

Indigenous Ethnoveterinary Knowledge and Livestock Management Amongst Transhumant Pastoralists of Central Himalaya

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INTRODUCTION

Indigenous knowledge of cattle crossbreeding, livestock management and ethnoveterinary medicine is the knowledge possessed with regard to animal health management and disease that is passed on in the form of an oral tradition down the generations (Kohler, 1994). The transhumant Bhotiya pastoralists of Darma and Byans valleys in the Indian Central Himalayan high altitudes have practically no contact with modern veterinary medicine and science. But their rich knowledge on the subject has helped them to develop better stock of cattle and livestock breeds well adapted to their environmental conditions. Further, it has also helped them to prevent and treat many, even if not all the diseases afflicting their animals.

Since Yak (*Bos grunniens*), sheep (*Ovis aries*) and goats (*Capra hirtus*) are normally kept by these transhumant pastoralists who are constantly on the move, the information about these multipurpose high altitude animals, capable of adapting to the harsh physical environment of high altitude Himalaya rests with these people (Atkinson, 1989). The rearing and breeding of these bovine animals particularly, the cross breeding of yak with local cow (*Bos indicus*) is inextricably linked to transhumant pastoral grazing by the Bhotiya communities. The various breeds of sheep and goats presently being utilised by this society, has been selected by the local herders over a long period of time. Similarly, they have also produced different varieties of yak and cow cross breeds for different purpose. The quest of these pastoralists to produce improved cross-bred animals suited for a specific role and conditions, based on different ecological conditions and thus grazing systems have resulted in the genetic diversity of livestock and cattle well-adapted to adverse climatic conditions and disease (Farooquee and Saxena, 1994). These pastoralists have extensive knowledge about the pharmacological effects of local plants

too. They have also developed their own techniques against diseases including brucellosis, and foot and mouth disease. Traditional surgical methods and techniques have also proved successful in the case of fractures and external wounds.

Traditional Yak-cow Cross Breeding Strategies

In order to ensure that the productivity level from the animal husbandry meets the subsistence needs of the community, different families have different aims in cross-breeding different breeds and cross breeds of yak and cow, some do for the requirement of milk production because yak milk has a high butter-fat content, some families for the requirement of pack animals, some for the wool and rest for sturdy draught animal (Table 1).

The traditional requirement of pack animals, owing to its geographical inaccessibility, the cross-border exchange or trading in a number of items including yak existed in this region at the tri-junction of India, Nepal and Tibet (now China) where these people have been in trade between these countries traditionally. This also helped them to introduce new yak breeds and that promoted genetic exchanges. Yak bulls were procured from Tibetan markets, and few traditional experts who can identify the yak bulls were sent to the market for their selection (Farooquee and Nautiyal, 1996). According to the Bhotiya herders, selection of yak bulls is done based on

Table 1: Achievements in breeding yak (*Bos grunniens*) with cow (*Bos indicus*)

Male	Female	offspring female	Offspring male
Yak	Cow	Jumo	Jhupu (fertile)
Yak	Jumo	Garmo	Garu (sterile)
Yak	Garmo	Yak	Yak
Local bull	Yak cow	Dumjo	Dumju
Local bull	Jumo	Talbuni	Talbu
Local bull	Garmo	Talbuni	Talbu
Yak	Talbuni	Garjo	Garju

the recommendations of their Tibetan trading partners who are more familiar with the animal. However, following criteria are considered in the selection of yak studs: rich thick hair; wide horns which curve outward; hairy tail and shrunken scrotum; broad forehead, etc. Similarly, the selection of cow for cross breeding is done by the owner of the cow, who generally emphasizes on their reproduction. Sometimes, cows are also selected based on their milking capacity. However, there are few other criteria also in this regard.

Those cows which have produced a calf earlier are traditionally preferred, weak and small ones are not preferred. Generally, the age of cow kept in breeding pool is between 4 to 6 years, and the size of breeding pool is between 5 to 6 cows in a group. These cows are left to graze separately with the yak bull, where they mate during grazing hours. The bull mates with the individual cow or even whole herds, that is why the number of cows in a breeding pool is kept small, and only the prospective cows are put in the pool. Natural selection is still better able to accurately and effectively predict survival rates than any current procedure devised by the man (Wu, 1997).

Indigenous Livestock Management, Treatment and Conservation Strategies

Although pastoral societies have for thousands of years been developing indigenous knowledge concerned with the management of their livestock and conservation of resources, this wealth of knowledge has not been documented earlier in such a way that it can help in planning and development of such programmes. For the sustainable utilization of the available grazing resources, and for better management of their livestock required for their survival and producing better stock, they have divided their entire sheep and goat population into four categories. The ones used for procreation, those used for wool production, ones used as pack animals and those used for meat consumption. These four categories accordingly get preferential treatment, nutrition and care. The first category of livestock gets utmost care, and are fed with most nutritive grasses, they are grazed first in any new grazing land so that they get the best available resources. The second categories consist of Tibetan varieties

of sheep and goats which are used for wool production, and get second attention and consequently the rest used as pack animals and for meat consumption (Table 2) (Farooquee and Saxena, 1994; Farooquee, 1998).

Table 2: Classification of livestock for better management and conservation

Livestock	Purpose	Treatment
Sheep and Goats	Procreation	Most cared and well fed
Sheep and Goats	Wool production	Protected from rain
Sheep and Goats	Transportation	Less cared
Sheep and Goats	Consumption	Least cared

The Bhotiya pastoralists often depend upon their traditional physicians when their animals are ill. Some of these traditional physicians treat all kinds of ailments, while few specialise in certain diseases only. Often they do not even charge for their medicines which they usually make from local plants that grow in and around their settlements. Some of the most common plants used in their medicines are *Allium sp.*, *Orchis latifolia*, *Rhum emodi*, *Nardostachys jatamansi*, *Picrorhiza kurroa* etc. (Farooquee and Saxena, 1996). But it is rather unlikely that a Bhotiya pastoralist would consult government vets, due to lack of trust in the allopathic medical system, and confidence over their traditional medical system (Farooquee and Nautiyal (1999).

These people have also conserved a number of varieties of sheep and goats like the Chengu goats, Gaddi sheep and goats, and Rampur Bushair sheep used exclusively for wool production. They also have indigenous techniques of wool shearing, cleaning, dyeing, spinning and weaving developed over a long period of time. But, have remained exclusive to the region and community in terms of technology and knowledge. A wide range of variation in climatic and topographic conditions and the local selection pressures over centuries of livestock management and animal husbandry has resulted in a good livestock and cattle diversity used for a number of purposes.

The Current Scenario

In recent times, a number of changes including disappearance of native breeds of livestock

and cattle in the high altitude regions of the central Himalaya have surfaced. This was primarily due to lack of any developmental policy on livestock and cattle management on the higher elevations, and blind acceptance of Western notions of animal husbandry in the lower Himalayan regions, where some highly productive breeds of cattle and livestock were promoted at the cost of native breeds in the last two decades to meet the rising demand for animal products. Some of the other factors responsible for the erosion of indigenous knowledge and genetic base are socio-cultural changes, modern education and employment, urbanization, technological innovations, commercialization of rural economy, market forces and other developmental policies.

On the other hand, the growing focus and attention on ethnoveterinary medicine by the modern science and technology has started to document the traditional healing system in order to develop better treatment and effective medicare systems. The pioneers of modern ethnoveterinary, have defined the subject as "The holistic interdisciplinary study of local knowledge and its associated skills, beliefs, practitioners and social structures pertaining to the health care and healthful husbandry of food, work, and other income producing animals with the ultimate goal of increasing human well being via increased benefits from stock raising" (Table 3). As a result, the indigenous knowledge base relating to traditional healing systems, management practices, cross breedings and conservation strategies have been adopted and documented by modern science. Further, they have also started the commercial production of medicines and scientific analysis and promotion of such practices in the name of modern scientific prescription.

The biggest threat to these changes are not the eradication of traditional health care system,

but the patenting of these knowledge base associated with different pastoral communities in the light of validation of traditional treatments and comparison of their efficacy with that of orthodox medicine. Although many companies which produce animal medicines based on ancient ayurvedic recipes have invested a lot of effort in this field. But, it is imperative that the large share of benefits accrued from the indigenous ethnoveterinary knowledge should also go to the knowledge holders, i.e., the pastoral communities. Further, in view of the increasing concerns on Intellectual Property Rights (IPRs) it is important to develop a practicable code of conduct for protecting the ethnoveterinary knowledge of the pastoralists in general and Bhotiya pastoralists in particular.

The significance of traditional ethnoveterinary knowledge and indigenous practices is easily recognised in the domains of livestock management in remote inaccessible high altitude conditions. In fact tradition is indispensable also for science which could hardly advance unless each generation of scientists built on the work of the preceding generation. In science as in the cultural arts, a tradition is kept alive by being subjected to continual scrutiny and renewal. There is all the difference in the world between a knowledge approved by the developmental agencies, and a traditional knowledge that is alive but not recognized by the developmental policies. In spite of many virtues of indigenous livestock and cattle breeds, and the traditional knowledge of their management, treatment and cross-breeding, we are still losing some of these precious repository of ethnoveterinary knowledge. Strategies needs to be worked out and implemented immediately if Himalayan region is to benefit from its rich heritage and knowledge base.

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Table 3: Average income from various economic sources in the studied villages of Dantu, Sela, Bundi and Nabi, as estimated by the survey

Income	Dantu	Sela	Bundi	Nabi
Agricultural produce	32%	36%	29%	32%
Woollen products	18%	24%	22%	19%
Sale of livestock	38%	28%	37%	38%
Sale of medicinal plants	12%	13%	11%	11%

ABSTRACT The adaptation of transhumant pastoralists to the high altitude conditions harbour a huge variety of livestock management and cattle cross-breeding. The value of indigenous ethnoveterinary knowledge and indigenous cattle cross-breeding have not been taken seriously in the assessment of the potential for the development of the high altitude societies in general and pastoralism in particular. However, the traditional strategies and indigenous knowledge of the transhumant herders have eroded precariously due to various reasons. As a result, these strategies and indigenous knowledge are facing danger of complete eradication and consequently the economic security of these remote societies.

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