



Traditional knowledge for dairy animals in Una district of Himachal Pradesh

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Traditional knowledge (TK), also known as indigenous knowledge (IK) or local knowledge (LK) generally refers to the matured long-standing traditions and practices of certain regional, indigenous, or local communities. India stands at number 1 in milk production as dairy master across the world. However, due to large number of animal population, distant/remote location, shortage of veterinary staff, some time, veterinary aids are not available to the farmers. In such instances, it is the traditional knowledge of the people which guides them to mitigate the sufferings of the animals. In this article, some of the ITKs are described based on oral communication with the people.

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Traditional knowledge (TK) is knowledge, know-how, skills and practices that are developed, sustained and passed on from generation to generation within a community, often forming part of its cultural or spiritual identity³. India has a very rich knowledge for health control of human as well as animals. This practical knowledge is percolating from one generation to another by oral talk and considered to be effective for ailment management particularly in rural and weaker sections of the society.

Due to urbanization and through depth in medical science, human is more dependent on allopathic system of medicine. However, animals are reared in rural and remote locations where sometime lack of timely veterinary services, make the local people to use ITKs to treat the animals. This ITK knowledge is imperative in keeping a healthy livestock and for their economic benefit. For example, for control of tick in dairy animals practices like feeding of high salted plants, collection and burning of ticks in the morning, etc are used.

However, the irony is that such technical knowledge prevalent in different traditional communities is not properly documented due to which most of them are at the verge of extinction¹. It happened since independence, because all efforts in India were concentrated on developing an allopathic-based veterinary infrastructure entirely under the government sector. There has been neglect of traditional system and knowledge to the extent that many of us, even those specializing in veterinary medicine, are unaware of ancient literature. Keeping in the view of importance of ITKs prevalent in Una District, the documentation of present study was objective.

Methodology

The present study was conducted in the Jankaur village of Una District of Himachal Pradesh. The study was undertaken by Scientists probationers from ICAR-National Academy of Agricultural Research and Management, Hyderabad in collaboration with Krishi Vigyan Kendra, Rampur, Una in the year February, 2016. This 21 days FET (Field Experience

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Training) was the part of their three months basic foundation course. The ITKs information was collected from a total of 16 farmers over a period of 21 days. The method of collection was oral communication and discussion among Scientists and the villagers. The verbally collected information was documented and is presented in this paper.

Results





The use of Allantoic fluid, Tukmalanga, Dalda ghee, Funnel, Kerosene, Mustard oil, Sesame oil,

Hing etc as compiled in the paper are very important as ethnoveterinary medicine is an emerging area. These may reduce the dependency on the current use of antimicrobials, and may promote organic dairy practices in future. The noted ITKs, dose, route of application and pictorial representation are given below in **Table 1**.

Discussion

All over India, there are experienced and knowledgeable specialists who practice indigenous





Table 1 — Table representing ITK, Method, use and picture documented at Jankaur village, Una (H.P.)

Sr. No.	ITK Name	Quantity/Method	Use	Picture
1	Animal hair clipping	Using scissors	To prevent lice and tick infestation	
2	Feed formulation	Wheat, pulse, salt, cotton cake, sweet funnel, hara chara	For better health and milk production	
3	Allantoic fluid	1-2 litre	RFM prevention	
4	Tukmalanga (<i>Ocimum basilicum</i>)	1.5 Kg in 3 litre cow milk	Prolapse	

(Source:<https://morningchores.com/how-to-shear-a-sheep/>)







(Source: Transtornos-clinicos-do-sistema-urogenital-dos.html)

Table 1 — Table representing ITK, Method, use and picture documented at Jankaur village, Una (H.P.) (Contd.)

Sr. No.	ITK Name	Quantity/Method	Use	Picture
5	Dalda ghee	0.5 Kg in 0.5 kg jaggery	Anestrus	
6	Sesame oil (<i>Sesamum indicum</i>)	250 mL for 10 days	Mastitis, repeat breeder, breeding bull	 
7	Hing (<i>Ferula asafoetida</i>)	Oint. in water for mastitis and feeding as 5-10 g for treatment of bloat	Mastitis, bloat	
8	Turmeric (<i>Curcuma longa</i>) and mustard oil (<i>Brassica nigra</i>)	30 g in 500 mL	Tympany	
9	Mustard oil (<i>Brassica nigra</i>)	500 mL	Constipation	




(Contd.)

Table 1 — Table representing ITK, Method, use and picture documented at Jankaur village, Una (H.P.) (*Contd.*)

Sr. No.	ITK Name	Quantity/Method	Use	Picture
10	Salt+ turmeric (<i>Curcuma longa</i>) + mustard oil (<i>Brassica nigra</i>)	3g Salt and 2g Turmeric in 10-15 mL mustard oil	Ascariasis	
11	Neem leaves (<i>Azadirachta indica</i>)	Soaked in luke warm water	Reduce swelling in HS	
12	Alsikabutta/tat/ kasekialsikifali (<i>Linum usitatissimum</i>)	Dried then, boil in water, cool it and offer for drinking	Choke, reduce swelling	
(Source: https://www.wisegeek.com/what-are-flax-seeds.htm)				
13	Dhan (<i>Oryza sativa</i>) + sugarcane (<i>Saccharum officinarum</i>) + srad	2.5 handful of each	RFM	 
(Source: https://www.pinterest.com/pin/435301120230572855/)				
14	Halma+ mithi sounf (<i>Foeniculum vulgare</i>)	Equal quantiity @ 100 g/d	Mastitis	

(*Contd.*)

Table 1 — Table representing ITK, Method, use and picture documented at Jankaur village, Una (H.P.) (Contd.)

Sr. No.	ITK Name	Quantity/Method	Use	Picture
15	Kerosene	Hoof dip, inhalation	FMD, HS	
16	TT oil+ mustard oil	3:2	Tympany	
17	Mosquito	Burning of cow dung cake	Mosquito and fly repellent	

(Source: <http://es.senhaioil.com/cosmetic-essential-oil/57147221.html>)

techniques, but their knowledge is not well documented, merely being transmitted verbally from one generation to the next. The basic component of any country's knowledge system is its indigenous knowledge. It encompasses the skills, experiences and insights of people, applied to maintain or improve their livelihood⁵. There has been neglect of traditional systems and knowledge to the extent that many of us, even those specializing in veterinary medicine, are unaware of ancient literature and some are even skeptical about it⁴. In recent years emphasis has shifted towards modern science in the maintenance and development of livestock. Traditional Knowledge about Dairying Traditional healers know a lot about the transmission and spreading of diseases. Some of them are discussed here and documented as per discussion with farmers of Una, District of Himachal Pradesh.

1 Hair clipping: In last stage of winter months, with domestic cloth shearing scissors, farmers clip the hairs of the animals. The scientific rationale behind

this practice is that for prevention of ectoparasitic infestation (Lice, tick, flies etc.), these parasites will not get their site of accumulation, due to lack of which, parasites will not be able to suck the animal blood, subsequent to which the production of milk in dairy animals is not affected otherwise milk production get reduced in parasitic infested animals. Further, these ectoparasite are transmitter of several protozoan diseases of dairy animals which may sometime cause death of animals. Ectoparasites cause annoyance in the animals as well due to which milk production also decreases. Clipping of hairs is methods by which transmission of parasites from animals to animals also get reduced.

2 Feed formulation: Traditional feed formulation used in proportionate ratio to feed as concentrate from locally available materials. They mix different ingredients and boil them and on cooling fed to animals. This is economic as compared to

- commercially available concentrate mixtures. Further, these are more nutritious as well.
- 3 Drenching of allantoic fluid: Retention of fetal membranes is a common condition in dairy animal where animal fails to expel the placenta after parturition. This condition results in decrease in milk production, anorexia, metritis, toxemia and sometime death may occur. To prevent such consequences people use to drench the allantoic fluid collected during first phase of parturition. They collect it in common utensil by puncturing the allantoic bag and offer to animal in 1-2 litres quantity. The rational may presence of ecobolic substances in the fluid which stimulate the contractions of uterine musculature to expel the placenta at faster rate.
 - 4 Feeding of tukmalanga/sweet basil seed (*Ocimum basilicum*): Prolapse is a reproductive disorder when abnormal repositioning of cervi/ vagina or sometime both occurs from its normal anatomical position to hanging outside the vulvar lips. Feeding at the rate of 1.5 Kg in 3 liters cow in divided doses at the rate of 250 g in 500 mL milk in 5-6 daily doses may prevent or cure the prolapse. The scientific rational of use of this ITK is unclear.
 - 5 Feeding of dalda: Dalda contains Vitamin A, Long chain fatty acids and high caloric energy. With the compulsory addition of synthetic vitamin A at the level of 700 I.U/oz by manufacturer, vanaspati is now nutritionally as good as average cow ghee. Jaggery is rich in phosphorous and energy. The dalda along with jaggery used to fed to dairy animals suffering anestrus. Anestrus is a reproductive disorder when animal fails to come in estrous cycle. The major causes of anestrus are lack of energy, negative energy balance, deficiency of minerals and vitamin etc. Thus, rational of feeding of dalda and jaggery is due to its nutritional value.
 - 6 Feeding of sesame oil (*Sesamum indicum*): The sesame oil used to feed repeat breeders, breeding bulls and animals suffering from mastitis. It was fed particularly in winter. Sesame oil contains about 40% of linoleic acid. It is long chain fatty acid which helps to maintain pregnancy in females and helps in improving sperm quality in males. In mastitis it might be working by prevention of bacterial infection, although not clear.
 - 7 Application of hing (*Ferula asafoetida*): Hing used as ointment by dissolving in water for direct application on teats for mastitis treatment and its feeding as 5-10 g/ animal for treatment of bloat. For mastitis, its effect is unclear but for treatment of bloat, rationale is that it reduces the surface tension in frothy bloat and relieves the condition by removal of gas from the rumen.
 - 8 Feeding of turmeric (*Curcuma longa*) and mustard oil (*Brassica nigra*): Bloat is the over distension of the rumen and reticulum with gases derived from fermentation. To relieve the over distension solution of turmeric (30 g) in 500 mL used to treat the animal by virtue of fact that both have carminative action. Further, details are unclear.
 - 9 Feeding of mustard oil (*Brassica nigra*): Due to laxative action of mustard oil, it may be used to relieve the constipation in dairy animals particularly suffering from impaction or other related digestive disturbances.
 - 10 Feeding of salt, turmeric and mustard oil combination: Ascariasis (Junn) is wormy condition resulting loss of body condition, decreased production, diarrheas and may be fatal particularly in calves. The combination of salt, turmeric and mustard oil used to kill and expel the ascarid worms from the gastro-intestinal tract. The rational may be the salt may cause death of worms by osmotic action on their body wall, turmeric may have anti infective effect in the animal's body to the damage caused by ascaris, while the mustard oil expel the dead ascaris from the body by laxative action.
 - 11 Application of neem leaves (*Azadirachta indica*): Around 250 g of neem branches with attached leaves soaked in luke warm water may be used to reduce the swelling of the brisket region of the animal suffering from hemorrhagic septicemia (H.S.). H.S. is a bacterial disease which causes brisket oedema resulting labored breathing and subsequently death.
 - 12 Application of alsika (*Linum usitatissimum*): Collect the alsika, boil in water, strain it and cool the liquid portion, offer it to animal for drinking. This practice will help to reduce the swelling of the brisket region in animals suffering of H.S., Fascioliasis and other oedematous diseases.
 - 13 Application of dhan (*Oryza sativa*) and sugarcane (*Saccharum officinarum*): 250 g of each

(dhan and sugarcane) can be used to prevent retention of fetal membranes in dairy animals.

- 14 Application of halma and mithi soumf (*Foeniculum vulgare*) combination: Mix halma and Mithi soumf in equal quantity and fed @100g/d to prevent mastitis.
- 15 Application of kerosene: Inhalation of kerosene can be used to treat labored breathing in H.S. while topical application can be used in feet to cure lesions in foot and mouth diseases in dairy animals.
- 16 Application of turpentine oil and mustard oil combination: The combination of these oils in 300 and 200 mL to total 500 mL used as drench to cure the tympany in dairy animals.
- 17 Smoke of cow dung cake: Burning of cow dung cake to generate smoke inn evening at the animals place used as fly and mosquito repellent.

The above documented ITKs are very beneficial to farmers as observed and should be further investigated for scientific details. As now a day, many indigenous knowledge systems are at risk of becoming extinct because of rapidly changing natural environments and fast pacing economic, political and cultural changes on a global scale. Efforts are being made to conserve, promote and document such indigenous traditional knowledge methods particularly in context to dairy animal

management. In India, several organizations such as BAIF, Pune and NDDDB, Gujrat are involved in documentation and validation of indigenous technical knowledge system².

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References

- 1 Borthakur A & Singh P, Indigenous Technical Knowledge (ITK) and their Role in Sustainable Grassroots Innovations: An Illustration in Indian Context, In: *Proceedings of International Conference on Innovation & Research in Technology for Sustainable Development (ICIRT)*, 2012, 38.
- 2 Dwivedi SK, Overview of ethnoveterinary practices in India, In: *ICAR short Summer Course on Technique for Scientific Validation and evaluation of ethno veterinary practices*, 3-12th August, 1998, (Division of Medicine, IVRI, Izatnagar), 1-5.
- 3 <https://www.wipo.int/tk/en/tk>
- 4 Rangnekar DV, Random thoughts on Ethno veterinary Practices and Validation in relation to Livestock Development in India, In: *ICAR short course on Techniques for scientific validation and Evaluation of Ethno veterinary practices*, 1998, 24-27.
- 5 World Bank, Knowledge and skills for the information age, In: *The first meeting of the Mediterranean development forum*, 1997.