

Investigations on trends and economics of milk production in Uttarakhand, India

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ABSTRACT: The present study deals with the growth and regional disparities of milk production in Uttarakhand since 2000, examine the state's contribution to total milk production of India, discusses the contribution of different milking species to the state milk production and status of per capita milk availability for the state and the nation. The most recent available time series and cross-sectional data for India and Uttarakhand are used to analyse for the study. The findings suggest that milk production in Uttarakhand and India has increased over the years and its contribution at national level remained static around 1%. The share of milk produced from crossbred cows has increased over the years but it has decreased for indigenous cows and buffaloes for the same time period. The per capita availability of milk has increased both at national and state level and it remains higher for Uttarakhand than India for 2000 - 18.

Key Words: Economic analysis, Milk Production, Uttarakhand, Dairy sector.

INTRODUCTION

About 75% of the world's poor live in rural areas, and at least 600 million of these people keep livestock to produce food, generate cash income, manage risks and build up assets. Thus livestock make valuable contribution to sustain livelihoods, especially in rural areas and the development of small scale livestock enterprise can be helpful to eradicate extreme poverty and hunger (FAO, 2010).

India is the world's largest producer and consumer of milk and has the world's largest milking herd. The dairy sector plays a prominent role in agricultural and food policy because it accounts for about a fifth of the value of India's farm output, and dairy products are a traditional and nutritionally important component of average diets. With a large but low-yielding milking herd and a large and expanding domestic market, India's dairy sector has the potential for a more significant role as a dairy product exporter and importer. (Landes, 2017)

Uttarakhand is a hilly state where landholdings are small and have limited livelihood opportunities. Thus dairy husbandry forms an important source of livelihood for majority of the households, with each household possessing 1 or 2 milch animals. Over 80 per cent of all livestock species are owned by small holders (landless agricultural labourers, marginal and small farmers) and contributes about 77 per cent of total value from livestock sector. Livestock is thus considered to have good prospect to enhance the level of living of the poorest of the poor in the State (Singh, 2015)

METHODOLOGY

This study is based on secondary data which has been collected and tabulated from various reports and surveys published by Government of India and Government of Uttarakhand over the years. The collected data was analysed for percentages and growth rates using MS- Excel software.

To determine the growth rate in terms of milk production at national and state level following formula was used:

$$\text{Growth rate} = \frac{Q_t - (Q_{t-1})}{(Q_{t-1})} * 100$$

Where, Q_t = Production of milk in the current year

Q_{t-1} = Production of milk in base year

RESULTS AND DISCUSSION

Global Milk Production: Milk production at the global level continued to grow from 2000 to 2012 and after that remained stagnant till the year 2016. Overall milk production at the global level had increased from

578.8 million metric tonnes in 2000 to 742.66 million metric tonnes in2012 and thereafter it was stable at 742.66million metric tonnes till the year 2016 (figure-1).

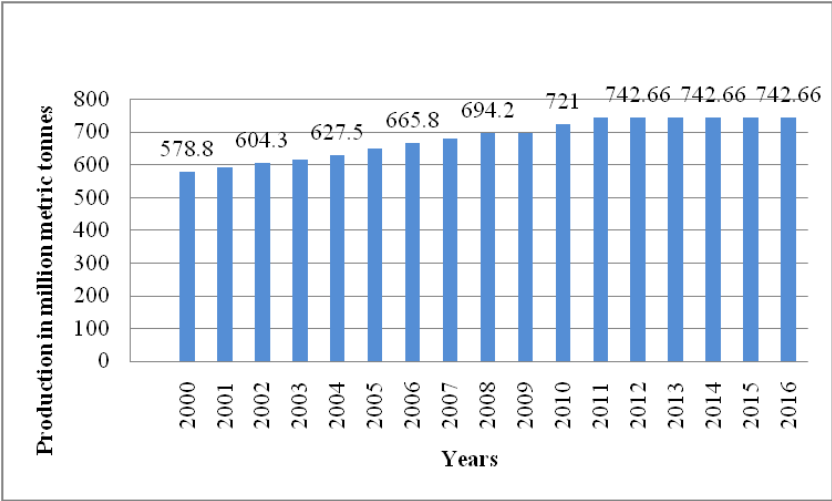


Figure 1: Global Milk Production in million metric tonnes

Trend of milk production in Uttarakhand and India: Milk production in India constantly increased from 80.61 to 176.30 million metric tonnes between the periods 2000-01 to 2017-18. Similarly milk production registered continuous growth in Uttarakhand for the period 2000-01 to 2017-18 from 1.03 to 1.84 million metric tonnes (figure-2).

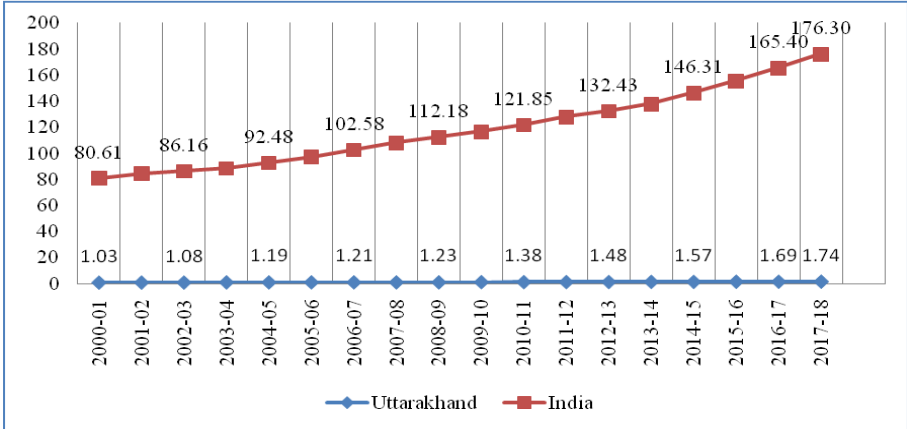


Figure 2: Milk Production in Indian and Uttarakhand (in million metric tonnes)

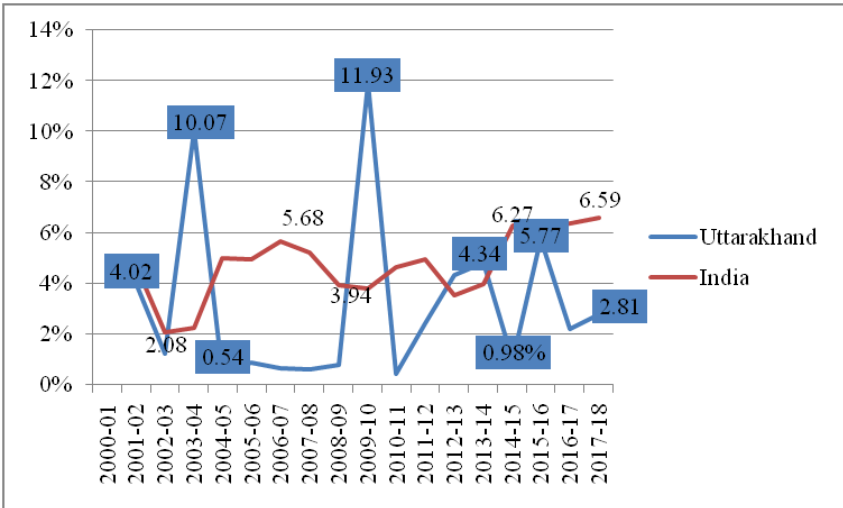


Figure 3: Annual growth rate of Milk Production for Uttarakhand and India

Growth rate over the years: Uttarakhand registered highest growth rates of milk production of 11.9% in 2009-10 followed by 10.1% in 2003-04 and 9% in 2017-18. While the highest growth rate for same time period for India was registered in the year 2017-18 which is 9% followed by 6.4% and 6.3% consequently for the years 2016-17 and 2015-16 respectively (figure-3).

Milk Contribution of different districts to total milk produced for Uttarakhand:

Haridwar, Udham Singh Nagar and Almora remained top three milk producing districts for the period 2001-02 to 2013-14. They contributed 15.6%, 13.0% and 10.6% respectively during the year 2001-02 and 15.8%, 13.1% and 10.6% respectively for the period 2013-14. Nainital occupied third place replacing Almora during the period 2014-15 to 2015-16. The share of milk produced for Haridwar, Udham Singh Nagar and Nainital was found to be 17.7%, 14.3 % and 9.7% respectively for the period 2015-16 (figure-4). During 2001-02, Champawat, Rudraprayag and Bageshwar along with Uttarkashi were lower most milk producing districts which shared 2.9%, 3.4% and 4.5% respectively to the total milk for the state. Rudraprayag became the least milk producing district with the share of 2.8% to the total milk produced for the year 2015-16 while Bageshwar and Uttarkashi were the second lowest milk producing districts with a share of 3.8% share to the total milk produced and Champawat was found to be third lowest milk producing district with a share of 3.6% to the total milk produced for the same period (figure-4). Bageshwar, Chamoli, Pauri, Tehri, Rudraprayag and Uttarkashi showed decreasing trend for the share of milk to the total milk produced for the period 2001-02 to 2015-16 while Champawat, Nainital and Dehradun showed increased trend for the share of milk to the total milk produced and the share of Pithoragarh remained static i.e. 7.7% for the same period (figure-4).

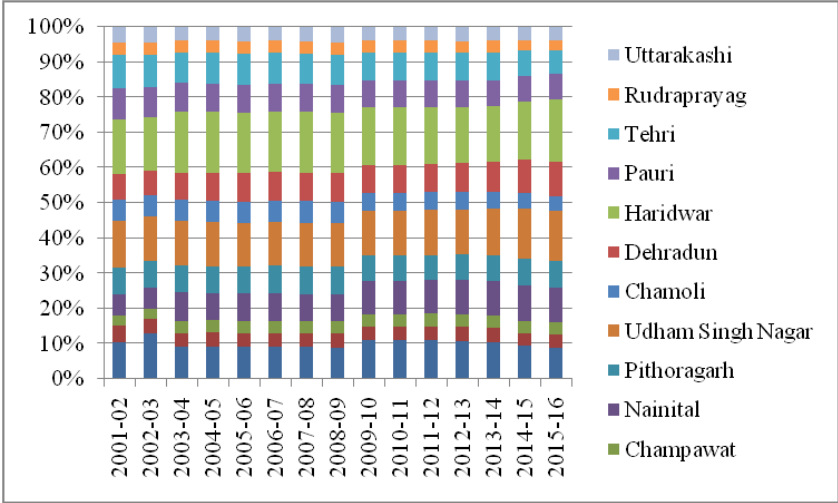


Figure 4: Share of milk of different districts to total milk produced for Uttarakhand (in percentage)

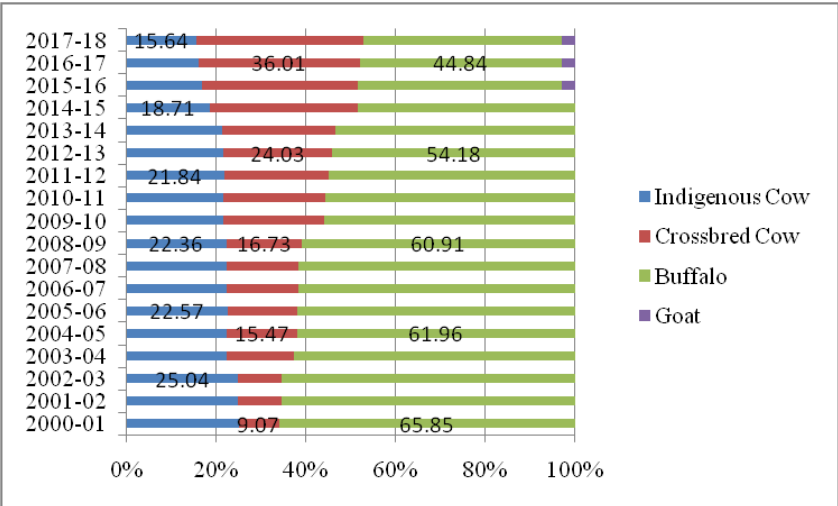


Figure 5: Species wise milkshare to total milk production for Uttarakhand (in percentages)

Species wise percentage contribution of milk to total milk for Uttarakhand: In Uttarakhand, the main milking species are cows and buffaloes while goats contribute to minor extent to milk production since 2015-16. Three main trends can be predicted from *figure-5*. The share of indigenous cows to total milk production first increased from 2001-02 to 2002-03 and then decreased from 25.04% to 16.13% between the year 2002-03 to 2016-17. Similarly the share of milk from buffaloes decreased from 65.44% to 44.84% for the same period. But the contribution of crossbred cows was found to be increased from 10% to 36.01% for the same duration. This might be due to that farmers adopted artificial insemination breeding methods due to increased awareness among them and increased availability of artificial insemination facilities.

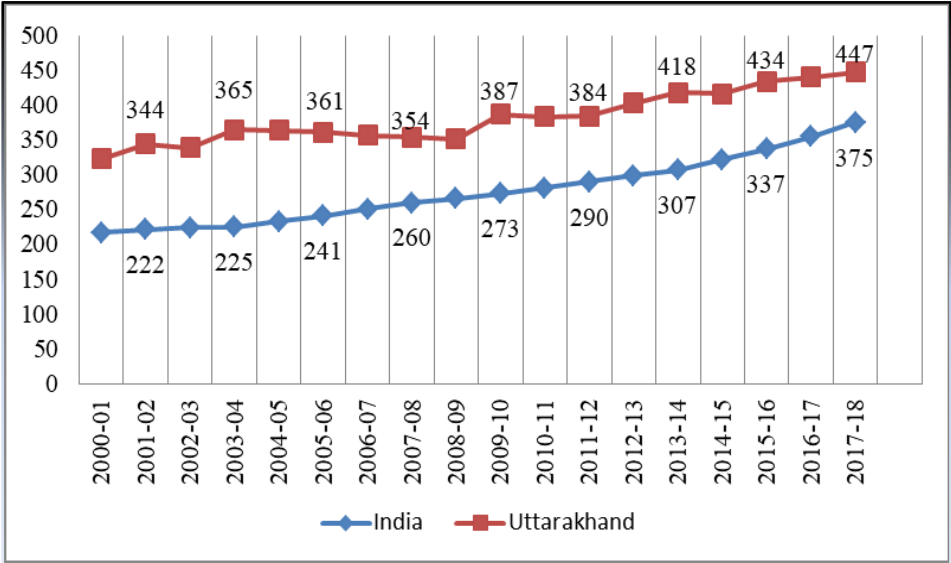


Figure 6: Per capita milk availability for Uttarakhand vs. India (in gram/day)

Per capita milk availability for Uttarakhand vs.India:Two trends were found in figure-6:

- i) Per capita availability of milk in Uttarakhand remained higher than the national for the period from 2000-01 to 2017-18.
- ii) Per capita availability of milk increased from 323 grams/day in 2000-01 to 440 grams per day in2016-17 for the state while it increased from 217 grams per day to 355 grams per day at national level for the same period.

CONCLUSION

Uttarakhand shares around 1% to the total milk produced by India between the period2000-01 to 2017-18. Haridwar and Udham Singh Nagar remained top districts in milk production in the state for the same period.The full potential of the state is still untapped which can be achieved through dairy development in other districts through promotion of extensive extension programme, introducingmodern scientific techniques, use of innovative approaches for increasing milk production, developing improved varieties of fodder species and development of fodder banks on forest councils and wasteland of the state.

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