

*Short Communication***Necessity of Dairy Farming in Gairsain Area of Garhwal Himalayas**Sheetal Chanyal¹, Nidhi Sharma¹, R. K. Srivastava² and Monika Chhimwal³Dept. Environmental Sciences, CBSH, G. B. Pant University of Agriculture & Technology,
Pantnagar Uttarakhand, 263145, INDIA¹Project Fellow²Professor³Junior Research Fellow*Corresponding author: chanyalsheetal@gmail.com

Rec. Date:	Jun 19, 2019 05:32
Accept Date:	Sep 03, 2019 17:18
DOI	10.5455/ijlr.20190619053224

Abstract

India is the leading milk producing country in the world, which produces around 176 million tonnes milk per year with small-scale producers as its backbone. At present, dairy is one of the fastest growing enterprises in the booming economy of the country. Livestock development is one of the top priorities in the development agenda of newly created Uttarakhand State with dairying as one of the important dimensions. During present study, it was observed that no organized dairy cooperative is working in the study area Gairsain and consumers have also suffered from low consumption. The coverage extends to the economics, breeding, nutrition, lactation, management and marketing of dairy cattle and milk production. The study revealed that majority of dairy farmers had medium level of knowledge on different components of scientific dairy farming practices. Farmers in the study area were completely dependent on the locally available bio-resources like oak tree leaves and different species of wildy grown grasses in the forest area for feeding the animals round the year. In Gairsain major milk producing livestock include cow (45%), buffaloes (21%) and goats (28%). It was observed that there is a necessity of dairy development for income generation; moreover, alternate milk producing animal like goat has also been proposed for income increment of the farmers. They have majority of animals with low productivity due to inadequate nutrition, less feeds and fodder, which could not be used for income generation activity. In the study area, people are forced to buy different brands of dairy products with high price, as there is no alternate source. It was analyzed that the inefficiencies existed in milk production, procurement pattern and marketing in that area are few reasons why products are sold at high price. It was also analyzed that sellers of study area used dairy products of different brands, leading to earning of huge revenue through local people. Therefore, the present study tries to propose a model for eliminating these complications by proposing livestock and dairy farming in Gairsain, which will also act as a major source of livelihood to millions of marginal and small dairy farmers throughout the state. Dairy producers should be educated for scientific practices, feeds and nutrient of animal, regular trainings and linking producers with dairy cooperative federation for regular marketing.

Key words: Dairy Farming, Gairsain, Livestock, Livelihood

How to cite: Chanyal, S., Sharma, N., Srivastava, R., & Chhimwal, M. (2019). The Necessity of Dairy Farming Practices in Gairsain Area of Garhwal Himalayan. *International Journal of Livestock Research*, 9(10), 185-191. doi: 10.5455/ijlr.20190619053224

Introduction

Dairying has been the most promising sector for economy. Presently, more than 70 million households scattered throughout the country are involved in milk production. It has prominent role in the upliftment of socio-economic status of dairy farmer (Kumar et al., 2011). The majority of farmers in Uttarakhand operate mixed crop–livestock farming systems under different types of agro-ecosystems. Farmers who are involved in rearing dairy animals also keep bullocks to plough fields and sell them to supplement incomes. The whole system is referred as dairy–manure–draught cattle production system. Farmers consider cow as a sacred animal. It is also considered as an economic animal as it provides both milk and manure, and substantiates rural livelihoods (Sati, 2016). Crossbred cattle are less than 2% of the total cattle population in Uttarakhand (Sati and Singh, 2010), which indicate that majority are non-descript or local population of livestock. These eventually reveal the reason for limited success of institutional policies geared towards promotion of crossbreeding programme (Meena et al., 2008). In this context, it becomes pertinent to gather information from the farmers about knowledge on scientific dairy farming practices from the field level, which could help in formulating action plan as per need of farmers in the operational area of Gairsain. One of the major reasons of low productivity could be due to traditional dairy farming practices by the farmers and inadequate nutrition. Moreover, less feeds and fodder is a major cause of low live-weight gains, infertility and low milk yields and other health-related issues in cattle. It is well recognized that for increasing productivity and production with aim to make dairy business more remunerative, it is essential to go for adoption of scientific dairy farming practices in the field of breeding, feeding health care and management (Singh et al., 2013). Many studies on the knowledge level and degree of adoption of improved dairy husbandry practices have been carried out in the Indian context but there is a lack of study in the operational area of Gairsain Chamoli district (Raut et al., 1989, Kumar et al., 2011, Kandian and Kumar 1999 and Arora et al. 2006). Hence, this study was carried out in the few villages of Gairsain to ascertain the level of knowledge to prepare action plan in the experimental villages for their development in dairying sector. Thus, being an important means of income and employment for these farmers, dairying helps to alleviate poverty and smoothen income distribution, in the process assuring a balanced development of the rural economy.

Material and Methods

Study Area

The study was carried out in the 20 villages of Gairsain Tehsil, district Chamoli Uttarakhand. The livelihood of over 1,765 households of these villages is centered on agriculture, livestock and other different bio-resources collected from forest.

Data Collection

In the present study wide range of data, primary as well as secondary, were collected. Questionnaire was prepared with the help of various case studies regarding bio resources, information and village area specific data collection. Relevant questionnaire was put in to record primary data on feeding, breeding, management, housing, health care, milking and morbidity/mortality pattern of animals. On the basis of secondary information, a pilot survey was conducted in 20 selected villages situated between MSL elevation 5,000ft and 8,000ft and located in different directions. Similarly, a case study of a dairy farm was done to facilitate the data interpretation, which also shows the potential of dairy farming in the study region. This study is also based upon the participation and observation method after rapid field visit. Apart from these, archival data were widely used. The data were subjected to frequency and percentage distribution for assessment of the scientific management.



Result and Discussion

The agriculture of the region is mainly subsidized through biomass from surrounding forest in the form of organic manure. Livestock and animal husbandry helps in maintaining the unique landraces variety of food crops. Agriculture in the mountainous state of Uttarakhand is dominated by marginal farmers. This context provides an overview of dairy farming practices in selected villages of Gairsain, district Chamoli. Randomly selected local people of these villages were interviewed for some useful and important data regarding their crops, cropping pattern, livestock they possess and their source of earning. Study area has

immense richness of agricultural biodiversity including diversity in crops, plants, livestock, aquatic species, below ground biota, microbes, etc. Rainfed areas have a distinct superiority over irrigated land in terms of diversity in flora and fauna. In all the selected villages, animal husbandry practices are very conventional in nature and most of the farmers belong to middle category based on age, family size, education, social participation, land holding, herd size, milk production, consumption, sale and income.

Livestock Composition and Distribution

Cattle, buffaloes, goats and sheep are the main livestock composition in the state and in study area. Cattle are most common (21.29%) followed by goats (14.37%), buffaloes (10.50%) and others are (53.84%) in mixed crop farming systems in the village. The landholdings are small and livestock provide a critical supplement to farm incomes as manure. Bullocks are used for ploughing farmland. Sati and Singh (2010) cautioned that livestock pressure under mixed crop-livestock farming system has been increased. Cattle constitute about 45% of the total livestock population, goats rank second with 28%, followed by buffaloes (21%) (Table 1). The population of crossbred livestock is very low. The economic viability of the cattle in the highland is also high because they are the major source of the economy of the populace after agriculture. In terms of availing the fodder need, the highlands are very rich in fodder crops. In the highlands, people hold two or more animals as an average (Sati, 2004). Cattle population is highest followed by buffaloes.

Table 1: Comparison of livestock and animal husbandry population in study area (Census 2011)

Category	Uttarakhand State (lakhs)	Chamoli district	Gairsain village	Study area
Cattle	20.06	237,929	21,089	3,486
Indigenous cattle	15.09	225,834	20,035	3,124
Crossbred cattle	4.98	12,095	1,054	362
Buffaloes	9.88	44,388	9,829	1,211
Goats	13.52	81,612	13,196	2,727
Sheep	3.69	102,353	1,885	138
Equines	0.45	990	173	54
Poultry	46.42	25,187	932	55
Total	94.02	140,626	46,197	7,671

Housing and Management

In the village animal sheds are called “Got” in local language and most of the sheds were “kachha” type. They cleaned the sheds once in a week only for dung and changed the bedding materials usually after one

month. Due to temperate climate of the region more than 94% farmers provided bedding made up of Pine and Oak tree leaves. Majority of the farmers kept all their animals in a single “got”, which sometimes lead to infighting and injuries to pregnant and young animals. Farmers used to provide artificial heating to the animals during the snowfall and extreme winter. The animals were tied with a chain or jute rope. Only 10% of the respondents felt that sufficient space is a necessity in the shed for their animals (Meena et al., 2008).

Milking Practices

In the Garhwal region, milking of cows and buffaloes was done by hand. At the time of milking, the milker used to wash the udder with clean water, but the hands of the milker and the milking utensils were seldom properly washed and the practice was mostly absent during snowfall and extreme winter. Majority of the farmers allowed the calf to suckle for milk-let-down and if calf was not available they used to provide some feed and fodder for the same prior to milking. The milking was done twice a day but with less quantity of milk collected in the evening as the dairy co-operatives collect milk only in the morning. There was no practice of filtration of the milk to remove dirt and soil/mud. The milking pails which are made of wood, known as *Larum (Theki)* were not washed properly. In most of the places the fermentation of milk was done in the same container which they used for milking. Farmers lack practical knowledge of proper milk hygiene measures and the problems were more pronounced in the remote villages. Production of major livestock products in Uttarakhand are shown in Table 2. In case of liquid milk retailing, the malpractice of adulterating milk by adding water was extensive and the high mountainous remote regions were relatively free of this practice (Nembang 1989).

Table 2: Production of major livestock products in Uttarakhand

Products	Unit	2012–2013	2013–2014	2014–2015	2015–2016	2016–2017	Annual Average Growth Rate Growth (%)
Milk	‘000 Ton	1,478	1,550	1,565	1,656	1,692	3.44
Egg	‘lakh no.	3,079	3,370	3,697	3,907	4,119	7.55
Wool	‘000 Kg	400	440	469	513	538	7.69
Meat	‘lakh Kg	216	237	260	276	284	7.08

Feeding Management

The farmers in this region were completely dependent on the locally available feed resources like tree leaves and unclassified grasses grown in the forest area for feeding their animals round the year. Misri and Inder Dev (1997) have listed 84 trees and 40 shrubs as potential sources of fodder for the livestock in the region. Chaff cutting of grasses or other fodder was not practiced by the farmers. Very few farmers (10 %)

purchased wheat straw for feeding of crossbred cattle and high yielding buffaloes. Similarly, less number (28 %) of livestock farmers were aware of supplementing salt and mineral mixture to their animals; many (72 %) were not aware of additives or supplements in the ration of livestock. The feeding of concentrate mixture, made at home (cereal flour plus some oil cakes), was limited only to lactating animals and bullocks and it was null to unproductive animals. Stall feeding is common for buffaloes round the year. Neupane (1994) also reported that stall feeding of buffaloes has become the norm in the villages. Practice of grazing in other animals was done in the uncultivated and common village pasture land, orchards and forest area. Only large scale farmers go for cultivated fodder, i.e., barley and oats. Singh (1996) also reported that nearly 56% of the total dry fodder derivable from cropland is contributed by two millet crops, namely, finger millet and barnyard millet in village. Further, in the high altitude, majority of the farmers are dependent on natural resources for their animal husbandry occupations because of lack of irrigation facilities, topography of the region and small land holding size. Moreover, scarcity of feed and fodder, lack of knowledge about preservation, road and other transport facility, etc., seem to be the major constraints for adopting animal husbandry as a main occupation.

Conclusion

It may be concluded that knowledge of improved dairy farming practices in operational study area of Gairsain district Chamoli is inadequate for development in dairy farm sector. Therefore, this is important to conduct training and awareness programmes with regard to vaccination/deworming/health aspect camps, feeding, breeding, and health care and management aspect training etc. to enhance their knowledge about the improved dairying practices. Production techniques of dairy milk could help to earn the additional price. Trainings on these production techniques may be provided to the farmers and adoption rate of such trainings should be recorded. As per need and understanding of these farmers, changes in training could be made and ultimately leads to high adoption rate. In nutshell a complete training package is needed to enhance the economic condition of these local farmers. Moreover, mass media ought to be utilized to a good extent for transfer of improved dairying practices to the desirous farmers for enriching their knowledge.

References

1. Arora, A. S., Kumar, A., Bardhan, D., & Dabas, Y. P. S. (2006). Socio-economic and communication variables associated with level of knowledge and degree of adoption of improved dairy husbandry practices in US Nagar district of Uttaranchal. *Indian journal of dairy science*, 59(5), 337-343.
2. Kumar, S., Kumar, B., Hindustani, S., & Sankhala, G. (2011). Knowledge level of dairy farmers in operational area of Krishi Vigyan Kendra about improved dairy farming practices. *Research Journal of Agricultural Sciences*, 2(1), 122-124. Kumar, S., Kumar, B., Hindustani, S., & Sankhala, G. (2011).

- Knowledge level of dairy farmers in operational area of KrishiVigyan Kendra about improved dairy farming practices. *Research Journal of Agricultural Sciences*, 2(1), 122-124.
3. Meena, H., Ram, H., Sahoo, A., & Rasool, T. J. (2008). Livestock husbandry scenario at high altitude Kumaon Himalaya. *Indian Journal of Animal Sciences*, 78(8), 882.
 4. Misri Band Inder Dev (. 1997). Traditional use of fodder trees in the Himalaya. *IGFRI Newsletter* 4(1).
 5. Nembang, L. B. (1989). A report on traditional milk products in the Himalayan area. *FAO Manuscript*.
 6. Neupane, A. (1994). Report on the Findings on the Fodder and Dairy Industry in Dunkharka VDC, Kavrepalanchok District, Nepal. Australia: University of Western Sydney
 7. Raut, D. R., Nayak, H. S. and Kulkarni, M. B. (1989). A Study of Knowledge knowledge and Adoption adoption of Improved improved Dairy dairy Practices
 8. Sati, V. P. (2016). Livestock farming in the Uttarakhand Himalaya, India: use pattern and potentiality. *Current Science*, 111(12), 1955.
 9. Sati, V. P., & Singh, R. B. (2010). Prospects of sustainable livestock farming in the Uttarakhand Himalaya, India. *Journal of Livestock Science*, 1(1), 9-16.
 10. Sati, V.P. 2004. Resource Utilization utilization Pattern pattern and Development development in Hillshills: A a Case case for the Pindar Basin of Garhwal Himalayan. *Journal for Mountain Science* Vol. 1, No.(2), 130-141 (www.imde.ac.cn/journal)
 11. Singh, S. P., Pal, A. K., & Goel, S. H. I. L. P. I. (2013). Knowledge level of dairy farmers in un-adopted villages of krishivigyankendra about scientific dairy farming practices. *The Journal of Rural and Agricultural Research*, 13(2), 84-86.
 12. Singh V 1996 Draught animal power in sustainable development of mountain agriculture—A study of perspective and issues in central Himalaya, India. Unpublished MFS Report. ICIMOD (International Centre for Integrated Mountain Development), Kathmandu, Nepal