far been used as a pride animal. It has been used as an iconic animal to symbolise Rajasthan by the Government of Rajasthan, Rajasthan Tourism, Rajasthan Bank, BSF- Camel corps and several other organisation. Looking at the close association of camel in the art and culture of the society in the state and the current population status, the present Rajasthan Government has declared camel as State Animal of Rajasthan on June 30, 2014. Thus "The Camel" became the first domestic animal to be declared as "State Animal" in this country and a Camel Development Policy was prepared. In brief, the policy is as under:-

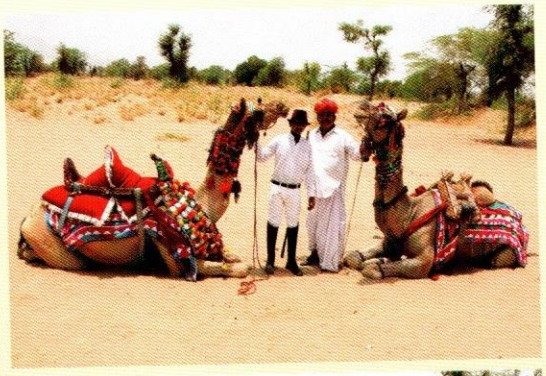
I. Policy Support

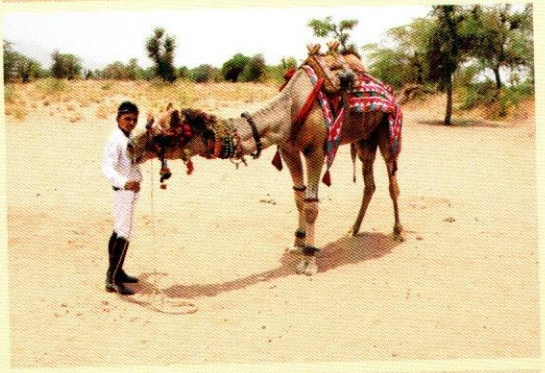
A. Act (i) Ban on Camel Slaughter (Complete Ban or Females complete ban and Males after selection) (ii) Restriction on camel export /migration

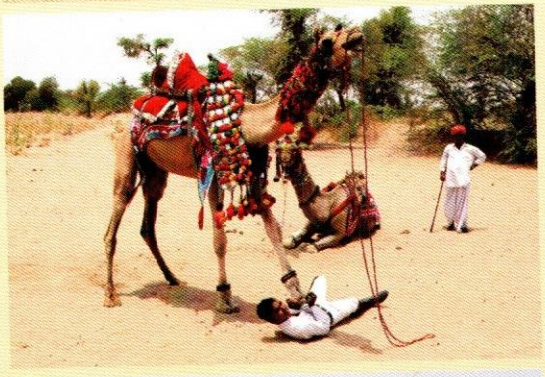
B. Breeding Policy : New breeding policy with emphasis on camel milk production

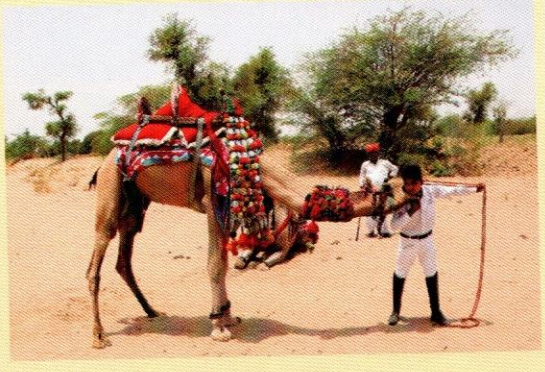
Performance by Trained Camel











C. Sale of Camel Milk : Collection, processing and marketing of camel milk by organized sector (RCDF)

D. Inclusion of camel in famine code

E. Pasture Development: (i) Forest Area –Rational entry of camels for grazing, (ii) Pasture Land: Re-seeding and Plantation.

II. Incentives for Camel Breeding

A. Support to camel breeders on birth of a camel calf –cash incentive for calf born, feed and mineral mixture for dams, treatment and other services.

B. Loans, Subsidy and Insurance Support: Loan for new purchase, subsidy on sale of camel milk and insurance cover to all camels.

III. Breed Registration and Camel Breeders Association

For their own welfare and to address the smaller and localized issues

IV. Camel Development Cell

To look after all camel development activities

The Rajasthan Camel Bill 2015 Enacted

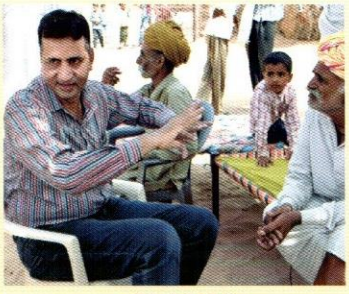
The Rajasthan state government took appropriate action for giving legal framework to the decision taken and "A Bill" for the formulation of act on above lines was prepared by the Animal Husbandry Department of the Rajasthan Government and it was named "The Rajasthan Camel (Prohibition of Slaughter and Regulation of Temporary Migration or Export) Bill, 2015". After appropriate approval of the honourable President of the Country, the Bill was in enacted.

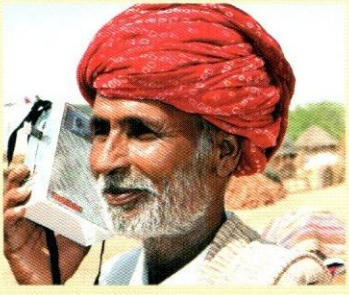
Camel Insurance

The Rajasthan State Government has launched an Insurance scheme named *"Bhamashah Pashu Bima Yojana"* for the livestock species including camel at subsidized rate. A camel owner can get maximum of five camels with a maximum cost of ₹ 50000/- per camel insured at a subsidized rate of 3.5 % for a period of one

Talks of Camel : A Mission for Conservation of Camel

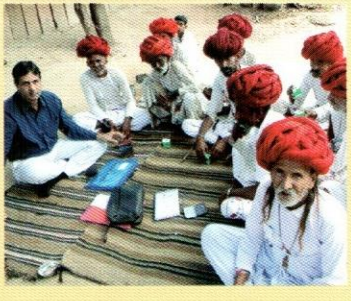


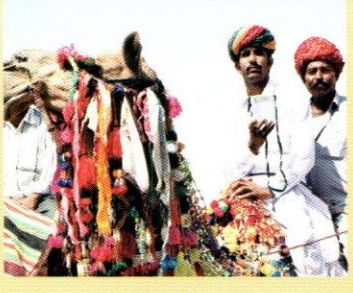











year or 9% for a period of 3 years. This premium is further reduced by 70% in case of Scheduled Caste (SC) and Scheduled Tribe (ST) and Below Poverty Line (BPL) category and by 50% for general category.

Calf-Subsidy

It was felt that the camel owners are losing the interest in breeding their camels because a pregnant camel cannot be put to use for a substantial period and also to encourage the camel breeders to breed their camels at regular interval to have a check on the declining population of the species, the state government has launched a scheme worth ₹ 3135 lakh under Rashtriy Krishi Vikas Yojana (RKVP) for a period of 4 years. Under this scheme, a camel owner has to register his pregnant female camels and he will get ₹ 3000/- when the calf is born and attains an age of 1 month. The second instalment of ₹ 3000/- he will get when the calf attains an age of 9 months and the third installment of ₹ 4000/- he will get when the calf attains the age of 18 months. They will have to insure these animals and when they sale these animals, they will have to inform it to the nearest Veterinary Hospital. The treatment of these animals will be done free of cost.

FSSAI Approval

The Food Safety and Standards Authority of India (FSSAI) under section 16 (5) of Food Safety and Standards Act 2006, operationalised the standards for camel milk on November 29, 2016. For the raw, pasteurised, boiled, flavoured and sterilised camel milk the standards are set to a minimum of 6.5% SNF and 3 % Fat.

Network Project on AnGR and Associated Initiatives

Talks of Camel : A Mission for Conservation of Camel

Aggrieved by the declining population of the camel and poor condition of the camel farmers in the Country, at ICAR-National Research Centre on Camel, Bikaner, Dr. S C Mehta, Principal Scientist took an initiative in the year 2015 to help the State Animal of Rajasthan and named it as "Talks of Camel: A Mission for Conservation of Camel". The ICAR-National Bureau of Animal Genetic Resources, Karnal supported this mission by funding for the Radio programme and other activities. This Mission had the following components:-

eAgriculture Extension

When I was presenting this slide on February 13, 2015 in the International Symposium held at Chennai, there were many questions especially from Dr.Ilse

Type a mess...

श्री कंवर लाल जी, विधायक मनोहर थाना, सुश्री टीना भील, जिला प्रमुख, श्री अनिल जी पोरवाल, नगर पालिका अध्यक्ष एवं सुश्री भारती नागर, प्रधान द्वारा प्रसार सामग्री का लोकार्पण
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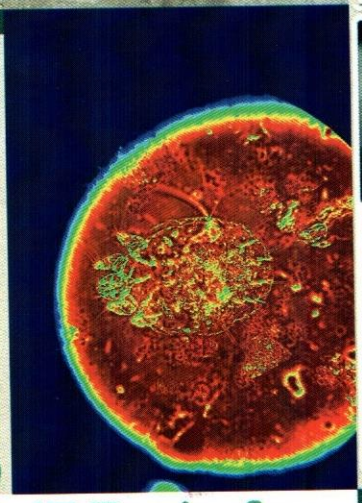

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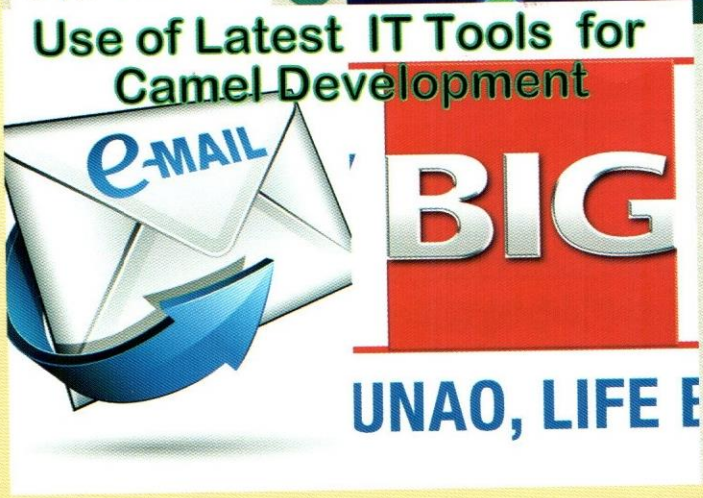

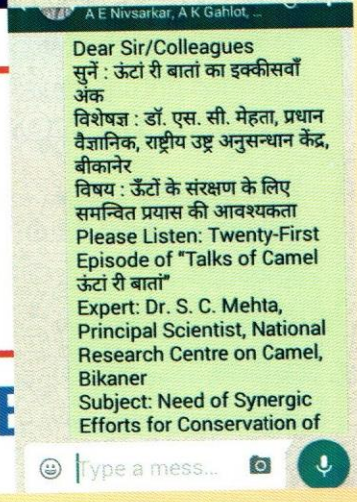

1. **Radio Programme-*Untan Ri Bataan*** (Talks of Camel) : Inspired by the "*Mann Ki Baat*" programme of Honourable Prime Minister, An All India Radio Programme "***Untan Ri Bataan***" (Talks of Camel) was broadcasted on every first and third Friday of the month from Bikaner, Jodhpur, Udaipur and Kota stations covering 21 districts of Rajasthan. The human population covered is about 4 crores. Three minutes time in the episodes was dedicated to answer the questions asked by the camel owners. In all 33 episodes covering different topics of camel husbandry were broadcasted. All episodes were uploaded on Google Drive and Sound Cloud and link posted on Facebook and WhatsApp for easy access 24X7 through computers, laptops and cell phones.

2. **Talks of Camel "*Untan Ri Bataan*" Logo:** In order to give identity and better visibility to the programme, a Colourful Logo utilizing the tri-colours of the National Flag was designed and used since April 16, 2015. The Trade Mark No.308931 with **Registration Certificate No.1460454** has been issued and the Trade Mark published in the Trade Marks Journal No. 1761, 2016.

3. **Meeting with the Camel Farmers**: Knowing it well that in the present era also there are several Camel Farmers who doesn't listen to the Radio and are not aware of the Facebook, WhatsApp, You Tube etc., it was decided to organise the meetings and question-answer sessions with the camel owners on every first and third Friday of the month. Additionally, a good number of extended meetings were also organized wherein apart from the deliberation on a particular topic, discussion on policy issues, question-answer sessions and on-site treatment of sick animals was also done. In order to serve the society, 102 such meetings in 90 villages spread across the state having sizable camel population were conducted. A total of 1943 camel owners / stakeholders were educated during these meetings. The **Limca Book of Records** has recognized this work as **The National Record**.

4. **WhatsApp Group**: "Talks of Camel" group on WhatsApp was created to share the programme details, news items, disease photographs and links of talks uploaded on Google Drive and Sound Cloud. All through, it had 100 members including ICAR, SAU, Animal Husbandry officers and camel farmers.

5. **Cell Phone**: The camel farmers used the Cell phone to a great extent and maximum support in terms of veterinary health care has been extended using the Cell phone.

'ऊंटा री बातां' अब महीने में दो बार

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'ऊंटा री बातां' कार्यक्रम को मिले समर्थन को देखते हुए आकाशवाणी पर इसका प्रसारण अब महीने में दो बार होगा। यह महीने के पहले एवं तीसरे शुक्रवार को बीकानेर, जोधपुर, उदयपुर एवं कोटा से शाम 5.30 से 6.00 बजे तक प्रसारित होगा।

परियोजना अन्वेषक व राष्ट्रीय उष्ट्र अनुसंधान केन्द्र के प्रधान वैज्ञानिक डॉ. एस. सी. मेहता ने बताया की अब इसमें ऊंटों के संक्रामक रोग- कारण, बचाव एवं उपचार पर विशेषज्ञ वार्ता होगी। इस बारे में डॉ. नितीन वसंतराव पाटिल, निदेशक, राष्ट्रीय उष्ट्र अनुसन्धान केंद्र, बीकानेर एवं आकाशवाणी बीकानेर के बीच सहमति पत्र पर हस्ताक्षर किए गए हैं।

कार्यक्रम के तहत डॉ. मेहता ने उदयपुर, पाली, सिरोही, कोटा एवं जालोर जिलों में हुई कार्यशालाओं में ऊंटपालकों से चर्चा की, उनकी समस्याएं हल की व कार्यक्रम से जुड़ने का आह्वान किया।

patrika Fri, 03 July 2015 epaper.patrika.com/c/575700

उपयोगी है ऊंटनी का दूध

आहोर में ऊंट पालन को लेकर आयोजित संगोष्ठी में जानकारी देते अतिथि। पत्रिका

आहोर @ पत्रिका. कस्बे में राष्ट्रीय उष्ट्र अनुसंधान केन्द्र बीकानेर की ओर से ऊंटों के संरक्षण एवं ऊंट पालन को बढ़ावा देने को लेकर मंगलवार को ऊंट पालकों की संगोष्ठी का आयोजन किया गया। जिसमें ऊंटों की महत्ता पर प्रकाश डाला गया। संगोष्ठी में राष्ट्रीय उष्ट्र अनुसंधान केन्द्र बीकानेर के प्रधान वैज्ञानिक डॉ. एस.सी. मेहता ने बताया कि आज के समय में ऊंटों को संरक्षण मिलना बेहद आवश्यक है। इसके लिए उसकी उपयोगिता बढ़ाना जरूरी है। उन्होंने बताया कि ऊंटनी का दूध औषधीय गुणों से भरपूर है। ऊंटनी का दूध डायबिटीज, टीबी, मंदबुद्धि, हृदयाघात समेत विभिन्न बीमारियों में बेहद उपयोगी है। ऊंटनी के दूध में इंसुलीन व विटामिन सी की मात्रा अधिक होती है। उन्होंने ऊंटों के संरक्षण व पालन को बढ़ावा देने पर जोर दिया। इसके लिए उन्होंने पशुपालकों को आगे आने की बात कही। परियोजना पर्यवेक्षक कल्पेश अवस्थी ने ऊंटों की बीमारियों एवं उनके निदान के बारे में पशुपालकों को जानकारी दी। इस मौके पर भावाराम देवासी, उकसिंह राव, करमीराम, नरसाराम, रणछोड़राम, तलसाराम, कानाराम, कपूराराम, पेमाराम समेत कई पशुपालक मौजूद थे।

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APRIL – JUNE 2015

Tales of Camel (Untan Ri Baatan)

From the DG's Desk

'ऊंटां री वातां' में चिंता का विषय बनी ऊंटों की गिरती संख्या

ब्यूरो नवज्योति, उदयपुर

जनजातीय उपयोजना में संभाग में दो दिवसीय कार्यक्रम में गिर्वा तहसील के कली गांव में पशु चिकित्सा एवं प्रसार शिविर व ऊंटां री बातां की 97वीं बैठक में ऊंटों की गिरती संख्या में चिंता जताई गई। प्रभारी अधिकारी डॉ. एससी मेहता ने बकरी पालन को अनुसूचित जाति के लिए वरदान बताया एवं कहा कि अगले साल इस कार्यक्रम में बकरी पालन एवं वितरण का प्रयास किया जाएगा। ऊंटों को उन्होंने मेवाड़ क्षेत्र में दूध के लिए बहुत ही उपयोगी बताया एवं कहा कि मेवाड़ क्षेत्र में प्रति व्यक्ति दूध उपलब्धता बहुत कम है एवं अगर ऊंट पालन नहीं होता तो यहां बहुत अधिक नकली दूध बाजार में आ जाता। राजकीय पशुपालन प्रशिक्षण संस्थान के वरिष्ठ प्रशिक्षण अधिकारी डॉ. सुरेंद्र छंगाणी ने बताया कि राज्य पशु घोषित ऊंट की संख्या में प्रदेश स्तर पर हो रही गिरावट चिंता का विषय है। पशुगणना 2012 के अनुसार अनुमानित संख्या महज 3.25 लाख है, जबकि देश में इनकी कुल संख्या 4.24 लाख है। देश के कुल ऊंटों का 82 प्रतिशत प्रदेश में है, जबकि दूसरे व तीसरे स्थान पर गुजरात व हरियाणा है। जहां इनकी संख्या क्रमशः 30415 एवं 18845 ही है। राज्य में ऊंटों की संख्या में निरंतर कमी होती जा रही है, जो चिंता का विषय है। राज्य में ऊंटों की संख्या का अवलोकन करें तो स्पष्ट होगा कि 1972 की गणना में राज्य में कुल 7.45 लाख ऊंट थे, जो उस समय के राज्य के कुल पशुधन का 1.92 प्रतिशत था। अब पशुधन का 0.69 प्रतिशत ही ऊंटों की संख्या है। निश्चित रूप से ऊंटों के संरक्षण संवर्धन कल्याण एवं विकास की आवश्यकता महसूस की जा रही है।

ऊंटपालकों तक पहुंचेगी एनआरसीसी

उष्ट्र अनुसंधान केन्द्र ने लान्च किया 'ऊंटां री बातां' कार्यक्रम

न्यूज सर्विस/नवज्योति, बीकानेर

प्रधानमंत्री नरेन्द्र मोदी के आकाशवाणी पर शुरू हुए मन की बात कार्यक्रम से प्रेरित होकर बीकानेर में स्थित राष्ट्रीय उष्ट्र अनुसंधान केन्द्र एनआरसीसी ने आकाशवाणी पर ऊंटां री बातां कार्यक्रम शुरू किया है। इस कार्यक्रम की पहली कड़ी शुक्रवार शाम साढ़े पांच बजे से छह बजे तक आकाशवाणी के बीकानेर, उदयपुर, जोधपुर एवं कोटा केन्द्रों से एक साथ प्रसारित होगी। ऊंटां री बातां का यह कार्यक्रम प्रत्येक माह के तीसरे शुक्रवार को आकाशवाणी के चार केन्द्रों पर प्रसारित किया जाएगा। वर्तमान में इसके 12 एपिसोड प्रसारित किए जाएंगे। राष्ट्रीय उष्ट्र अनुसंधान केन्द्र बीकानेर में शुक्रवार को हुए समारोह में भारतीय कृषि अनुसंधान परिषद नई दिल्ली के सहायक महानिदेशक डॉ.बी.एस.प्रकाश ने 'ऊंटां री बातां' कार्यक्रम लान्च किया गया। कार्यक्रम में बताया गया कि यह देश का पहला ऐसा कार्यक्रम है जो कि केवल ऊंटों के संरक्षण एवं संवर्धन के लिए पूरी तरह समर्पित है। इस कार्यक्रम में देश के जाने-माने उष्ट्र विशेषज्ञ विभिन्न अंकों में उपयोगी जानकारी देंगे। उष्ट्र अनुसंधान केन्द्र की एक नेटवर्क परियोजना के तहत शुरू किए गए इस कार्यक्रम में बीकानेर की वेटरनरी विश्वविद्यालय का भी सहयोग है। लॉन्चिंग समारोह में साहित्यकार डॉ. किरण नाहटा, महावीर इन्टरनेशनल के अध्यक्ष एडवोकेट महेन्द्र जैन, आकाशवाणी बीकानेर के कार्यक्रम अधिशासी श्रवण कुमार, मिलन गांई, अमित सिंह, अन्य अधिकारी उपस्थित थे। समारोह के मुख्य अतिथि डॉ.बी.एस.प्रकाश ने कहा कि प्रदेश की भौगोलिक परिस्थितियों का सामना करने वाले 'ऊंट' पर इस संवाद कार्यक्रम के माध्यम से ऊंटों की विभिन्न नस्लों एवं उनसे जुड़ी समस्याओं के निदान की राजस्थानी जैसी मीठी भाषा में ऊंट पालकों एवं किसानों को जानकारी सुनने को मिलेगी जिसमें वे अपने अनुभव भी साझा करेंगे।

ऊंट संरक्षण पर कार्यशाला

सिरोही। राष्ट्रीय उष्ट्र अनुसंधान केंद्र बीकानेर की ओर से सोमवार को धांता गांव में ऊंटों के संरक्षण के लिए कार्यशाला का आयोजन किया गया। कार्यशाला के मुख्य अतिथि उष्ट्र अनुसंधान केंद्र बीकानेर के प्रधान वैज्ञानिक डॉ. एससी मेहता ने कहा कि आज के समय में ऊंटों का संरक्षण अतिआवश्यक है। इसके लिए उसकी उपयोगिता बढ़ना जरुरी है। मेहता ऊंटनी के दूध को औषधिय गुणों से भरपूर बताया। उन्होंने ऊंटनी में इंसुलीन एवं विटामीन सी की मात्रा अधिक होती है। इसलिए इसके दूध को डायबिटीज, टीबी, मंद बुद्धि, हृदयघात के लिए लाभदायक बताया। कार्यशाला का आयोजन देवाराम देवासी ने किया।

केसूली में पशु किसान संगोष्ठी आयोजित

भास्कर न्यूज | बूंदी

निकटवर्ती केसूली गांव में स्थित मामाजी महाराज मंदिर प्रांगण में रविवार को पशु किसान संगोष्ठी एवं ऊंटों री बातां कार्यक्रम का आयोजन राष्ट्रीय ऊंट अनुसंधान केंद्र बीकानेर के प्रमुख वैज्ञानिक डॉ. शरतचंद मेहता की अगुवाई में हुआ। इस मौके पर मेहता ने कहा कि वर्तमान स्थिति में ऊंटों का संरक्षण उसकी उपयोगिता बढ़ाकर की जा सकती है। ऊंट का दूध मानव के लिए बहुत उपयोगी है। पर्यवेक्षक राजेंद्रकुमार ने ऊंटों में होने वाली बीमारियों की रोकथाम के बारे में जानकारी दी। इस अवसर पर केसूली उपसरपंच गुमानसिंह, वेदप्रकाश, भंवरसिंह, देवाराम, भावाराम, मोटाराम देवासी, सवाराम राईका, केसाराम चौधरी सहित ग्रामीण मौजूद थे।

6. **Facebook Page** : "Talks of Camel" page has been used to share the programme details, National and International news items, disease photographs and links of talks uploaded on Google Drive and Sound Cloud.

7. **Sound Cloud** : "Talks of Camel Channel" Every month two experts delivered the Radio Talk on various aspects of camel husbandry. The same were uploaded after broadcast and their links forwarded to the stakeholders on WhatsApp, Facebook and through group email for 24X7 easy access by computers, laptops and cell phones. Hundreds of people have listen to the "Talks of Camel" programme through this channel.

8. **You Tube** : "Talks of Camel Channel" The popularity of You Tube among cell phone users was also utilized for the purpose. All important Talks delivered on All India Radio were converted into video films and uploaded on You Tube. The links were forwarded to the stakeholders on WhatsApp, Facebook and group email for 24X7 easy access. Hundreds of stakeholders have listen to the programmes of "Talks of Camel" through this App.

9. **Google Drive** : "Talks of Camel Folder" The space required to store one Radio Talk is about 27 MB. In order to facilitate the users a folder named "Talks of Camel" on Google Drive was created for storing all the information, documents, photographs, audio & video files pertaining to this mission. The links were shared with the stakeholders through Facebook, WhatsApp and group emails.

10. **Treatment of Camel** : Around 2000 sick camels were treated for various ailments during this Programme.

11. **Group Email** : Immediately after the broadcasting and uploading of the Radio Programme on Google Drive and Sound Cloud, the links were sent regularly to all staff members of ICAR- National Research Centre on Camel, Bikaner; Project Coordinator and In-charge, Network Project, ICAR-National Bureau of Animal Genetic Resources, Karnal; Project Director, Directorate of Knowledge Management in Agriculture, Indian Council of Agricultural Research New Delhi; Deputy Director General (Animal Science), ICAR, New Delhi and Experts. This was done to make the programme accessible to them at one click. The programmes were sent to Directorate of Knowledge Management in Agriculture, ICAR - Indian Council of Agricultural Research, New Delhi; Library and Agriculture Knowledge Management Unit of ICAR- National

Research Centre on Camel, Bikaner for sharing and storing the programmes in their elibrary for subsequent use.

12. **Television Programme**: In order to create awareness in the general society about the conservation of camel and to support the camel farmers, ETV Rajasthan channel was contacted and they gave full coverage of the programme in News at Prime Time i.e. 7.30 PM on June 26, 2015. On Door Darshan Kisan Channel, this programme was covered in the Hello Kisan Programme, on August 4, 2016 and February 16, 2017. Additionally, the A1TV channel covered our programme twice.

13. **FM Radio:** FM Radio is very popular in the cities. 92.7 Big FM was contacted and they covered the programme twice and broadcasted each of them two-three times in their morning session "Big Chai" spanning around an hour or more.

14. **News Papers** : All leading News Papers of Rajasthan i.e. Dainik Bhaskar, Rajasthan Patrika, Dainik Navjyoti and small News Papers like Yugpaksh, Abhay India, National Rajasthan, Thar Express, Desert Times, Thar Savera, Raftar, Khas Khabar etc. have continuously covered our programmes all through the year.

15. **Calendar, Posters, Banners, Pictures & Leaflets**: One attractive Calendar for the year 2016 focused on promoting camel husbandry was prepared and released on January 1, 2016. Very attractive posters, banners, pictures and leaflets were prepared for promoting camel husbandry.

16. **Documentary** : "Talks of Camel: A Mission for Conservation of Camel" documentary: has been prepared to cover and highlight the components of the programme along with the feedback from the stakeholders and assessment of the impact among the camel farmers.

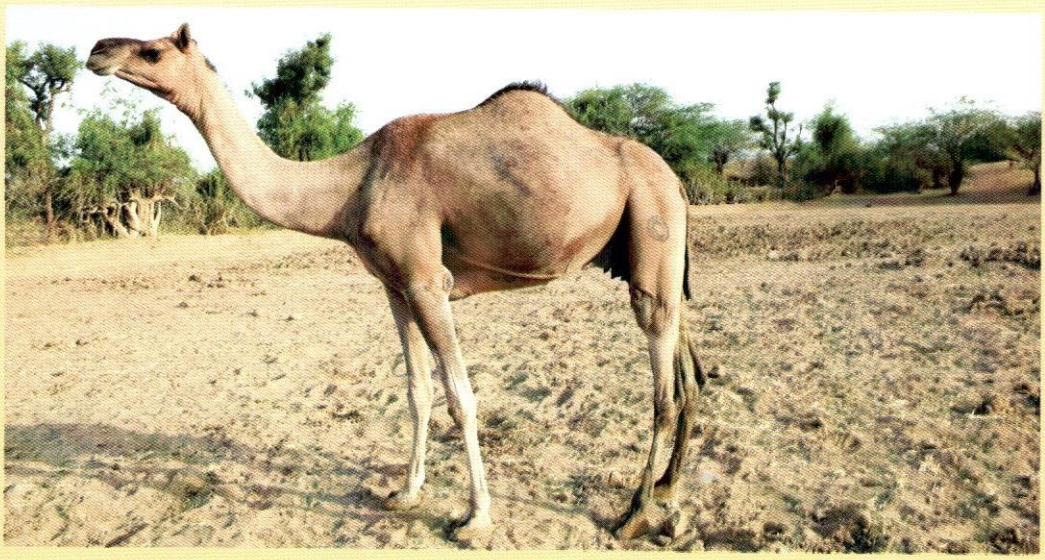
17. **Exhibitions** : Exhibitions on camel husbandry were organised at two places in Udaipur district and one each in Jhalawar and Pratapgarh district, to create awareness and improve the technical knowledge of the camel owners.

18. **Work Shop**: One day workshop with the Camel Milk Vendors was organised at Veterinary Polyclinic Campus, Udaipur to address various issues pertaining to sale of camel milk, human health benefits of camel milk, packaging, transportation and eMarketing of camel milk through websites etc.

19. Camel Competitions: In state level Chandrabhaga Fair 2015, in order to promote rearing of better animals for breeding and production and to encourage the camel owners, various competitions were organised and 40 Camel Owners were honoured for the purpose.

IMPROVEMENT AND CONSERVATION OF JALORI CAMEL

The camel riding, camel dancing, camel carts, camel safari and other aspects of camel draught utility exist in the tract. These activities need to be supported and encouraged by converting this unorganised business into organised one and by modernising them. The other important source of income to the camel farmers in the tract is through sale of camel milk and surplus animals. The Open Nucleus Breeding Programme for increasing the milk production with its nucleus at the Government Farm or Research Centre and associated herds with the camel owners may lead to significant improvement in the production potential of the animals and increase in the income of camel farmers. An integrated rotational grazing system, silvi-pasture development programme along with proper nutritional and health care support will facilitate the camel owners in rearing the camels *in situ*. Continued policy support and awareness programme will not only help the camel owners in maintaining the Jalori camel with diverse livestock species under optimum production but also will boost their morale and bring happiness in them.



BREED DESCRIPTOR

A. GENERAL DESCRIPTION

1.	**Name of the breed**	:	**Jalori**
2.	**Local Names/Synonyms**	:	Jalori, Sanchori
3.	**Species**	:	Camel *(Camelus dromedarius)*
4.	**Background for such name**	:	Named after the habitat: Jalore
5.	**Since when breed is known**	:	Since long
6.	**Communities responsible for breeding**	:	*Dewasi*
7.	**Native environment**		
	a. Soil description soil	:	Sandy clay, sandy loam, saline
	b. Mean min. temperature-summer	:	25 o C
	c. Mean maxi. temperature-summer	:	42 o C
	d. Mean mini. temperature-winter	:	9 o C
	e. Mean maxi. temperature-winter	:	29 o C
	f. Relative humidity	:	25- 55%
	g. Annual rain fall	:	400-580 mm
8.	**Feed and Fodder**		
	a. Dry feeds	:	Wheat straw *(Tritium aestivum)*, Guar Phalgati *(Cyamopsis tetragonoloba)*, Moth chara *(Phaseolus aconitifolius)*, Ground nut fodder *(Arachis hypogea)* Cadvi of Jowar *(Sorghum vulgare)* Bajra *(Penniseteum typhoideum)*.
	b. Green fodder	:	Bajra *(Penniseteum typhoideum)*, Jowar *(Sorghum vulgare)* and Jai *(Avena fatua)*.
	c. Grasses	:	Sewan *(Lasiurus sindicus)*, Dachab *(Cyperus rotundus)*, Ganthia *(Dactyloctenious aegyptium)*, Bakeria *(Indigofera corifolia)*, Kanti *(Tribulus terrestris)*, Sata *(Trianthema portulacastrum)*

d. Bushes	:	Phog *(Colligonum pologonoides)*, Ker *(Caparis deciduas)*, Bui (Areva tomentosa) & Sinio *(Crotolaria burhia)*
f. Trees	:	Neem *(Azardirachta indica)*, Khejri *(Prosopis cineraria)*, Kikar *(Acacia tortlis)*, Roheeda *(Tecomella undulata)*, Babool *(Acacia arabica)*, Fig *(Peepal) (Ficus religiosa)*, Unth-Kantalo, Kaldo, Lungta
g. Others	:	Sweet oil (Groundnut, Mustard, Sesame, Linseed), Jaggery, turmeric, Ajwain and common salt

9. Housing

a. During nights only	:	Mostly
b. Day and night	:	None
c. Housed in kutchha	:	Mostly
d. Housed in puckka	:	None
e. Open house	:	Mostly
f. Closed type house	:	None

10. Water sources

a. Tanka (%)	:	09.58
b. Ponds, Rivers	:	59.57
c. Tube wells (%)	:	30.85

11. Management

a. Semi-intensive (%)	:	Negligible
b. Extensive (%)	:	Mostly

12. Mating method : Natural service only (Breeding season: December to February)

B. PHYSICAL CHARACTERISTICS

1. Coat color

a. Light brown (%)	:	72.21
b. Brown (%)	:	20.84

c. *Dark Brown (%)* : 06.95

2. Hair on ears and eye lid (Jheepra)
   a. *Absent (%)* : 100.0
3. Hair length
   a. *Small (%)* : 23.50
   b. *Medium (%)* : 73.77
   c. *Large (%)* : 02.73
4. Head
   i. Size
      a. *Small (%)* : 20.60
      b. *Medium (%)* : 58.60
      c. *Large (%)* : 21.00
   ii. Stop (Well marked depression above the eyes)
      a. *Absent (%)* : 100
   iii. Fore head
      a. *Normal (%)* : 100
   iv. Supra-orbital fossa : Normal (not deep)
   v. Muzzle : Tight
   vi. Lips
      a. *Normal (%)* : 99.83
      b. *Droopy (%)* : 00.17
5. Body size
   a. *Small (%)* : 18.44
   b. *Medium (%)* : 61.21
   c. *Large (%)* : 30.35
6. Chest pad : Developed
7. Hump size
   a. *Small (%)* : 34.83
   b. *Medium (%)* : 52.27
   c. *Large (%)* : 12.90
8. Udder (females)
   a. *Round (%)* : Round
9. Teat : Conical
10. Milk vein(Females)
   a. *Small (%)* : 34.59
   b. *Medium (%)* : 44.56

c. *Large (%)* : 20.85

11. Temperament : Active

12. Morphometric characters (cm) :

	Adult Male	Adult Female
i. *Heart girth*	: 205.72 ± 2.12	207.58 ± 0.66
ii. *Body length*	: 155.01 ± 1.38	154.90 ± 0.40
iii. *Height at wither*	: 199.12 ± 1.73	199.12 ± 0.60
iv. *Tail length*	: 54.45 ± 0.75	54.99 ± 0.28
v. *Neck length*	: 103.54 ± 1.16	105.47 ± 0.43
vi. *Face length*	: 46.75 ± 0.43	46.38 ± 0.15
vii. *Distance between eyes*	: 22.58 ± 0.24	22.09 ± 0.08
viii. *Ear length*	: 11.22 ± 0.13	10.85 ± 0.04
ix. *Fore leg length*	: 149.33 ± 0.85	149.86 ± 0.22
x. *Hind leg length*	: 160.7 ± 0.92	161.18 ± 0.28
xi. *Foot pad*	:	
i. Fore leg (Length)	: 18.42± 0.23	18.92± 0.08
(Width)	: 19.43 ± 0.23	19.95 ± 0.08
ii.Hind leg (Length)	: 16.77 ± 0.27	17.23 ± 0.09
(Width)	: 17.80 ± 0.27	18.27 ± 0.09

13. Growth

Age	Body Weight ± Standard Error (kg)
i. *≤1 Year*	: 260.64±0.00
ii. *2 Years*	: 282.50±22.93
iii. *3 Years*	: 328.89±21.24
iv. *4 Years*	: 452.50±24.98
v. *≥5 Years*	: 510.67±17.71

C. PERFORMANCE

1. Draught	:	Good
2. Dairy performance	:	
a. Daily milk yield	:	5 liters per day (with calf suckling)
b. Lactation length	:	16 months
3. Hair production (Annual)	:	~700 gm per annum
4. Hair Quality		
a. Fibre Length (cm)	:	6.69±0.14
b. Fibre Diameter (μ)	:	42.49±2.31
c. Medullation (%)	:	95.13±0.73

D. REPRODUCTION

		Male	**Female**
1. Age at puberty	:	4 years	4 years
2. Age at first oestrus	:		3.5 years
3. Age at first mating	:	5 years	4 years
4. Age at first calving	:		5 years
5. Intercalving period	:		2 years
6. Gestation period	:		13 Months
7. No. of calving	:		6-7 in life time

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