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SIGNIFICANCE OF MILK PRODUCTION IN BOOSTING LIVESTOCK OUTPUT IN HARYANA: AN ECONOMIC ANALYSIS

ZNACZENIE PRODUKCJI MLEKA DLA ZWIĘKSZENIA PRODUKCJI ZWIERZĘCEJ W STANIE HARYANA: ANALIZA EKONOMICZNA

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Abstract

Subject and Purpose of the work: This paper examines the trends and growth of milk production and the evaluation of the value of output from livestock in Haryana.

Materials and methods: This study is based on secondary data on milk production in Haryana. The data has been obtained from various authorised and official websites and reports like the Statistical Abstract of Haryana, Department of Animal & Husbandry, Haryana, National Dairy Development Board, India, Reserve Bank of India (RBI), Basic Animal Husbandry Statistics, Ministry of Fisheries, Animal Husbandry and Dairying, and the Government of India. This study used the method of simple linear regression.

Results: The paper found a significant relationship between the value of output from livestock and milk production from milch animals. F is $0.000 < 0.05$ (5%), indicating a good model fit.

Conclusions: Per Capita Availability of milk will increase from 2001-02 to 2018-19, respectively, a 0.94 per cent to 8.16 per cent growth rate.

Key Words: Milk production, Value of Output, Growth rate, livestock, Haryana

Streszczenie

Przedmiot i cel badania: Niniejsze badanie dotyczy stosowania płatności cyfrowych (DP) wśród studentów, ze szczególnym uwzględnieniem powodów korzystania z nich oraz ich wpływu na wydatki i zachowania finansowe.

Materiały i metody: Zastosowano podejście mieszane. Dane ilościowe pochodzące od 192 studentów szkół wyższych i uniwersytetów przeanalizowano przy użyciu statystyk opisowych, natomiast głębsze zrozumienie zapewniły spostrzeżenia jakościowe 30 respondentów.

Przedmiot i cel pracy: Niniejszy artykuł analizuje trendy i wzrost produkcji mleka oraz ocenę wartości produkcji zwierzęcej w stanie Haryana.

Materiały i metody: Niniejsze badanie opiera się na danych wtórnych dotyczących produkcji mleka w stanie Haryana. Dane zostały uzyskane z różnych autoryzowanych i oficjalnych stron internetowych oraz raportów, takich jak Statistical Abstract of Haryana, Department of Animal

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Journal included in: AgEcon Search; AgEcon Search; AGRO; Arianta; Baidu Scholar; BazEkon; Cabell's Journalytics; CABI; CNKI Scholar; CNPIEC – cnpLINKer; Dimensions; DOAJ; EBSCO; ERIH PLUS; ExLibris; Google Scholar; Index Copernicus International; J-Gate; JournalTOCs; KESLI-NDL; MIAR; MyScienceWork; Naver Academic; Naviga (Softweco); Polish Ministry of Science and Higher Education; QOAM; ReadCube; Research Papers in Economics (RePEc); SCILIT; Scite; SCOPUS; Semantic Scholar; Sherpa/RoMEO; TDNet; Ulrich's Periodicals Directory/ulrichsweb; WanFang Data; WorldCat (OCLC); X-MOL

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and Husbandry, Haryana, National Dairy Development Board, India, Reserve Bank of India (RBI), Basic Animal Husbandry Statistics, Ministry of Fisheries, Animal Husbandry & Dairying oraz rząd Indii. W badaniu zastosowano metodę prostej regresji liniowej.

Wyniki: W artykule stwierdzono istotny związek między wartością produkcji zwierzęcej a produkcją mleka od zwierząt mlecznych. F wynosi $0,000 < 0,05$ (5%), co wskazuje na dobre dopasowanie modelu.

Wnioski: Dostępność mleka na mieszkańca wzrosła w latach 2001-02 do 2018-19, odpowiednio o 0,94% do 8,16%.

Słowa kluczowe: Produkcja mleka, wartość produkcji, tempo wzrostu, hodowla zwierząt, Haryana

Introduction

India was the top milk producer globally last decade, with its entire production reaching 221.06 million tonnes in the year 2021-22. The paper focuses on the state of Haryana. Every household in rural Haryana uses milk in daily life. Haryana is ranked second in per capita availability of Milk, 1081gms/day in India (2021-22). Dairy and Milk production is a secondary revenue source in rural zones. In rural areas of Haryana, most people depend on the Agriculture and Livestock sector, the main source of income is the Agriculture and Livestock sector. Milk is the most valuable product compared to other livestock products like eggs, meat, etc. So we can say that milk is a very highly demanded livestock product.

Dairy occupation in villages is a good source of income and contributes to rural growth and development. In the case of Haryana, there has been very smooth growth for the last six years, 2015-16 to 2020-21. Haryana is the third-highest state of growth in milk production in India. Haryana is in eighth place overall in production in India. The state of Haryana's total milk production is 11284 thousand tonnes up to 2020-21.

The growing rate of total milk production improved from 7% to 9.4% in the years 2016-17 to 2019-20. We have defined the dairy sector in Haryana as well as India to a progressive and huge performance of Milk production over the last ten years. Milk is the most demanded and most usable livestock product among other products in this sector. There is a vast network of milk societies in Haryana. Milk and milk products are a healthy and nutritious part of the diet in rural Haryana. Most people use milk in their daily diet in rural areas, especially sportspeople. The dairy sector contributes greatly to increased growth, employment, etc.

Literature review

The comparative study of two species of Buffalo's milk and Cow's Milk production in the Karnal district of Haryana (Ram Suresh et. al, 2009). The paper indicates that the improved breed of animals and good feeding help increase income and employment opportunities (G.L. Meena et. al, 2010). The results found that the cost of keeping a buffalo is greater for the membership group (Rs.. 47.99 per day) compared to the non-membership group (Rs. 44.22 per day). In the case of cows, keeping costs were Rs.. 38.42 and Rs. 36.56 respectively (S M Feroze et al, 2011). It has been observed that the dairy processing industry in Haryana witnessed a favorable increase in total factor productivity in the year 1980. In line with this investigation, the Haryana dairy processing industry exhibited suboptimal performance in total factor productivity between the periods of 1990 and 2000 (Ramphul Ohlan, 2011). Investigated the effect of microfinance through Self-help Groups (SHGs) on revenue from dairy used with and without the method. The research found that households that were members of self-help groups had a higher average milk yield per day than non-member families (K M Singh et al, 2012). The non-increasing returns to scale DEA frontier is employed to scrutinize the characteristics of ineffectiveness in scale. Our findings propose that there has been a substantial augmentation in the overall productivity of factors in the Indian dairy processing sector. The investigation reveals an average level of technical efficiency at 72%, which consequently infers an approximate level of ineffectiveness at 38% (Ramphul Ohlan, 2013). The paper explores the position of costs and benefits in a dairy initiative. The authors found that crossbred cows

recognized a greater share of milch animals, tracked by local cows and buffaloes (Lipismita Samal et al, 2014). Dairy production is a helpful factor for the rural economy. It is a good contribution to the poor farmer's helpfulness in the context of finances (M.S. Deshmukh, 2014). The objectives of this study are to analyze opportunities for the dairy sector. The substantial character of co-operatives in the development of milk production in India. The author measures the progress of milk production in India as 4.16 percent between the years 1990-91 to 2012-13 (M Anish Kumar et al, 2015). The authors found that the cost of cows and buffaloes was higher for the latter, and annual gross and net profits were higher for buffalo compared to the cows (Dr A. Sudharsana Reddy et al., 2016). The study has highlighted that Livestock activities and dairy farming are dominated by about 10 million workers in the country. The growth rate of milk production is likely to continue at 4.4 percent in the future. Demand for milk and milk foodstuffs continued to increase to 142900 kg in 2015 and 191300 kg in 2020 (Satish Belhekar et. all, 2016). The paper explores the dairy occupation to improve the financial status and increase employment opportunities. The livestock sector employs about 18 million people (Shiv Kumar et al, 2016). The current research endeavor endeavors to empirically assess the changes in the demand and supply of dairy products within the country of India. It seeks to identify and highlight the notable fact that the proportion of dairy products in the overall food consumption pattern of both rural and urban consumers has experienced a significant rise (Ramphul Ohlan, 2016). The study is an attempt to evaluate the trends and tasks of the export side in the dairy industry in India. The study found that crossbred cows have higher gainfulness compared to buffaloes in selected areas of Odisha state of India (Kamlesh Kumar Acharya et. al, 2020).

Objectives

1. To study the trends and growth of milk production in Haryana.
2. To evaluate the value of the output from livestock.

Hypothesis

H_0 – There is no significant relationship between the value of output from livestock and milk production from milch animals.

Data and Methodology

This study is based on secondary data. The data has been collected from the annual report of the Department of Animal Husbandry and the annual report of the Department of Economic and Statistical Analysis, Haryana. National Dairy Development Board, India, various research papers, and the website etc. In this paper, a simple linear regression model has been used to examine the relationship between milk production and the value of output (constant price) from livestock. This study analysed the relationship between the dependent variable, the value of output from livestock, and the independent variable, the production of milk. This study examined the growth rate of milk production and the value of output from livestock. To study the relationship between the value of output and milk production, using the following equation

$$Y=\alpha+\beta x+\mu i$$

Results and Discussion

Method of organising Milk production in Haryana

Milk production in Haryana is organised through a three-tier system involving:

Societies at the village level: Milk producers in a village join together to form village Dairy Cooperatives Societies. Milk Unions at the District level: The Milk Cooperative Societies of one or more districts come

together to form Milk Unions. These are managed by the representatives of milk producers elected from amongst the chairmen of Coop. Societies. At present, there are six Milk Union Ambala, Milk Union Kurukshetra Karnal, Milk Union Hisar- Jind, Milk Union Ballabgarh, Milk Union Rohtak, and Milk Union Sirsa. State Dairy Federation: Milk Unions combine to form Dairy Federation

Three-Tier Cooperative Structure of Milk Production in Haryana

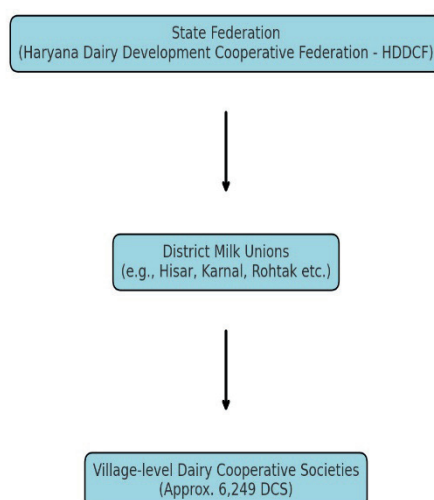


Figure 1. Three-Tier Structure of Milk Production

Source: Author's computation.

Milk sales and processing are organised.

The Haryana Dairy Development Cooperative Federation Ltd. (HDDCF) is engaged in the procurement and processing of milk and the manufacturing of milk products under the famous market brand "Vita". The sale of Vita products also contributes to the economic upliftment and welfare of farmers of Haryana, who provide us with milk through the village-level milk cooperative societies. The village-level societies collect milk from milk producers and sell it to the Milk Union. Earlier, Milk Unions were selling milk to the plants run by the Federation. Since 1-4-1992, the Federation has leased out the Plants to the Milk Unions. So now, Milk Unions process the milk and convert it into products at Milk Plants taken on lease by them from the Federation. Milk unions undertake the sale of Milk and Milk products through distributors, milk and retailers.

The increasing trend of milk production between 2004-05 and 2020-21 in Haryana. The results and discussions section has been shown. Figure 1 shows that consistency has been achieved in milk production.

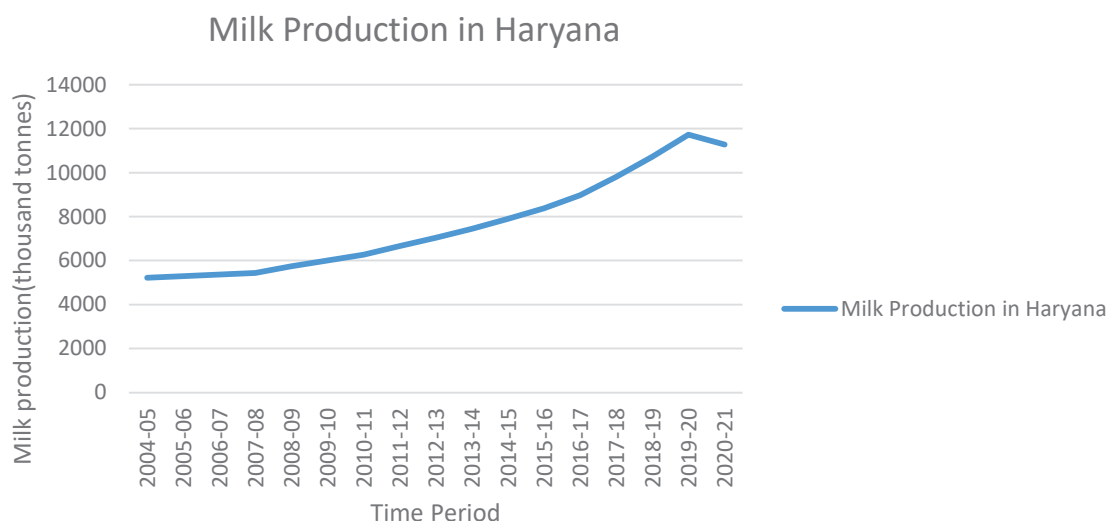


Figure 2. Milk Production in Haryana

Source: RBI.

The fluctuating growth rate of milk per capita availability during the different periods between 20001 and 2019 was explored, and the trend is shown in Figure 3.

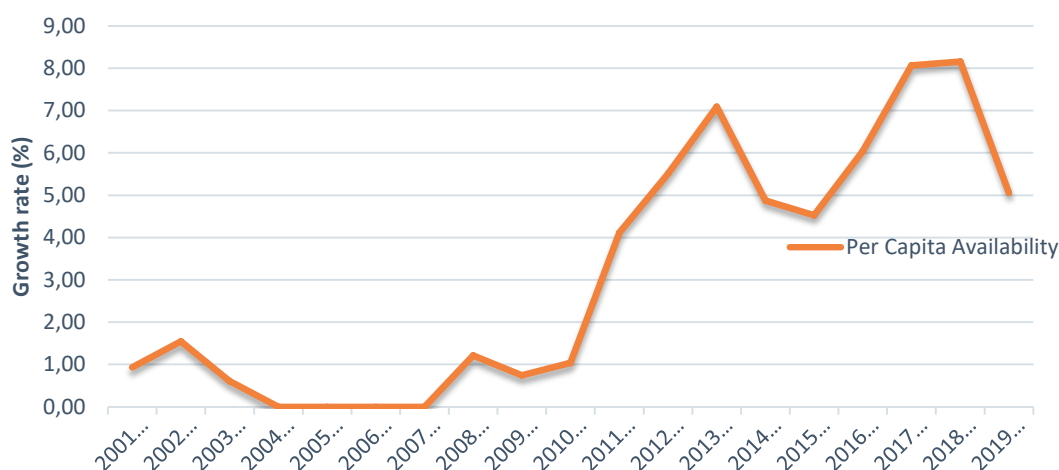


Figure 3. The growth rate of the Per Capita availability of Haryana

Source: Author's computation.

The milk production trend district-wise is shown in Table 1. We have analysed the data during the different periods between 2015-16 and 2019-20. We find that Bhiwani and Hisar are the most dominant districts in milk production out of the twenty-two districts in Haryana.

Table 1. Annual Milk Production from 2015-16 to 2019-20 (Thousand Tonnes)

Name of District	2015-16	2016-17	2017-18	2018-19	2019-20
Ambala	316.640	350.595	391.57	425.50	467.49
Bhiwani	712.866	752.999	802.84	580.30	640.13
Ch. Dadri	000.00	000.00	000.00	318.79	351.12
Faridabad	202.140	212.571	236.96	261.06	288.34
Fatehabad	413.767	440.877	476.69	529.00	578.06
Gurugram	265.842	281.147	312.62	343.23	378.49

Hisar	633.787	673.585	731.18	802.51	879.30
Jhajjar	339.285	367.839	403.78	444.26	491.20
Jind	553.603	587.985	642.49	702.69	762.40
Kaithal	553.075	599.030	650.37	702.32	765.04
Karnal	547.077	580.110	634.93	695.71	756.44
Karnal	339.431	368.059	402.02	441.50	484.12
M/Garh	356.938	385.216	418.58	460.16	504.77
Mewat	289.475	311.388	343.08	365.43	396.18
Palwal	364.118	388.119	432.09	467.71	508.84
Panchkula	110.398	118.062	129.54	139.56	150.64
Panipat	312.743	336.357	369.65	404.53	447.62
Rewari	305.367	329.002	361.13	391.58	431.71
Rohtak	333.726	358.432	393.65	431.22	474.17
Sirsa	550.413	591.223	642.53	695.45	759.02
Sonepat	491.778	530.286	580.65	639.91	690.89
Y/Nagar	388.808	412.044	452.60	483.64	528.74
Total	8381.274	8974.981	9808.94	10726.07	11734.72

Source: State Abstract Statistical Haryana.

Linear Regression Model: We have examined the impact of milk production on the value of output from livestock. The paper has found a significant impact on the value of output. The total milk production of selected milch animals is a function of the value of output from livestock ($Y=f(X)$) and the outcomes are shown in the table below.

Table 2. Linear Regression Results

Model Summary						
Model		R	R Square	Adjusted R Square	Std. Error of the Estimate	
1		.989a	0.979	0.976	0.995163134568126	
a. Predictors: (Constant), Production						
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	322.793	1	322.793	325.939	<.001b
	Residual	6.932	7	0.990	-	-
	Total	329.726	8	-	-	-
a. Dependent Variable: Value						
b. Predictors: (Constant), Production						
Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-4.285	0.624	-	-6.862	0.000
	Production	1.565	0.087	0.989	18.054	0.000
a. Dependent Variable: Value						

Source: Author's computation.

As demonstrated in Table 2, it is evident that the R-squared value stands at 0.979, implying that our exogenous variable, namely milk production, exerts a substantial 97.9% influence on the endogenous

variable, specifically the value of output from livestock. The ANOVA results in Table 2 exhibit a p-value of 0.000, which falls below the predetermined significance level of 0.05. Therefore, we conclude that a statistically significant relationship exists between our independent variable, milk production, and the dependent variable, the value of output from livestock. Table 1 also presents the findings about the coefficients. It is worth noting that the beta value is estimated as 0.989, indicating that a one-unit change in the independent variable, production, will correspondingly yield a 0.989 unit change in the dependent variable, value.

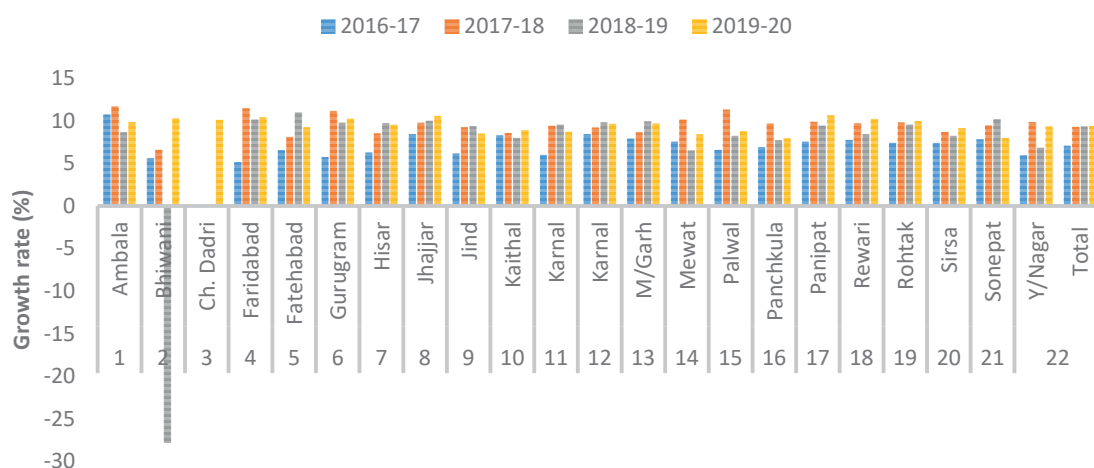


Figure 4. Growth rate of milk production district-wise

Source: Author's computation.

The growth rate of milk production (figure 4) in different districts and different periods between 2016-17 and 2019-20. The growth rate trend indicates fluctuation, up and down, in different districts and different periods. Yamuna Nagar district's growth rate was constant between 2017-18 and 2018-19.

Table 3. Growth Rate (%) of Milk Production by Species Wise (2016-17 to 2021-22)

Sr. No.	Years	Cow's Milk Production	Buffalo's Milk Production	Goat Milk Production	Grand Total Milk Production
1	2016-17	6.37377	7.33299	-4.3079	7.0836
2	2017-18	9.85951	9.22834	-0.4287	9.29218
3	2018-19	9.49211	9.35614	3.05516	9.34994
4	2019-20	10.7482	9.12346	4.47672	9.40372
5	2020-21	4.68222	-5.8613	1.52352	-3.8448
6	2021-22	12.5533	0.59858	4.70831	3.06632

Source: Author's computation.

Indicate (Table 3) the growth rate of milk production by species in the different periods between 2016-17 and 2021-22. Find that the growth rate of cow milk production continuously increased from 2016-17 at 6.37% to 2021-22 at 12.55%. Buffalo's milk production growth rate is a fluctuating trend between the different periods. The growth rate of goat milk production was negative between 2016-17 and 2017-18, but the next period, between 2018-19 and 2019-20, achieved a positive rate. So we find that the total milk production growth rate increased between 2016-17(7.083%) and 2019-20(9.40%).

The growth rate of the value of the output of different milk groups in Haryana. We find that the growth rate of different milk groups is increasing and decreasing between 2012-13 and 2020-21. Correspondingly, the total milk value of different groups' growth rates fluctuates in different periods.

Table 4. Number of Milch Animals during 2012 and 2019

	Milch Cows Crossbred			Milch Cows Indigenous			Milch Buffaloes		
District	2012	2019	% Change	2012	2019	% Change	2012	2019	% Change
Ambala	27581	30727	11.41	4452	6909	55.19	108579	69937	-35.59
Bhiwani	25584	16764	-34.47	24916	26824	7.66	223274	114802	-48.58
*Ch. Dadri	0	8744	0	0	7726	0	0	63597	0
Faridabad	10896	9891	-9.22	8669	12714	46.66	64195	60733	-5.39
Fatehabad	16160	22117	36.86	18533	19933	7.55	144740	96645	-33.23
Gurugram	19412	20112	3.61	10971	11090	1.08	78718	57696	-26.71
Hisar	19377	24656	27.24	25106	35279	40.52	217994	179515	-17.65
Jhajjar	13200	12960	-1.82	8204	12721	55.06	117885	78505	-33.41
Jind	11512	10928	-5.07	21191	25696	21.26	201196	164976	-18.00
Kaithal	22811	19082	-16.35	15486	18084	16.78	196081	122558	-37.50
Karnal	62178	60973	-1.94	12512	17594	40.62	161830	86473	-46.57
K/Shetra	39589	42564	7.51	4821	9011	86.91	97786	60657	-37.97
M/Garh	14525	10071	-30.66	8945	10672	19.31	122298	82343	-32.67
Mewat	7638	4816	-36.95	9242	8229	-10.96	113631	84691	-25.47
Palwal	10871	12559	15.53	7435	11699	57.35	142759	100700	-29.46
Panchkula	4564	7135	56.33	4990	7261	45.51	36231	30251	-16.51
Panipat	16111	20685	28.39	9449	13679	44.77	103956	73002	-29.78
Rewari	15741	11563	-26.54	5741	8733	52.12	95974	72369	-24.60
Rohtak	9602	9510	-0.96	10040	12669	26.19	115114	76857	-33.23
Sirsa	50557	56419	11.59	36455	42410	16.34	149715	106089	-29.14
Sonepat	27857	28554	2.50	15732	18438	17.20	156143	103778	-33.54
Y/Nagar	58014	50631	-12.73	4003	7716	92.76	102449	63236	-38.28
State Total	483780	491461	1.59	266893	345087	29.30	2750548	1949410	-29.13

Source: Integrated Sample Survey Report 2022-23.

Table 4. Show that the following trends:

Milch Cows (Crossbred):

Overall trend: Slight increase of 1.59% across the state. Districts with the highest growth: Panchkula (+56.33%), Fatehabad (+36.86%), Panipat (+28.39%). Districts with major decline: Bhiwani (-34.47%), Mewat (-36.95%), Mahendragarh (M/Garh) (-30.66%). The growth is modest overall. Some districts focus more on indigenous breeds or buffaloes, or may have faced issues such as high feed costs, urbanisation, or inadequate veterinary services.

Milch Cows (Indigenous):

Overall trend: Significant growth of +29.30%. Districts with the highest growth. Yamunanagar (Y/Nagar) (+92.76%), Kurukshetra (+86.91%), Palwal (+57.35%), and Mewat (-10.96%) are the only major declining districts.

Milch Buffaloes:

Overall trend: sharp decline of -29.13%. Districts with the biggest declines: Bhiwani (-48.58%), Karnal (-46.57%), Kaithal (-37.50%), Yamunanagar (-38.28%). No district shows an increase in buffalo population. Milch buffaloes, though traditionally dominant in Haryana, are declining sharply. Possible reasons: Rising feed and maintenance costs. Long gestation and calving intervals. Shift to crossbred/indigenous cows for faster milk output. Urbanisation is reducing fodder availability.

Table 5. Milk Yield in Haryana (as per latest estimates)

Animal Type	Average Milk Yield (Litres/day)
Indigenous Cows	6-8 litres
Crossbred Cows	10-15 litres
Buffaloes (e.g., Murrah)	8-12 litres

Source: 20th Livestock Census (2019), NDDB, Haryana Animal Husbandry Department.

Milk yield refers to the average quantity of milk produced per animal per day. It is a key measure of dairy productivity. Table 5 shows the trends of milk yield in Haryana. Higher milk yield = more income per animal per day, especially for farmers engaged in commercial dairy farming. Encouraging crossbreeding and scientific dairy practices can enhance milk productivity and rural incomes.

Table 6. Number of Households and Net Income

Year	No. of Household	Net Income (Rs.)	Net income per household (Rs)
2017-18	130	4094604	31497
2018-19	140	4562318	32588
2019-20	140	5842761	41734
2020-21	140	6354422	45389
2021-22	142	6477311	45615

Source: Family Budget of Cultivators in Haryana, Annual report 2017-18 to 2021-22.

Table 6 indicates that the number of surveyed cultivator households increased from 130 in 2017-18 to 142 in 2021-22. This gradual rise reflects improved coverage of the family budget survey or a growing population of cultivator households. Total net income increased from ₹40.95 lakh in 2017-18 to ₹64.77 lakh in 2021-22. This represents an overall increase of approximately 58.17% over five years. The sharpest increase occurred between 2018-19 and 2019-20, suggesting improved agricultural profitability or favourable price/output conditions. However, the growth slowed significantly in 2021-22, with a marginal increase of just 0.5%, possibly due to rising input costs, weather uncertainties, or stagnant crop prices.

Conclusion

This paper concluded that milk production from milch animals and the value of output from livestock have been increasing year after year in Haryana. The author's analysis of milk production from milch animals is more profitable for small and marginal farmers. This study has investigated the status of milk production in different scenarios and concludes that overall trends in the context of the state of Haryana. In the context of Haryana milk production, growth and trend will continuously increase. Milk production is a part of the Dairy sector, so we can define the dairy sector as more profitable and provides good work opportunities for rural people. The study analysed the data on milk production and the value of the output of different milk groups, showing increasing trends in the selected period. After reviewing existing studies, we have found that milk production is a gainful activity for the agriculturalists in Haryana. As per Buffalo's milk value of output is more profitable compared to other species like Cows and Goats in the context of Haryana. The study suggests that researchers explore the research and investigate modernisation in milk production and the dairy sector.

References

1. Acharya, K. K., Malhotra, R. K, 2020. Economic analysis of milk production in peri- Urban dairy farms of Odisha. *Indian Journal of Dairy Science*, 73(2), 155-159.
2. Belhekar S, Dash S, 2016. Role of Dairy Industry in Rural Development in India. *Perspex- Indian Journal of Research*, Volume 5, Issue 11.
3. Deshmukh M.S, 2014. Growth and Performance of Dairy sector in India. *Voice of Research*, Volume 3, Issue 2.
4. Dr Reddy A. S, Dr Padmavathi M, 2016. The Growth and Development of Dairy Industry in India. *International Journal of Scientific*, Volume 5, Issue 6.
5. Feroze S M, Chauhan A K, Chakravarty A K, 2011. Microfinance and Income from Dairy in Haryana. An impact analysis. *Indian Journal of Animal Science*, 81(7), 751-756.
6. Kumar M, Dhillon A, Luhach V P, 2015. Economic Analysis of Milk Production in Rewari District of Haryana. *Indian Journal of Dairy Science*, 68 (5).
7. Kumar, S., Ansari, K. 2016. An Analytical Study on the Export Performance of Dairy Industry in India." *International Journal of Research-Granthaalayah*, Vol.4, (Iss.1).
8. Meana G.L, Jain D.K, Chandel B.S, 2010. Economics Analysis of Milk Production in Alwar District of Rajasthan" *J. Dairying, Food & H.S*, Vol.29, No.1.
9. Ohlan, R. (2011). Productivity and Efficiency Analysis of Haryana's Dairy Industry. *Productivity* 52(1): 42-50.
10. Ohlan, R. (2016). Dairy Economy of India. *South Asia Research*, 36(2), 241-260. <https://doi.org/10.1177/0262728016638731>.
11. Ohlan. R., (2013). Efficiency and Total Factor Productivity Growth in Indian Dairy Sector." *Quarterly Journal of International Agriculture*, No. 1: 51-77, 52
12. Suresh R, Tripathi R.S, Solanki A, 2009. Comparative Economic of Buffalo and Cow Milk Production in Karnal District of Haryana. *Indian Journal of Animal Research*, 43(3), 224-225.
13. Singh K M, Meena M S, Bharati R C, Kumar A, 2012. An Economic Analysis of Milk Production in Bihar. *Indian Journal of Animal Science*, 82(10), 1233-1237.
14. Samal L, Pattanaik A.K. 2014. Dairy Production in India-Existing Scenario and Future Prospects, *International Journal of Livestock Research*, Vol 4 (2).



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