



Constraints faced by yak and yak cross rearing communities of Ladakh Region

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ABSTRACT

The study was carried out with an objective to ascertain different constraints faced by the yak and yak cross rearing communities in Ladakh. The constraints for this purpose were categorized under three main headings viz “Managerial constraints, Infrastructure and policy related constraints and marketing constraints”. The information was collected through personal interviews of the rearers and sampling technique used was snowball sampling technique. The results of the study revealed that in Management constraints the major constraints that the respondents from the study areas were facing was the “Lack of proper animal healthcare facilities” with an overall average score of 57.87 followed by “Unavailability of fodder throughout the year” as the 2nd major constraint with an overall average score of 51.22. In the Infrastructure and policy related constraints the major constraint that was unanimously perceived by the respondents from the two regions was “Lack of credit facilities” with an overall average score of 53.07 followed by “No price regulation of yak / yak cross milk and products” with an overall average score of 44.46. Under Marketing Constraints, the major constraint that the respondents were facing was “Lack of transportation facilities to the market” with an overall average score of 54.15 followed by “Lack of marketing information” with an overall average score of 52.35. From the study it was concluded that lack of proper animal healthcare facilities, lack of credit facilities to yak rearing communities and lack of transportation facilities to market are the major constraints which the yak and its cross rearing communities are facing and require intervention from the concerned authorities at different levels like provision for incentives like fodder, shelter during harsh climates, introduction of animal insurance and credit facilities etc. Value addition of yak products through processing for better marketing opportunities. Steps are also required for further strengthening of veterinary facilities in the region to address the concerns of the yak and yak cross rearing communities.

Key words: Managerial constraints, marketing, policy and infrastructure, yak and yak cross rearing communities

Livestock rearing is a major source of livelihood for the nomads of Ladakh region. Among other livestock species, yaks are prized as beast of burden in tough terrains of Ladakh and also as a source of high-quality milk and other products. Yak makes up for a vital source of food be it in the form of milk and meat, hair and skin for clothing and shelter and dung as fuel. Yaks have been closely associated with the culture, religion, and social fabric of the nomadic pastoral tribes in these areas due to their ability to survive in exceptionally harsh climatic and with scarce resources at disposal. At altitudes above 3800-4000 meters above sea level agriculture being unsustainable the population of these areas have adapted to a pastoral mode of life, rearing yak, sheep, goat and equines for their survival. Pastoralism being the only means of survival and subsistence for these people and

these nomads have been managing the pastures effectively by using well defined movement, tracking spatio-temporal changes and pasture quality, and predicting uncertainty and risks of drought, predation, and avalanches (Hagalia 2004; Walker and Meyers 2004; Walker et al. 2004). Irrespective of these extremely harsh climatic conditions and scarcity of resources, these nomads had been able to manage this fragile environment until recently (Miehe et al. 2009), but this scenario is now changing rapidly in response to socio-economic changes. Studies have revealed that pastoral practices in the Ladakh region have changed drastically with pastoral lifestyle changing from nomadic to sedentary, resulting in an increased grazing pressure on the available rangelands in the area surrounding these settlements (Singh *et al.* 2013). Besides this overgrazing has led to change in the floral composition with reduced plant cover and threat of extinction to valuable fodder species. With rapid increase in the population of other livestock especially sheep and goats and decline in the area of available pasture due to border issues between India and China, the number of yaks has decreased considerably over the last few decades (Singh *et al.* 2013). This decline in the production potential of yak and increasing competition for grazing lands, coupled with the overwhelming opportunities for employment particularly in the tourism sector, has changed the livelihood pattern of these nomads. These issues along with anthropogenic pressures such as growth in population, increased demand for goods and services, and education, has led to a rapid change in the pastoralist lifestyle (Singh *et al.* 2013).

In this paper, we are presenting the results of our study which was carried out in the Ladakh region with respect to the different kinds of constraints that the yak and yak cross rearing communities from this region are facing and the ways these are to be addressed so that this rearing practice will continue to flourish.

MATERIALS AND METHODS

The study was conducted in yak and yak cross rearing areas of District Kargil and District Leh in UT of Ladakh. From the Kargil district five villages from Drass and Zaskar regions were selected with villages Mushko and Holiyal from Drass region and Rangdom, Abran and Aksho from Zaskar owing to the presence of yak and yak cross rearing communities in these regions. Similarly from Leh, five villages from Nyoma blocks namely Chumanthang, Chumur, Hemya, Korzak and Kungium were selected.

The survey for the above purpose was carried out in late spring season when herders were present in the common pasture resources in the adjoining terrains. Respondents for this study were selected purposively on their migratory routes and in rangelands owing to their sporadic locations and less population. The sampling technique that was used for collection of information was the snowball technique also known as referral sampling technique (Baltar and Brunet 2012) and the representatives from 158 families with 79 from each district i.e. Kargil and Leh respectively were interviewed to gather information regarding the constraints they face in rearing yaks using an open-ended questionnaire.

Respondents were asked to assign the ranks to the different categories of constraints which are given below as per their opinion:

1. Production related constraints
 - a. Feeding
 - b. Health care
 - c. Breeding
 - d. Miscellaneous (Labour)
2. Infrastructural and Policy constraints
 - a. Existence of Co-operative society
 - b. Milk storing facilities
 - c. Training facilities
 - d. Price regulation of yak/yak cross milk
 - e. Animal insurance
 - f. Credit facilities
3. Marketing constraints
 - a. Marketing costs of yak milk & its Products
 - b. Marketing risks
 - c. Marketing information

Miscellaneous (lack of transportation facilities). The responses of these respondents were then ranked using Garret's Ranking Technique (Zalkuwii *et al.*, 2015).

RESULTS AND DISCUSSION

In the present study out of total 158 respondents from two districts Kargil and Leh under “Managerial constraints” the major constraints that the respondents from the study areas were facing was the “Lack of proper animal healthcare facilities” with an Overall average Score of (57.87) followed by “Unavailability of fodder throughout the year” was considered to be the 2nd major constraint by the respondents with an overall average score of (51.22). The constraint which was ranked at third number being “Unavailability of quality yak bulls for breeding” with an overall average score of (46.47) and under management related constraints “Unavailability of efficient Labour” being perceived as the 4th constraint with an overall average score being (45.44). When it came to availability of proper animal health care facilities Wangda (2016) in a study concluded that due to the remoteness and scattered nature of yak herds, these animals rarely receive even the basic veterinary services on time so animal health care and veterinary services need to be improved. Besides animal health outposts should be established in strategic locations to help minimize the loss of animals from disease and other health issues. In another study carried out by Pandey *et al.* (2020) in Tawang Arunachal Pradesh it was revealed that yak rearing and related traditions are losing their charm in the recent era due to the modernization, in-breeding and unavailability of pure yak germ plasm, diseases incidences and declining of forests and shrinking of grazing pastures in high altitudes. On similar line Ali *et al.* (2016) revealed that awareness, information, and know-how on yak breeding are lacking among the Kyrgyz pastoralists, who depend totally on indigenous knowledge and practices and a little effort has been made to introduce new or improved breeds to the surveyed region. In addition to that yaks in the Afghan Pamir have little genetic communication with yak populations in Tajikistan, China, or Pakistan due to the closed borders and natural barriers, and there is no local scientific breeding scheme either. As a result, the yak breeds in the Afghan Pamir are highly degraded with a small body size and slow growth rate. Cai and Wiener (1995) reported inbreeding as being a problem in Bhutan, India, and Nepal, but thought herds were less inbred in Gilgit-Baltistan and remote areas of Afghanistan. Miller and Steane (1997) recognized that inbreeding also existed in certain yak populations in Pakistan. When it came to feed and fodder availability Ali *et al.* (2016) in a study observed that it was the social system among the surveyed communities in Pamir Afghanistan, which ensures that families help each other by sharing the stored animal feed, but it works only if the adverse conditions do not last long. In a study related to effects of climate change on Yak production by Krishnan *et al.* (2016) it was found that alpine pasture have decreased in vegetative above ground biomass and composition which results in starvation or loss of body condition appeared to be manifested as reduced fertility in yak with low milk yield. Similarly Wangchuk and Wangdi (2015) in their study related consequences of legalizing Cordyceps collection on yak farming practices in Bhutan concluded that post legalization yak mortality increased and fodder scarcity became more acute, which is a major constraint to yak farming. Maithi *et al.* (2013) in their study involving Monpa tribe of Arunachal Pradesh revealed that even to this date a very few livestock keepers can access and afford modern veterinary health care practices (Table 1).

Table 1: Management Constraints Faced by Yak and It's Cross Rearers

Constraint	KARGIL Average Score	KARGIL Rank	LEH Average Score	LEH Rank	OVERALL Average Score	OVERALL Rank
A) Unavailability of fodder throughout the year	48.96	2	54.95	2	51.22	2
B) Lack of Proper Animal Healthcare Facilities	55.63	1	60.11	1	57.87	1
C) Unavailability of Quality Yak Bulls for Breeding	47.48	4	43.99	3	46.47	3
D) Unavailability of Labour during Inclement Weather	48.92	3	41.95	4	45.44	4

Under the Infrastructure and policy related constraints the major constraint that was unanimously perceived by the respondents from both the regions under study was the “Lack of Credit and Other Subsidiary facilities.” with an overall average score of 53.07. The second major constraint faced overall was “No price regulation of yak / yak cross milk and products” followed by “Unavailability of Proper Milk Storage Facilities”, Lack of Access to Animal Insurance Facilities, Lack of training facilities for yak herders and Inexistence of co-operative societies as shown in Table 2. In a study by Wangda (2016) in Bhutanese Himalayas it was revealed that the challenges to the sale of yak products include the poor infrastructure, inefficient traditional equipment for processing,

unhygienic products, and lack of a proper marketing strategy. Thus, yak herding is no longer attractive as a main source of income for herders. It was also seen that training needs and capacity building for subject matter specialists will be the key to rejuvenating recognition of the significance of yak populations and yak herding. Besides this basic milk and meat product processing infrastructure needs to be established in yak herding areas with modern yak product processing equipment to improve the quality and hygiene of yak products. Similarly, capacity building of the herders in handling modern processing equipment and in rangeland management will also have a positive impact on herders' livelihoods and rangeland conservation. In another study in Afghan Pamir region by Ali *et al.* (2016) revealed that economic poverty, insufficient external inputs, poor education, lack of alternative livelihoods, opportunities, a social insurance system, and lack of social networks means that the adaptability and transformability of the communities are very low. All these have resulted in high social vulnerability. Besides it was also recommended that a community-based self-sustaining system like fodder banks needs to be established in each settlement/shura. Linking Afghani communities with the nearby Tajik communities can help them cope with emergencies such as extreme climatic events. An innovative livestock insurance system can also help the farmers to buffer losses from animal mortality. In another study carried out by Paudel and Dinesh (2016) it was observed that there is an absence of proper infrastructure such as roads and electricity for marketing high value yak cheese. Mobile cheese processing technologies available in other countries and very suitable for the transhumance system of yak husbandry are still not available in Nepal. In another study Phuntsho and Dorji (2016) revealed that no specific policy has been adopted to improve the efficiency of production, packaging, value addition, and marketing of dairy and meat products. Besides this extension and technological support rendered by the government as part of a socioeconomic development programme to improve production, product processing, value addition, storage, and marketing is limited, as shown by a review of government support for improving the efficiency of product production from yak (Table 2).

Table 2: Infrastructure and Policy Related Constraints Faced by Yak & It's Cross Rearers

Constrain	KARGIL Average Score	KARGIL Rank	LEH Average Score	LEH Rank	OVERALL Average Score	OVERALL Rank
A) Inexistence of Co-operative Societies	27.68	6	36.59	5	32.14	6
B) Unavailability of Proper Milk Storage Facilities	39.85	3	44.82	2	42.34	3
C) Lack of Training Facilities for yak herders	37.18	4	30.47	6	33.82	5
D) No price regulation of yak / yak cross milk and products	45.92	2	43.00	3	44.46	2
E) Lack of Access to Animal Insurance Facilities	29.04	5	39.30	4	34.17	4
F) Lack of Credit and Other Subsidiary facilities	60.33	1	45.81	1	53.07	1

When it came to the marketing related constraints the major constraint that was perceived by respondents was “Lack of Proper Transport Facilities to market” with an overall average score of (54.15) followed by “Lack of Marketing Information ” with an overall average score of (52.35) which in turn was proceeded by “Marketing Risks Products Being Highly Perishable in Nature” and “Production Cost of Yak Milk and It's Products” with an overall average scores of (43.06) and (23.13) respectively. Similarly in a study carried out by Dorji *et al.* (2021) revealed the major factors that were affecting sales of yak products were: distance to reach urban market, poor or no road infrastructure, no outlet to sell yak products, and competition with cheap imported dairy products such as margarine from India. Besides on similar lines with present study a study by Ali *et al.* 2016 it was revealed that poor accessibility and lack of regular markets and information makes it difficult for local herders to organize their pastoral activities according to external market demand, while they have to depend on external market goods for their livelihoods. This renders them prey to unfair trading leading to further poverty (Table 3).

From the present study it was concluded that the animal healthcare facilities and infrastructure in both the study areas was poor and required timely intervention from the concerned authorities. Moreover it was concluded that unavailability of fodder throughout the year was inevitably one of the major concerns in yak and

Table 3: Marketing Constraints Faced by Yak and It's Cross Rearers

Constraint	KARGIL Average Score	KARGIL Rank	LEH Average score	LEH Rank	OVERALL Average Score	OVERALL Rank
A) Production Cost of Yak Milk and It's Products	46.25	3	44.65	4	23.13	4
B) Marketing Risks Products Being Highly Perishable in Nature	40.34	4	53.95	2	43.06	3
C) Lack of Marketing Information	60.06	1	45.77	3	52.35	2
D) Lack of Proper Transport Facilities to market	54.34	2	56.63	1	54.15	1

yak cross rearing communities. In addition to these no effective breeding policies were in force in the area. Yak rearers from both the areas were in need of credit facilitation centers, price regulation bodies and facilities for milk storage and animal insurance. Further it was concluded that both the areas lacked proper transportation facilities which in turn was adding on to concerns of rearers as the products to be marketed were of highly perishable nature.

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