

Original Research Article

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Brokpa's Organic Yak Farming in Arunachal Pradesh: An Ethnographic Study

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ABSTRACT

In the era of chemical and adulteration, the organic farming of animal and crop is challenging. However, the small population of *Brokpa*, sub-community of *Monpa* tribe, Arunachal Pradesh passionately engaged in organic rearing yak in the hilly terrain of Himalayan ranges. Their yak rearing was based on zero input and solely depend on climatic conditions and availability of pastures. Their major source of income based on selling of milk products. The major milk products are butter, *chhurpi*, and *churkam*. However, their milk preparation is seasonal. The milk products used to prepare in the later-half of summer. During this period, an availability of grasses reached maximum. On the other hand, due to scarcity of feed and fodder, the body-weight of animals decreased (25 to 30 %) and the preparation of milk products restricted. However, the *Brokpa* used to fed tree leaves to their animal to maintain body weight during winter. The organic yak rearing activities is under pressure of human and natural factor. Investigation highlighted that, degradation of pasture land, green forest cover and less interest of young generation in yak rearing activities are declining. Further, their major animal i.e. yak is already designated as threaten species. By keeping these critical facts, the policy maker should give special focus to their livelihood pattern. Rejuvenation of forest, grassland should be done. Yak rearing is a complex activities, therefore, basic amenity centres, education facilities, transportation of their milk products facilities, retention of youth scientifically towards farming need to be assimilated.

Keywords

Organic, Yak, Milk Products, Vulnerable, Transhumance

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Introduction

Organic farming is a system of farming of crops and livestock that exclude uses of chemicals and include ecologically based pest controls and biological fertilizers derived largely from animal and plant wastes. The core point in organic farming is to reduce environmental hazards that occurred due to the heavy use of chemical products such as weedicide, pesticides, and fertilizer. Historically, in

the early 1900s, the concepts of organic agriculture were developed by Albert Howard, F.H. King, Rudolf Steiner and others who whispered that the use of animal manures, cover crops, crop rotation, and biologically based pest controls resulted in a better farming system. At present, it is world-wide accepted and promoting vigorously to adopt the practices for eco-friendly balance of nature. *Brokpa* is one of the important communities in Arunachal Pradesh, which is following organic farming of yak

since from the very beginning, even before the term coined. *Brokpa* were transhumance pastoral nomads and sub-community of *Monpa* tribe of Arunachal Pradesh having a small population. They mostly reside in Tawang and West Kameng districts of Arunachal Pradesh. The major source of livelihood of *Brokpa* was coming from the selling of value-added milk products such as *chhurpi*, *churkam*, and butter which are prepared indigenously and organically without chemical additions. That increases their demand for products. Further, they used to supply wool of yak to ICAR-National Institute of Research on Jute and Allied Fibre Technology with the help of ICAR-National Research Centre on Yak, Dirang for making garments, carpet, tent, and other decorative household items. But in recent decades, due to human and natural factors, their organic nature of livestock rearing is under threat. The population of yak has been decreased from 76 thousands to 58 thousands according to the 20th Livestock Census 2019. Getting pure male yak for breeding is challenging, which leads to decrease of female yak population and its productive parameters. Fodder for their yak especially in the winter is the major constraint. In spite of the above mentioned facts, the *Brokpa*, continuing their old traditional practices i.e. organically rearing of yak by following the less is more principle.

Materials and Methods

The study was conducted based on the Ethnographic view-point. "Ethnography" is derived from a Greek words "*ethnos*" and "*grapho*" meaning "I write for folk people". Ethnography is the systematic study of people and culture where researchers need to identify the folk community and collect data by living with them. In line with Ethnographic study, we identified the *Brokpa* folk community of *Monpa* tribe of Arunachal Pradesh. They mostly reside (80%) in the West Kameng and Tawang district of Arunachal Pradesh. Hence, these two districts were selected purposively. The *Brokpa* follows migratory pattern, therefore, four (4) migratory routes were identified from each district based on their frequent

utilization of route (past record) due to availability of water, shelter, and condition of the route(s). Then interviewed them in 15 group batches. Thus, total of 120 respondents were interviewed with a semi-structured interview schedule at their pasture field. Other methods of data collection such as observation, transect walk, story-telling, and group discussion were taken into consideration. The secondary data also used from various sources such as ICAR-NRC on yak, State Veterinary Department. The data collection method and its interpretation were satisfactory to conclude this study.

Results and Discussion

The results highlighted in this part are based on the primary data as revealed by the respondents. The findings related to organic people and organic culture of Arunachal Pradesh are as below;

Organic Man

The *Brokpa* lived in the Himalayan Ranges of Arunachal Pradesh. Their surroundings were covered with moderate to dense forest and mountains. They were the nature protector as well pure and fresh oxygen harvester. Still, barter system used to follow in things or live animal with crop cultivator, merchant or pasture owner lived at low altitude for their basic needs. However, in this era of industrialization, the area is isolated and industry free zone. Even, basic amenity centres were also missing. It was found during elaborate observation that transportation was limited in the area. Therefore, they need to travel by foot to get access to the proper market. They used to use tree leaves and other bamboo basket for their day to day activities. Fruits and vegetable which are grown in lower altitude are based on Zero Budget Natural Farming (ZBNF). The fruits and vegetable are grown are citrus, walnut, cabbage, potato, brinjal, etc. But, the trend is changing, now they entering in single-use plastic world. As it is observed that, for packaging to carrying and other domestic activities, plastic was using and living behind their organic activities.

Organic Animal Husbandry

Yak (*Pophegus grunniens* L.) is the major animal of *Brokpa*. However, they also rear yak-cattle hybrid, sheep, and goat. They used yak for various purposes such as milk products, meat products, fibre products and as a packed animal. Their main source of income was coming from selling milk products such as *chhurpi*, *churkam*, and butter. Their animal rearing is based on 'Transhumance' pastoral system. The migration depended on the availability of grasses in the pasture land, favourable temperature and availability of water. *Brokpa* start their migration in a group. Migration usually take place in the mid-March to mid-April, when the weather got clear. Subsequently, during the month of October-November, they use to get down to a lower altitude to safe their animal and self from harsh climate as reported by the respondents. More often the *Brokpa* used to start their journey from mid-altitude such as *Mandala-phudung*, *Broksarthung*, *Lubrang*, and *Chander* in the West Kameng district; whereas, *Rho*, *Jangda*, *Mago* and *Jang* in the Tawang district. Subsequently, their saturated end points were *Rampu*, *Lungthang*, *Dongchepu* and *Churkhatang* in the West Kameng, whereas, *Thingbu*, *Broxer Tanglung* and *Zithang* in the Tawang district of Arunachal Pradesh.

Factually, yak is highly sensitive to heat than yak-cattle hybrids. As the temperature increased, the yak which were self-directed moved at high altitude and the *Brokpa*'s had to follow their footmark. They never stayed at single grazing pastures for a longer period. Their staying completely depended on the availability of grasses in the pasture. Their movement was found to be a year-round activity. However, the peak movement for the pastoral *Brokpas* was May to September. Further, it was found that their migratory distance has been 4.5 km (59.64 km) from the previous 55 km in West Kameng district, as compare to Tawang district (1.5 km increased). It is due to a deficit in rainfall and rise temperature as revealed by the respondent. The Hydromet division, New Delhi (2019) also reported

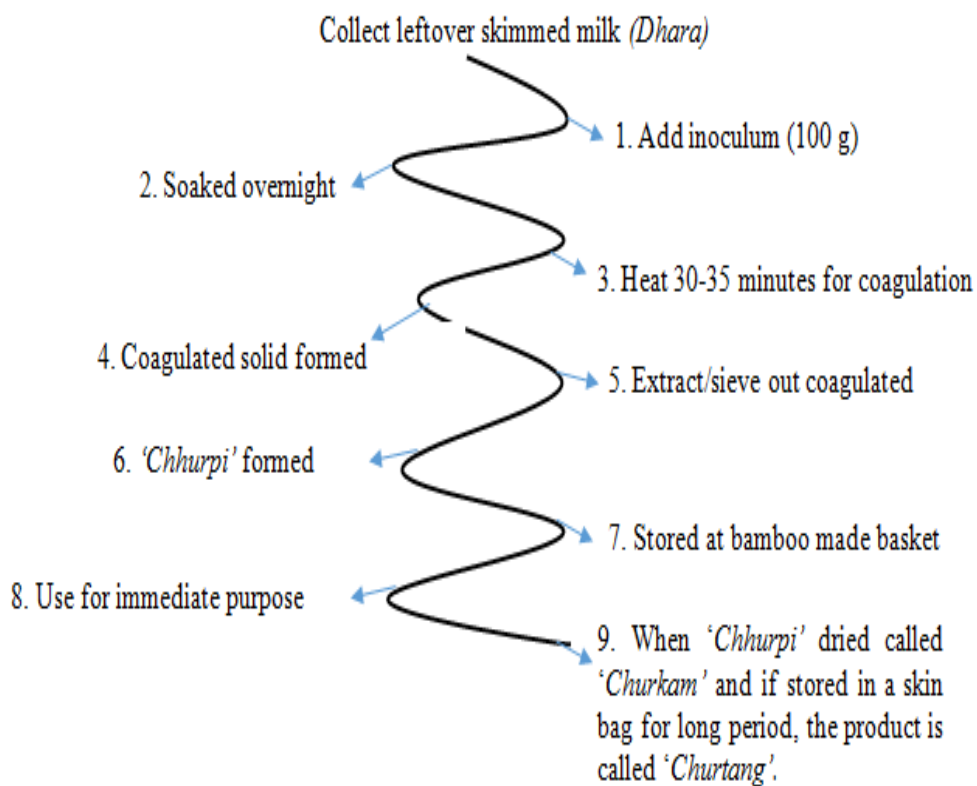
that there was a 31 percent deficit in rainfall in Arunachal Pradesh in the year of 2018. Subsequently, Maiti *et al.*, (2015) reported that their migration was extended to 2-3 months due to an increase in favourable temperature. However, the feed and fodder problem occur during the winter season due to that the milk production, preparation of milk products get stuck as revealed by the respondent. The body-weight of the animal decreased by 25-30 percent. To maintain the normal body weight, the *Brokpa* fed some alpine tree leaves such as *Salix humboltiana*, *Symplocos racemose*, *Acer campbellii*, *Castanopsis species*, *Barberis species*, *Acer hookeri*, *Buddleja asiatica*, *Lingustrum myrsinities* etc. additionally, during an investigation, it was revealed by the respondents that the pure yak which was mainly used for breeding purposes were declined by 71.6 percent in Tawang district and 73.3 percent in West Kameng district.

Nevertheless, they used to bring from Bhutan especially for breeding programme. The previous reports also suggested that the yak population is being decreased in India. In 1977, the yak population was 1,32,000 whereas, at present, it is 76,000 only, and Arunachal Pradesh single-handedly accounted for 14,061 as per State Animal Husbandry Report (2012). As per the 20th Livestock Census 2019, the number of total yak population further declined to 58,000 only. However, the population of yak in Arunachal Pradesh remain same.

Organic Milk Products

The main milk products prepared by the *Brokpa* from their organic indigenous technology are *chhurpi*, *churkam*, and cutter. Their livelihood depends on selling of these milk products. '*Chhurpi*' is a wet cheese and highly demanded products in the entire Himalayan Region such as Ladakh, Nepal, Bhutan, Darjeeling, Himachal Pradesh, Sikkim, and Arunachal Pradesh. The *Brokpa* were prepared '*Chhurpi*' extensively with their low-cost indigenous technology.

Fig.1 Diagrammatic representation of 'Chhurpi' preparation



The materials required in *chhurpi* preparation are Milk (fermented), Container (*Zopu*), Dasher, Boiler, Sieve, Tripod stand, Woollen clothes, wooden vessel. They used to clean their dasher, sieve, woollen clothes and wooden vessels with hot water before use. The main purpose is to avoid fungal growth and spoilage of fermented milk.

Preparation of 'Chhurpi' was done with their indigenous technology which was labour intensive. They used to prepare 'Chhurpi' from leftover skimmed milk after churning out of butter. The left-over skimmed milk was called "Dhara". The 'Dhara' used to soak overnight, if needed, they may add a small quantity of curd inoculum. In the next day, the 'Dhara' was boiled for 30-35 minutes coagulation, until the clumping solid was formed. Later, the clumping solids were extracted from the vessel by leaving the liquid residue in the container. The clumping solid was called 'Chhurpi' (wet

cheese). The liquid residue remained in the container were fed to the animals by mixing with salt and maize granules, the purpose behind this was to boost up the energy of animals. As per the preservation was concerned, the 'Chhurpi' was packed with *Rhododendron* leaves which was commonly known as *Marlah*. Now a days, it has been observed that the plastics carry bags were widely used for packaging purposes. The price of per kg 'Chhurpi' was Rs. 300-350/-. On an average, about 4-5 litres of milk (left-over after butter formation) were required to produce 1 kg of 'Chhurpi'. However, it is observed that smell of *Chhurpi* is pungent. The similar attributes also revealed by Ramesha and Sharma (2012) that the colour of the product was white to orange with sour and pungent smell consist of pH ranges from 5.97 to 7.0 and dry matter percentage was 24 to 52. Furthermore it has been found that the indigenous technologies related to milk product preparation and

other artistic work are day by day is declining in the part of the young generation as revealed by the respondents. Therefore, some curative measure to prevent their organic culture must be initiated. The living standard and culture of the *Brokpa* community was organic. Their act was eco-friendly, however, gradually moving towards inorganic things due to their socio-economic limitation. The green coverage, pure animal germplasm, overexploitation of natural things creating disturbance in their ecosystem. Therefore, conservation and protected cultivation approaches need to be promoted and implemented for their livelihood and sustainability.

References

Hydromet Division (2019). Hydromet Division, Indian Meteorological Department, New Delhi
Livestock Census (2019). 20th Livestock Census,

Government of India, New Delhi
Maiti S, Jha S. K, Garai S, Nag A, Chakravarty R, Kadian K. S., Chandel B. S., Datta, K. K., and Upadhaya R. C. (2015). Assessment of social vulnerability to climate change in the eastern coast of India. *Climatic Change*. <https://doi.org/10.1007/s10584-015-1379-1>
National Research Centre on Yak (2017). The technical bulletin. National Research Centre on Yak, Dirang.
Ramesha, K. P., Jayakumar, S., Das, S., Biswas, T. K., Krishnan, G., Chouhan, V. S., and Katakataware, M. A. (2012). Genetic variation of SRY gene in Yak and related bovines. *International Journal of Pharmacology and Biosciences*, 3, 81-86.
State Animal Husbandry Report (2012). State Animal Husbandry Report, Government of Arunachal Pradesh.

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