

A DYNAMIC SCENARIO OF LIVESTOCK AND DAIRY PRODUCTION IN UTTARANCHAL HILLS

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INTRODUCTION

India is currently the World's No. 1 milk producer. The per capita annual milk access in India, however, is low at 70 kg in contrast to, for example, United States' 250 kg. Rising income levels in India would further increase the demand for milk and milk products (Jachnik 2000). Country's milk production level of 74 million tonnes is likely to go higher in future resulting into a substantial increase in per capita consumption.

White Revolution in India is largely attributable to the promotion of intensive dairy production and organisational setup. Smallholder dairy production systems' contribution to the national milk pool is also no less appreciable. Nevertheless, it goes largely neglected. In fact, large parts of rural India are dominated by smallholder dairy farms rather than the large ones as witnessed in more favourable areas near big consuming urban centres. Marginality- and inaccessibility-ridden mountain areas, like Uttaranchal, are especially specialised in smallholder dairy production systems. These smallholder dairy farms do not only feed the rural areas, but also supply milk to the local urban centres, and, occasionally, even export to the nearby plain areas.

Appreciable contributions and special characteristics of smallholder dairy production systems in mountain areas have been highlighted recently by several scholars (*e.g.*, Karki and Tulachan 2000; Singh 1999, 2000; Tashi 2000; and Tulachan and Neupane 1999). These studies further lead us to realise the importance of smallholder dairy systems and their development.

The present paper attempts to present a scenario of dynamics of dairy production in the Hills of Uttaranchal. Population and composition of dairy animals over a period of about four decades and milk production trends over a period of two decades are the main bases to look into how the smallholder dairy in the Hills has reshaped itself over the period.

MATERIALS AND METHODS

The present study focuses on 12 Hill districts of Uttaranchal, namely, Pithoragarh, Champawat, Bageshwar, Almora, Nainital, Udham Singh Nagar, Chamoli, Uttarkashi, Rudra Prayag, Pauri, Tehri, and Dehradun. The study area lies in the Indian Central Himalayas. Dairy in the Hills is an integral part of the farming systems, which are largely distinguishable from those in the plains, especially in terms of their diversity, fragility, poor accessibility, and marginality.

Data on the species-wise population for different Livestock Censuses were taken from authentic government records. Data on milk production for different years was taken from different secondary sources (mention has been made elsewhere in the text). Data for 1999-2000, however, are based on our sample survey in 12 villages in two districts/ milk sheds of Nainital and Almora in Uttaranchal Hills.

RESULTS AND DISCUSSION

Temporal Changes in Animal Population and Composition

An analysis of temporal changes in ruminant population in Uttaranchal Hills between 1961 and 1999 shows an overall increase of about 15 percent in total ruminant population. The most noticeable change over a period of about four decades is an overwhelming increase in the population of buffaloes (55 percent) and of goats (50 percent). A considerable decline in the population of cattle (5 percent) and sheep (14 percent) are another noteworthy changes (Table 1; Fig 1, 2).

Table 1. Dynamics of livestock population and composition in Uttaranchal Hills

Animal Species	1961	1966	1972	1978	1982	1988	1993	1999	% Change in Population (1961-1999)	% Change in Composition (1961-1999)
Cattle	2057 (54.46)	2064 (51.68)	2180 (55.23)	2072 (50.24)	1919 (48.03)	1947 (48.18)	1978 (46.50)	1959 (45.31)	-4.76	-9.15
Buffaloes	585 (15.49)	633 (15.85)	677 (17.15)	699 (16.95)	767 (19.20)	825 (20.42)	847 (19.91)	906 (20.95)	+54.87	+5.46

Sheep	384 (10.17)	413 (10.34)	353 (8.94)	405 (9.82)	408 (10.21)	355 (8.78)	353 (8.30)	332 (7.68)	-13.54	-2.49
Goats	751 (19.88)	884 (22.13)	737 (18.67)	948 (22.99)	901 (22.55)	914 (22.62)	1076 (25.29)	1127 (26.06)	+50.07	+6.18
Total	3777 (100.00)	3994 (100.00)	3947 (100.00)	4124 (100.00)	3995 (100.00)	4041 (100.00)	4254 (100.00)	4324 (100.00)	+14.48	-

Figures in parentheses are percentage of the total.

Source: Compiled from Census Reports for different years (Animal Husbandry Department 1998) Data for 1999 projected based on previous years.

Table 2. Milk yields and production trends in Uttarakhand Hills

Year	Productivity (Milk Yield), kg per day per head		Production, Thousand MT		
	Cow	Buffalo	Cow	Buffalo	Total
1979 – 1980 ¹	1.33	2.55	NA	NA	419.00
1981 – 1982 ²	1.37	2.51	237.00	205.00	442.00
1984 – 1985 ³	1.40	2.82	NA	NA	NA
1988 – 1989 ³	1.53	2.84	NA	NA	NA
1990 – 1991 ³	NA	NA	209.00	326.00	535.00
1991 – 1992 ³	NA	NA	217.00	335.00	552.00
1992 – 1993 ⁴	1.70	2.92	227.06	343.67	570.73
1993 – 1994 ⁴	1.71	2.94	231.64	356.12	587.76
1994 – 1995 ⁴	1.74	3.01	238.73	367.67	606.40
1995 – 1996 ⁴	1.85	3.13	242.66	380.80	623.46
1996 – 1997 ⁵	1.97	3.26	246.66	394.40	641.06
1997 – 1998 ⁵	2.10	3.4	250.73	408.49	659.22
1998 – 1999 ⁵	2.24	3.55	254.87	423.08	677.95
1999 – 2000 ⁶	2.30	3.71	282.99	431.70	714.69

NA = Not available

¹ SHERPA, 1991. *Livestock Development in the Himalayan Regions of India, Vol. I*. Lucknow: SHERPA.

² Agricultural Finance Corp. Ltd., 1987. *Integrated Cattle Development Project in UP Hills*. Bombay: Agricultural Finance Corp. Ltd.

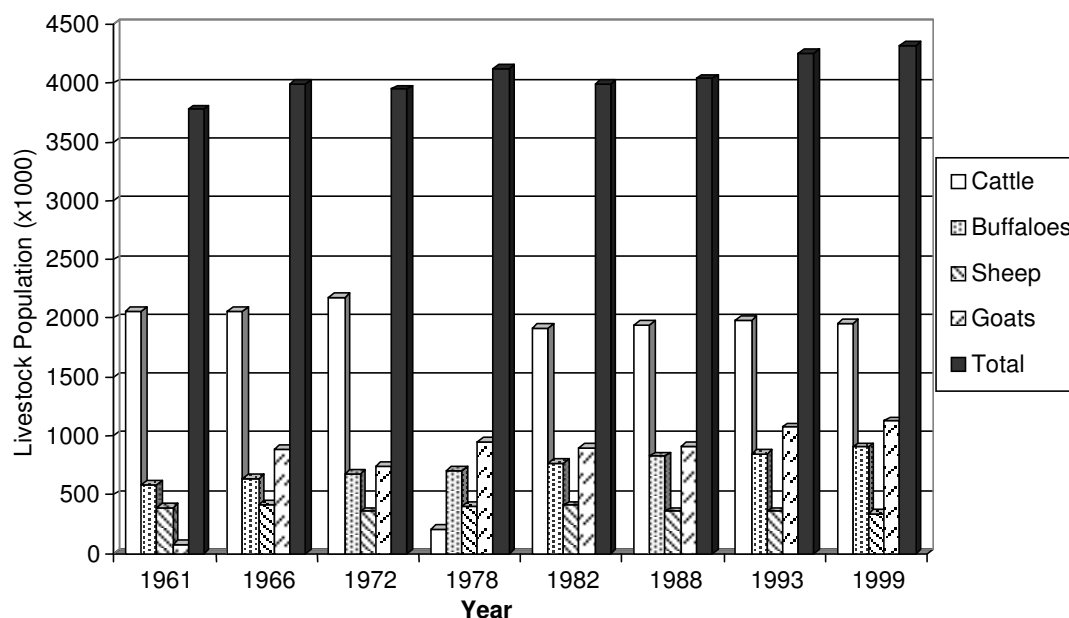
³ Govt. of UP, 1995. *Statistical Diary*. Lucknow: Govt. of UP, India.

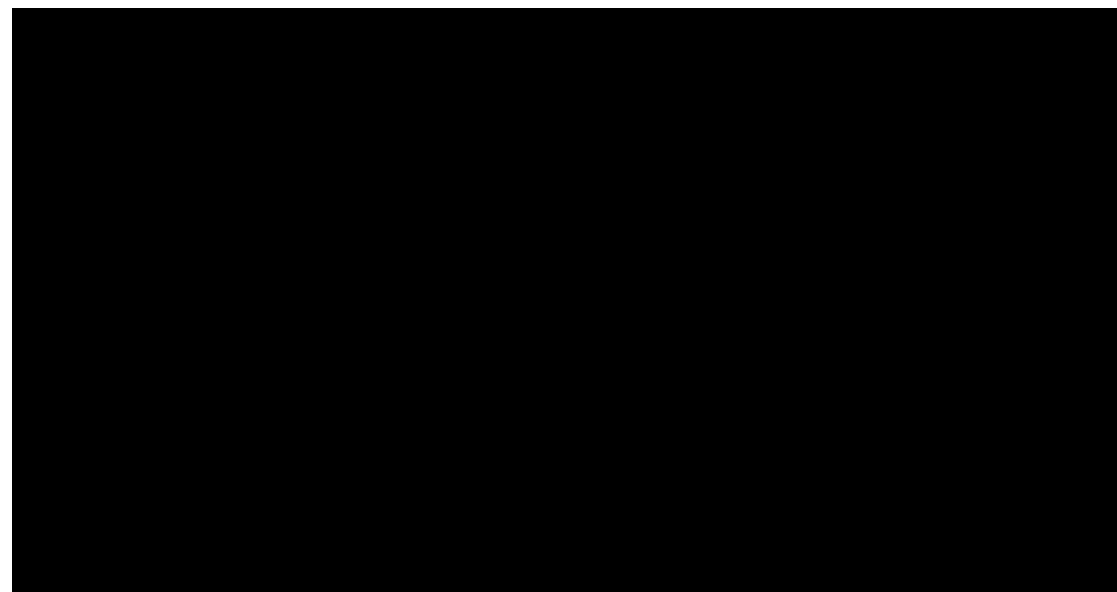
⁴ Compiled from the Census Report of the Animal Husbandry Department, Govt. of UP, India. Figures of productivity are averages of Kumaon and Garhwal divisions of the erstwhile UP Hills (now Uttarakhand).

⁵ Estimates based on previous years' trends.

⁶ Productivity figures are based on our sample survey. Multiplying the average productivity figures for cow and buffalo has derived milk production figures by the total number of these individual dairy species producing milk. To work out total annual production of milk, a day's production is multiplied by the total days (365) in a year.

Figure 1. Temporal Changes in Livestock Population in Uttarakhand Hills





An increase in the population of goats in the area has been at the cost of the other ovine species, the sheep. A spurt in tourist activities and growing urbanisation in mountain areas has led to an increase in the demand for meat, which, obviously, has to be met by larger number of goats. An overwhelming increase in the population and composition of buffaloes in the herd is at the cost of cattle. Cattle, undoubtedly, have been the most important species in the herd in mountain areas and elsewhere in the plains. Cattle are dual purpose. They are reared for the supply of draught power for agriculture at the first place and for milk production at the second place. Cattle carry a notion of sacredness and have always ruled over the psyche of the farming community in the Hindu heartland. The real milch animal Hill farmers give value to is buffalo, not cow. An increase in buffalo population is no indicative of the erosion of values associated with cattle. The gradual shift in the composition of herd is due to the imposition of cash economy on the farm families. Cattle require more hours for tending during grazing, often by female children. With increasing values of education and gender-consciousness in the region, cattle management is less affordable. Moreover, a changing scenario in the draught animal management in the area with an increase in hiring-in plough incidence (Singh 1998), has resulted into decreased individual farm families' demand for bullocks. Management of buffaloes – whose male calves are starved to death few days after birth as they have no value in the farming system – is easy and less labour consuming. Nevertheless, rearing of this stall-fed animal is more remunerative due to its high milk yields. This change in the population and composition in the herd is, therefore, a tilt towards market-oriented dairy management in the area.

Trends in Milk Production

With gradual emphasis on dairy sector, milk production in Uttaranchal Hills has increased from mere 419 thousand MT in 1979-80 to about 715 thousand MT in 1999-2000, recording an impressive rise of 71 percent over this period. Whereas milk production from cows has increased only 19 percent, buffalo milk production has leapt by 111 percent over this period. The milk production increase in Uttaranchal Hills, thus, is largely thanks to buffaloes' contribution. Presently buffalo population contributes more than 60 percent to the total milk production in the region (Table 2, Fig. 3).

Milk productivity per animal has increased over a period of two decades. In case of a cow it has increased from an average of 1.33 kg per day in 1979-80 to 2.30 kg per day in 1999-2000. An average increase in milk yield from 2.55 kg per day to 3.71 kg per day over the same period has been recorded for a buffalo. Milk yield increase per cow (73 percent) has been far higher than per buffalo (45 percent) (Table 2). This is attributable to the institutional policies and programmes focussing on cows and negligence of buffaloes.

Studies from other mountain areas, such as Himachal Pradesh in India (Singh 1999) and Nepal (Tulachan and Neupane 1999), suggest almost the same trend as in the Uttaranchal Hills.

Bio-physical and socio-economic resource base in Uttaranchal Hills provides potential scope for dairy development. The emerging scenario suggests that the Region can take advantage of this situation. What is imperative is that a well-planned institutional intervention should help develop the Smallholder dairy sector in tune with local specificities.

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REFERENCES

- Animal Husbandry Department (AHD). 1998. *Livestock Census Report*. Lucknow: Animal Husbandry Department, Government of UP.
- Jachnik, P. 2000. Milk demand to go up. *The Hindu*, New Delhi, December 5, 2000.
- Singh, R. 1999. Smallholder dairy farming initiatives: success and failure of Milk Cooperatives in the HKH. Paper presented at the International Symposium on *Livestock in Mountain/ Highland Production Systems: Research and Development Challenges into the Next Millennium* held in Pokhara, Nepal from 7-10 December 1999.
- Singh V. 1998. *Draught Animal Power in Mountain Agriculture: A Study of Perspectives and Issues in Central Himalayas, India*. Mountain Farming Systems Discussion Paper No. 98/ 1. Kathmandu: ICIMOD.
- Singh, V. 1999. Trends and patterns of smallholder dairy farming in UP Hills'. Paper presented at the Workshop on *Smallholder Dairy Farming in the Mixed Crop-Livestock Farming Systems in the HKH Region*, jointly organised by ILRI and ICIMOD at Kathmandu, Nepal on 9-10 August 1999.
- Singh, V. 2000. Characterising small dairy production systems in Uttar Pradesh Hills. *ICIMOD Newsletter*, No. 37, September 2000.
- Tulachan, P M. 1998. *Livestock Development in Mixed Crop Farming Systems: Lessons and Research Priorities*. Issues in Mountain Development 98/ 5. Kathmandu: ICIMOD.
- Tulachan, P M. 2000. Livestock trends in mixed mountain farming systems. *ICIMOD Newsletter*, No. 37, September 2000.
- Tulachan, P M and Neupane, A. 1999. *Livestock in Mixed Farming Systems of the Hindu Kush-Himalayas: Trends and Sustainability*. Kathmandu: ICIMOD & FAO.