Ethno-veterinary Practices
Documenting Threatened Traditional Knowledge

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The camel herders in western Rajasthan have spent their lives observing camels. They have been existing and interacting with plants, landscapes, soil, and the weather. The knowledge they gathered is the product of their regular exposure and experience. This knowledge has been passed from one generation to another. This knowledge has not been documented in books and cannot be learned from textbooks. Every generation of young camel herders has learned this from their elders. The traditional inputs were a combination of plant and animal products, with other natural products. These treatments varied according to the ailment. The use of these measures depended on how effective the therapy is and the sharing of therapeutic knowledge among the herders.

Experienced herders have developed understanding around the following:

- Knowledge about the traits of each camel in their herd.
- Its social and genetic relationship with the other camels. Male breeding camels are selected carefully, taking factors such as height, colour, temperament, and character, as well as the milk yield of their mother and female relatives.
- Gained knowledge about the effects of specific plants on the health of the camels.
- Knowledge of how varied plantation impacts the quality and taste of the milk.
- Knowledge about how to keep camels healthy by moving them to specific grazing areas where they believe the vegetation is nutritious.
- An indigenous camel disease classification system and knowledge about making medicines to treat the camels from plants collected.

This knowledge was passed across generations. However, with the younger generation opting for alternative livelihoods the interest to gain this knowledge has disappeared. Camel herders have increasingly come to rely more on modern commercial medicines. This reliance has been met with distrust from community elders. They believe that traditional medicine derived from ecological resources has a greater impact. The traditional practices that were followed were either preventive or curative in nature. In our efforts to ensure that this information does not get lost, we have documented certain ethnoveterinary practices in this section categorised according to disease areas and reproductive practices. In the first part, we share our interviews with the camel herding community elders and in the second part of the section we have compiled the information we collated during our field work.

I. Learning from the Elders: Interviews with Camel Herders

- *Phularam Meghwal*
  Bikampur village, Bikaner district

Our family has been rearing camels for the past 50 years. I was responsible for taking our camels to the nearby pasture lands. These animals used to feed on *Khejri*, *Ber*, and *Jaal*. They used to get the required nutritional support from these plants. Over the decades, there has been a sharp decrease in these plantations, thereby, depriving the camels of rich sources of natural forage. Currently, the camels have to feed on *Prosopis juliflora* popularly known as *angrezi babool* in the region for fodder that does not fulfil their nutritional requirements. With the decline in diverse plantations, arranging forage for the camels has become expensive and cumbersome.

In the past, when our camels were infected with *Mange* then we used to mix Sesame Oil or Mustard Oil with *Leucas Aspera* locally referred as *Tumba*, boil the mixture and then apply the mixture on the infected areas. We also used to apply sulphur mixed with sesame oil or mustard oil that is believed to be beneficial for animals infected with Mange. The camel has been an important part of our lives. We used to depend on camel milk during droughts and harsh summers. Our community needs to come together and ideate on finding a solution to our current problems. If these problems remain unaddressed then we would soon be losing the ship of the desert.

- *Bhakar Ram Bishnoi*
  Gajjewala village, Bikaner district

We have been rearing camels for generations. The animal has been part of our family and our heritage. Unfortunately, with the present challenges around their health and fodder, it has become difficult for us to maintain the large herds we used to have.

Across the community, when our camels were infected with *Mange* we used to mix Sesame Oil or Mustard Oil with *Leucas Aspera* locally referred to as *Tumba*. The present-day vaccinations used by the veterinarians have barely any impact on our animals. Even the forage such as *Prosopis juliflora* popularly known as *angrezi babool* is abundantly available but it is not nutritious for our camels.

In the past the camels used to fetch a good price in the market, Even though the present current rate in the market is INR 20,000- 25,000 but with the state-wide ban on trade, this source of livelihood has been curbed. We were easily able to earn a good amount and ensure that the requirements of the camel were met from that income. However, with the mounting healthcare costs, declining grazing lands and no income from the animal, we are being forced to reduce our herds.

- *Mahadan Raika*
  Charanwala village, Bikaner district

Mahadan Raika has a herd of 70 camels. He comes from a family that has for generations been rearing camels. In the past, the animals used to rely on the plantations in common property resources that comprised Phog*, Kair, Neem, Babool,* among others. He lamented that presently all the traditional grazing areas are getting dried up and the locals are not paying attention to manage them correctly.

He emphasised that it is important to provide good medical services to the camels otherwise their survival would be seriously threatened. He said with his herd size being so large, relying on modern medicine is difficult. He believes the ethno-veterinary practices used by his ancestors are efficacious today as well. He still uses Sesame oil mixed with *Leucas Aspera* locally referred to as *Tumba for treating animals infected with Mange.* In addition, the used engine oil of vehicles along with sulphur in paste form is applied to the affected area. He believes that these practices ensure limited expenses on the healthcare of camels.

- *Bhanwararam Raika*
  Bajju Tejpura village, Bikaner district

Bhanwara has one of the largest camel herds in his own and adjoining villages. Due to the mounting veterinary care costs, he has resorted to switching back to ethnoveterinary practices adopted by his ancestors. The high veterinary care expenses took a toll on his family income and presently he uses only home remedies to tend to the diseased animals.

In the past, when the animals were infected with *Mange*, we used to rely on our ethnic veterinary practices. We used to apply sesame oil mixed with *Leucas Aspera* locally referred to as *Tumba* for animals infected with *Mange.* To ensure that the animals remained healthy, they were frequently fed with jaggery and alum. He emphasized that if he does not provide good medical services to the camels then the survival challenge would continue.

- *Megharam Raika*
  Kolasar West village, Bikaner district

I was just 10 years old when I started looking after our camels. Our region has deficit rainfall and the amount varies every year. During the times of low rainfall, we used to rely on camel milk for sustenance. We used to prepare *kheer,* buttermilk, and tea from camel milk. Everyone in the family was fed these dishes. Most of the camel herding families used to rely on camel milk during those harsh seasons. There was a scarcity of water so we used to feed them water for 5 days. *Phog*, *Kair*, and *Khejri* were present abundantly in the common property resources. The camels were fed those plantations. We never had to worry about their forage. Currently, there has been a sharp decrease in these pasture lands. Even last-mile veterinary care connectivity was a grave issue. It was difficult for us to traverse large distances with our camels and the doctors did not use to come to our region.

We used to rely on our traditional methods for ensuring the good health of our camels. When the camels had any gastric problems then they were fed *Asafetida* and *Cumin seeds* were mixed and fed to the animal. We used to apply sesame oil mixed with *Leucas Aspera* locally

referred to as *Tumba* for animals infected with *Mange.* The state government needs to help us to bear the expenses of our camels.

II. Ethno-veterinary practices discussed during fieldwork

The following ethnoveterinary practices were discussed in many of the conversations during our fieldwork in Bajju cluster. In the section, they have been classified concerning the diseases and during their gestation cycle they are used in.

1. Mange (*khujli, paanv*)

   The cases of Sarcoptic Mange were the highest. Camel Mange is a contagious skin disease, characterized by scab formation, pruritic dermatitis, thickening and corrugation of skin and hair loss, and caused by the parasitic mite. The camel herders also remain at risk of being infected. Its severity increases during the winter months. More cases of infestation are reported from September to December as compared to January-April and May-August. The incidence of the disease is greater in adult camels as compared to younger ones.

   Traditional treatment measures include applying the following mixtures on affected areas,

   - used engine oil of vehicles along with sulphur in paste form is applied. The treated animals should not be exposed to the sun for one/two days.
   - plastering of salty mud on the body of the animal and it should be repeated twice a week.
   - spray the water boiled with younger neem leaves in water for about 30 minutes and allow it to cool. Spray the water on the body and affected parts.
   - sulphur (50 gms), copper sulphate (50 gms), Mansil (50 gms) and Potash (60 gms), are crushed and mixed thoroughly with 5 kg of oil. In case of more severity, it is mixed with the extraction of warm aak leaves and mixed with the above mixture.
   - Gammexane powder 5% one part, 2 parts ash, 1 part sulphur is thoroughly mixed in oil. The animals should be protected from severe sun rays for a few days.
   - oil extracted from banana leaves is applied on the infected areas.
   - sulphur mixed with sesame oil or mustard oil is believed to be beneficial for animals infected with Mange.
   - sulphur with extracts from the linden tree is mixed with oil and applied to the impacted area.

- antihistamine such as Avil mixed with liver extracts and vitamin B-complex supplements is useful.
- yellow soil is applied to the affected areas.

2. Trypanosomiasis (sarra)

   The diagnosis of Trypanosomiasis has been notoriously difficult. It is difficult to identify clinical signs. All camels are susceptible to the disease regardless of breed or age. If left untreated it could also result in the death of the camels. The traditional measures are limited for this disease. The camels are fed alum which is believed to be beneficial during this disease. With the traditional medicines and practices resulting in limited relief to the animal the reliance on modern medicine for treatment has increased.

3. Injury

   The camels frequently have foot rot that results in swelling and lameness. The herders use a combination of varied measures that they claim relieves the animals of the pain. It includes:

   - A hot rod treatment over the ears of the camel is undertaken.
   - the urine of humans sprayed in the nostrils of the animals.
   - chilled water or warm water sprayed in the nostrils of the animals. It is believed that when the animal responds with a jerk then their sprain gets treated.

(left) Gena Ram Raika applying a mixture of mustard oil with sulphur on his camel infected with Mange, Grandhi village, Bikaner district

(right) Mangi Singh posing with banana oil used for tending to Mange infection, Paithro ki Dhani, Girajsar village, Bikaner district

4. Gastro-intestinal problems
    - The camel herders have adopted certain practices to aid the animal during indigestion. They believe that if followed regularly the animals would be free from gastric infections.
    - Buttermilk (chaas) is regularly given to the animals because it is believed to have deworming qualities and help in digestion.
    - In addition, turmeric is often added to buttermilk to aid in digestion.
    - Garlic is mixed with ghee and added to the diet of the animal.
    - The leaves and seeds of bitter cumin (kali jeeri) are sometimes used as herbal medicine to aid the digestion of the camels.
    - Alum is grinded and mixed with water. It is then fed to the camels as it is believed to neutralise the laxative effect of their diet.
    - The Leucas zeylanica (tumba) is fed to animals in varied forms. The seeds are either fed directly or the fruit is heated overnight and the seeds are fed to the camel in the morning.

5. Camelpox

    The disease results in morbidity, loss of weight and reduction in milk yield. The incidence of severe cases of Camelpox outbreaks is increased during rainy seasons and the milder form occurs during the dry season. The disease is characterized by an initial rise in temperature, followed by enlarged lymph nodes, skin lesions and prostration. The clinical manifestation of Camelpox varies from mild local to severe systemic disease. The herders use a host of measures that include:

    - Azadirachta indica (neem) , considered to possess antifungal and antibacterial qualities, is boiled in water and applied to the affected areas.
    - the urine of humans when applied topically to the skin, is believed to decrease the symptoms of skin infections and is applied on the affected parts.

III. Reproductive Health Practices

1. During gestation
   To ensure that the camel remains healthy during the gestation period as well as the calf born is healthy, special attention is given to the nutrition of the camels. Ghee and jaggery is supplemented with the regular diet of the pregnant camels.

2. Care of postpartum camels
   Post the birth of the calves, the herders are very particular about ensuring that the camels are healthy and any possible infection is prevented. The camels are fed carom seeds (ajwain) which are believed to provide relief against gastric problems and aid in the recovery of the uterus.

   Mastitis is recognized to be affecting almost all domesticated species of the animals and reported from all over the world resulting in colossal losses in terms of reduced milk production, cost of treatment, veterinarian's fee, discarding of milk, etc,. It is broadly described as subclinical or clinical subclinical Mastitis. The first is the presence of infection without apparent signs of local inflammation and the latter is an inflammatory response to infection-causing visibly abnormal milk. The herders believe that making the animal engaged in moderate post-calving exercise in terms of walking to relieve odema and subsequently the development of Mastitis.

3. For maintaining breeding studs
   The number of breeding males is usually very low in a herd. To ensure that they remain healthy, fertile and fit, certain dietary supplements are added. These include:

   - red alum, jaggery, and mustard oil during the breeding season to avoid fatigue and increase libido.
   - black pepper is mixed with ghee or jaggery to increase the libido of the breeding camel.