

Profitability Performance of Co-Operative Milk Unions of Karnataka Milk Federation in North Karnataka

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Abstract

A good financial efficiency is based on sound financial management practices of an organisation, planned financial management leads to growth of the business and failure in administration of finance caused destruction of any business unit, as well as it is very difficult to survive in the competitive environment without appropriate management of finance. Hence, understanding of financial position of the dairy industries in particular Co-operative Milk Unions promotes the additional growth and expansion of dairy sector and enhance the efficiency in managerial activities. It is observed from the review of literature, the dairy co-operatives driven keen attention towards uniform and management accounting systems to clear understanding financial performance, ability, efficiency and status. Therefore, present research work carried with an objective of analysing financial efficiency of dairy Co-operative.

In Karnataka, crores of rupees invested to develop a well organised dairy sector by setting up the Karnataka Milk Federation (KMF) with the merger of Karnataka Dairy Development Corporation (KDDC) and Karnataka Milk Products Limited (KMPL) has become the nodal organisation with which organised dairying is designed in the state. Therefore, the effectiveness of mobilising and utilisation of finance by the Karnataka Milk Federation determines importance of the development of dairy industry in particular; and rural development in broad. In this circumstance, profitability performance of dairy Co-operatives of Karnataka Milk Federation (KMF) assumes most significant from the perspective of the decision-makers/planners, top management/policy makers, Karnataka Milk Federation (KMF) and even for the researchers, to identify its operational problems and financial health.

Keywords: Profitability performance, ratios, gross profit, operating profit, net profit, industry mean, standard deviation, co-efficient of variance, CAGR, skewness, kurtosis and ANOVA.

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I. Introduction

The impressive growth of dairy industry in India at the rate of 5 per cent per annum during the last three decades; in 1990's India emerged as a largest milk producing country. This achievement is highly appreciable because, when concentrated on the behaviour of farmers it is stringent that they usually maintain milch or dairy animals to the share of free crops or fodder available in the farming field. The major changes have seen in dairy farming practices after implementation of Amul kind of Co-operatives in the country. It improves the economy of the farmers by gaining better price for milk procured and production which supports to become self reliant and shift in commercial preposition through dairying activities.

Since, from 40 years India has the remarkable growth in production of milk and has achieved a milestone in the year 2001 by gross output of 84.6 million tonnes and has become the largest milk producing country in the world. Indian dairy industry has reached this position through the strength and systematic structure of professionally managed and producer owned Co-operative system. There are 96,000 Co-operative Societies among 170 Milk Producers Co-operative Unions in the 15 states Milk Federations in the nation, more than 10 million milk producers and dairy farmers have join their hands to these milk Co-operative societies.²

STATEMENT OF THE PROBLEM

A good financial efficiency is based on sound financial management practices of an organisation, planned financial management leads to growth of the business and failure in administration of finance caused destruction of any business unit, as well as it is very difficult to survive in the competitive environment without appropriate management of finance. Hence, understanding of financial position of the dairy industries in particular Co-operative Milk Unions promotes the additional growth and expansion of dairy sector and enhance the efficiency in managerial activities. It is observed from the review of literature, the dairy co-operatives driven

keen attention towards uniform and management accounting systems to clear understanding financial performance, ability, efficiency and status. Therefore, present research work carried with an objective of analysing financial efficiency of dairy Co-operative.

OBJECTIVES OF THE STUDY

1. To study the progress of District Dairy Co-operatives in North Karnataka.
2. To analyse the profitability performance of District Dairy Co-operatives in North Karnataka.
3. To offer findings and suggestions.

SCOPE OF THE STUDY

The present study focused on financial performance of Karnataka Milk Federation's District Dairy Co-operatives in North Karnataka. The study covers the profitability position of Dairy Co-operatives to measure the operational and financial health. Rapid growth of dairy industry in India is one of the landmark achievements by means of State Milk Federations and District Co-operative Milk Unions. The research study encompasses 15 years financial facts from 2003-04 to 2017-18.

II. Methodology

It is a method to solve the particular problem in systematically. With the intention to attain the objectives the subsequent methodology has been adopted.

Sources of data

The present study is primarily based on secondary data collected from the financial statements such as Profit and Loss Account, Balance Sheet of the Co-operative Milk Unions in North Karnataka. In addition, other necessary information is gathered from the websites of Department of Animal Husbandry, Dairying & Fisheries Government of India, National Dairy Development Board, Karnataka Milk Federation and various Journals, magazines, research works etc are used.

1.6.2 Period of the study

The data for the study covers a period of consecutive 15 years from the year 2003-04 to 2017-18.

TECHNIQUES OF PROFITABILITY RATIO ANALYSIS

The basic aim of a business firm is to maximisation of profit or to earn profits. Profits are necessary for the survival of business units. Profits are not essential only for the existence of the business but also for its expansion and diversification strategies. Therefore, profits are useful determinant for overall efficiency of a business activity.

For the management, profits are the test evaluating the efficiency and a measurement of control; to the owners of business, it is a criterion to measure the worth of their investment; to the employees and workers, it is a basis of fringe benefits; to the creditors, it acts as a margin of safety; to the customers and consumers, it act as a hint to demand for price cuts and good quality; to the Government, it is a benefit in the form of taxpaying capacity; to an enterprise, it is a less burden source of finance for existence and growth and finally to the nation, it is an index for economic development and progress. These profitability ratios are generally calculated either in relation to investments or in relation to sales of the firm to measure the profitability of a business unit.

The profitability performance of Co-operative Milk Unions is studied with:

- (1) Gross Profit Ratio (2) Operating Profit Ratio (3) Net Profit Ratio

1 Gross Profit Ratio

Gross profit ratio measures the relationship between gross profit and the net sales of the firm in terms of percentage. $\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Net Sales}} * 100$

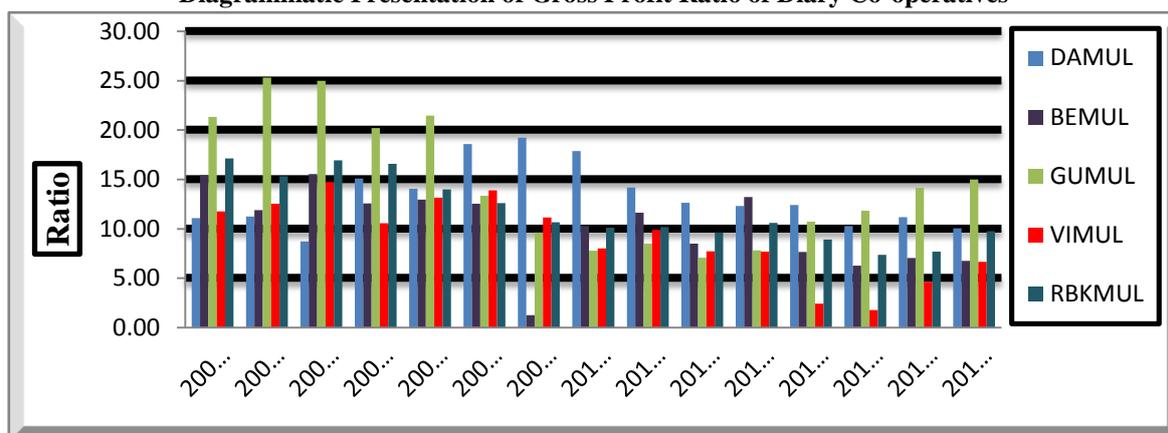
TABLE-01
Gross Profit Ratios of Dairy Co-operatives in North Karnataka During the Period 2003-04 to 2017-18

YEAR	DAMUL	BEMUL	GUMUL	VIMUL	RBKMUL
2003-04	11.08	15.41	21.34	11.75	17.14
2004-05	11.24	11.90	25.32	12.54	15.33
2005-06	08.73	15.54	25.00	14.75	16.95
2006-07	15.10	12.58	20.19	10.58	16.59
2007-08	14.06	12.97	21.47	13.15	13.99
2008-09	18.57	12.54	13.34	13.90	12.61
2009-10	19.24	01.25	09.63	11.14	10.66
2010-11	17.89	10.29	07.78	08.03	10.11
2011-12	14.20	11.65	08.52	09.88	10.18
2012-13	12.63	08.50	07.08	07.71	09.63

2013-14	12.31	13.24	07.84	07.70	10.59
2014-15	12.41	07.66	10.74	02.44	08.91
2015-16	10.29	06.27	11.84	01.77	07.38
2016-17	11.18	07.04	14.15	04.62	07.68
2017-18	10.04	06.77	14.99	06.67	09.77
Mean	13.27	10.24	14.62	09.11	11.83
Grand Mean	11.81				
St. Deviation	3.22	3.92	6.45	4.02	3.36
Coeff. of Var	24.28	38.30	44.12	44.14	28.36
CAGR (%)	-0.65	-5.34	-2.33	-3.70	-3.68
Skewness	0.71	-0.71	0.51	-0.48	0.49
Kurtosis	-0.49	0.31	-1.24	-0.68	-1.18

Source: Annual reports of North Karnataka Milk Co-operative Union Societies Ltd.

CHART-01
Diagrammatic Presentation of Gross Profit Ratio of Dairy Co-operatives



The above Table-01 reveals that the gross profit ratio of DAMUL for the year 2009-10 shows highest at 19.24 per cent whereas in the year 2005-06 it found lowest at 08.73 per cent. The gross Profit ratio of BEMUL for the year 2005-06 is at 15.54 per cent which is highest in the study period and for the year 2009-10 it is only at 01.25 percent which is found lowest. The GUMUL has its highest gross profit ratio at 25.32 per cent for the year 2004-05 and it is lowest in the year 2012-13 at 07.08 per cent. The VIMUL discloses its gross profit ratio at 14.75 per cent in the year 2005-06 which is highest during the study period but in year 2015-16 it is only 01.77 per cent which is found lower. The RBKMUL has its highest gross profit ratio at 17.14 per cent in the year 2003-04 and lowest in the year 2015-16 at 07.38 per cent.

From the above table it is inferred that the mean value of the Gross Profit ranges between 9.11 and 14.62. The GUMUL has highest mean value of gross profit 14.62 per cent and the VIMUL has lowest mean value of gross profit 9.11 per cent during the study period, it is revealed that GUMUL stand good against other Milk unions. The industry mean value of gross profit ratio stands to 11.81 percent.

Among the Karnataka Milk Federation's various Dairy Co-operatives in North Karnataka, Three Milk Co-operative Unions namely Dharwad Milk Union Ltd., Gulbarga Milk Union Ltd., and Raichur, Bellary and Koppal Milk Union Ltd. Has the mean gross profit ratio greater than its industry mean.

It is inferred from the above table that the mean gross profit ratio of all the Co-operative milk Unions in the study namely DAMUL, BEMUL, GUMUL, VIMUL and RBKMUL Shows that the business is in a position to meet operating expenses of respective Unions.

The standard deviation of gross profit ratio ranges between 3.22 and 6.45. Dharwad Milk Union Ltd. (DAMUL) shows the lowest standard deviation by 3.22 which is the stable performance and it indicates low variation in the gross profit ratio by comparing to other Milk Co-operative Unions in the study area and the highest standard deviation is found in Gulbarga Milk Union Ltd. (GUMUL) it shows high variation in the gross profit ratio by 6.45.

The Co-efficient of variation of gross profit ratio ranges between 24.28 and 44.14. Dharwad Milk Union Limited (DAMUL) has lowest co-efficient of variation by 24.28 which has more consistency compared to other Co-operative Milk Unions in North Karnataka. Vijayapura Milk Union Ltd. (VIMUL) shows its co-efficient of variation highest by 44.14, it indicates high instability in the gross profit ratio during the fifteen years study period. The negative compounded annual growth rate is revealed by all the Co-operatives Milk Union.

ANOVA FOR GROSS PROFIT RATIO

Ho: There is no significant difference in gross profit ratio of district co-operative dairies.

TABLE-02
Analysis of Variance for Gross Profit Ratio

Source of Variation	Sum of Square	d.f.	Mean Square	F-value	P-value	F-crit. (5%)
Between Groups	296.2614331	4	74.06536	3.907825	0.006381	2.502656
Within Groups	1326.716149	70	18.95309			
Total	1622.977582	74				

From the table-02 it is understood that the analysis of variance of gross profit ratio shows that the calculated 'F' value of variables among the sample of five Co-operative Milk Unions in the region of North Karnataka was found as 3.9078 which is greater than the table value of 2.5026 at 5 percent level of significance. Hence, there is a significant difference in gross profit ratios, thus the null hypothesis is rejected and the alternative hypothesis is accepted at 5 percent of significance level.

2 Operating Profit Ratio

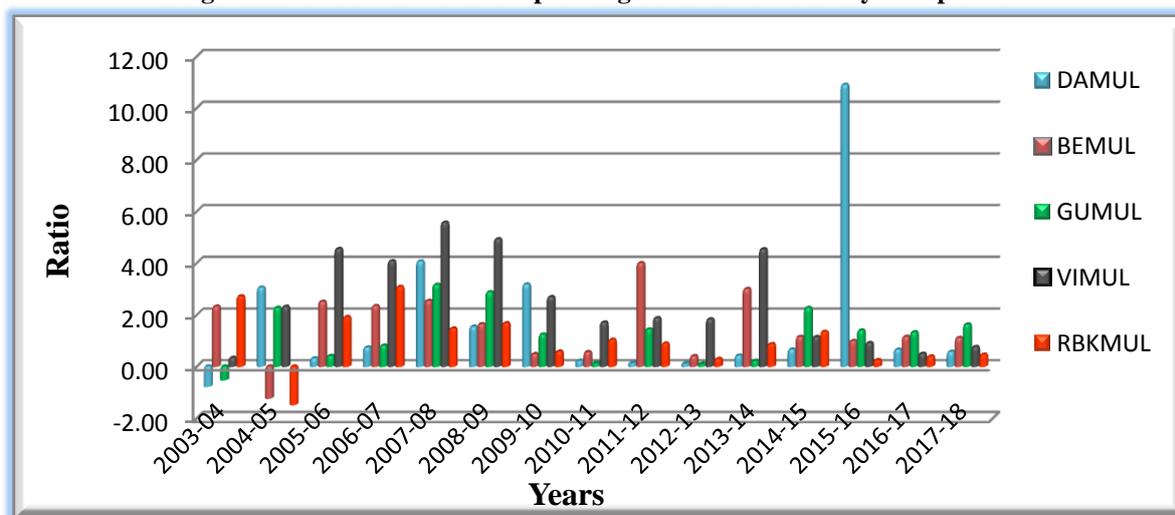
This ratio expresses the relationship between operating profit and net sales of the firm in terms of percentage. Operating Profit Ratio = Operating Profit / Net Sales *100

TABLE-03
Operating Profit Ratios of Dairy Co-operatives in North Karnataka During the Period 2003-04 to 2017-18

YEAR	DAMUL	BEMUL	GUMUL	VIMUL	RBKMUL
2003-04	-0.77	2.32	-0.52	0.33	2.71
2004-05	3.05	-1.23	2.27	2.31	-1.48
2005-06	0.31	2.50	0.41	4.54	1.91
2006-07	0.73	2.34	0.81	4.07	3.07
2007-08	4.06	2.54	3.16	5.56	1.47
2008-09	1.54	1.63	2.87	4.92	1.67
2009-10	3.17	0.48	1.24	2.68	0.57
2010-11	0.22	0.55	0.13	1.70	1.03
2011-12	0.13	4.00	1.43	1.87	0.89
2012-13	0.11	0.40	0.10	1.82	0.29
2013-14	0.41	2.99	0.21	4.53	0.86
2014-15	0.65	1.14	2.26	1.14	1.34
2015-16	10.89	0.99	1.39	0.90	0.24
2016-17	0.65	1.15	1.32	0.49	0.38
2017-18	0.57	1.10	1.62	0.75	0.46
Mean	1.72	1.53	1.25	2.51	1.03
Grand Mean	1.61				
St. Deviation	2.87	1.29	1.08	1.77	1.10
Coeff. of Var	167.40	84.37	86.43	70.53	107.00
Skewness	2.63	-0.14	0.21	0.47	-0.17
Kurtosis	7.88	0.49	-0.73	-1.29	1.25

Source: Annual reports of North Karnataka Milk Co-operative Union Societies Ltd.

CHART-02
Diagrammatic Presentation of Operating Profit Ratio of Dairy Co-operatives



From the above Table-03 it is inferred that the operating profit ratio of DAMUL for the year 2015-16 shows greater at 10.89 per cent whereas in the year 2003-04 there is an operating loss at 0.77 per cent. The BEMUL has its operating profit 4.00 per cent for the year 2011-12 which is the highest during the study period and in the year 2004-05 there is an operating loss by 1.23 per cent. The GUMUL has its highest operating profit ratio by 3.16 per cent for the year 2007-08 and it shows operating loss in the year 2003-04 by 0.52 per cent. The VIMUL discloses its gross profit ratio by 5.56 per cent in the year 2007-08 which is found highest during the study period but in year 2003-04 it is only 0.33 per cent which is found lower. The RBKMUL has made its more operating profit ratio by 3.07 per cent in the year 2006-07 and there is an operating loss by 1.48 per cent in the year 2004-05.

From the above table it is inferred that the mean value of the operating profit ratio ranges between 1.03 and 2.51. The Vijayapura Milk Union Ltd. (VIMUL) has highest mean value of operating profit 2.51 per cent and the Raichur, Bellary and Koppal Milk Union Ltd. (RBKMUL) has lowest mean value of operating profit 1.03 per cent and the study revealed that VIMUL placed good against other Milk unions. The industry mean value of operating profit ratio stands to 1.61 per cent.

Among the Karnataka Milk Federation's five Dairy Co-operatives in North Karnataka, Dharwad Milk Union Ltd has its mean operating profit ratio greater than its industry mean.

It is inferred from the above table that the mean value of operating profit ratio of all the five Milk Unions in the study namely DAMUL, BEMUL, GUMUL, VIMUL and RBKMUL Shows that all Unions has the capacity to determine the operational efficiency with production and or purchases, administration, selling and distribution operations and other activities carried on in the business.

The standard deviation of operating profit ratio ranges between 1.08 and 2.87. Gulbarga Milk Union Ltd. (GUMUL) shows the lowest standard deviation by 1.08 which is the stable performance and it indicates low variation in the operating profit ratio by comparing to other Co-operative Milk Unions in the North Karnataka region and the highest standard deviation is found in Dharwad Milk Union Ltd. (DAMUL) it shows high variation in the operating profit ratio by 2.87.

The Co-efficient of variation of operating profit ratio ranges between 70.53 and 167.40. Vijayapura Milk Union Limited (VIMUL) has lowest co-efficient of variation by 70.53 which has more consistency compared to other Co-operative Milk Unions in the region of North Karnataka. Dharwad Milk Union Ltd. (DAMUL) shows it's co-efficient of variation highest by 167.40, it indicates high instability in the operating profit ratio during the study period.

ANOVA FOR OPERATING PROFIT RATIO

Ho: There is no significant difference in operating profit ratio of district co-operative dairies.

TABLE-04
Analysis of Variance for Operating ProfitRatio

Source of Variation	Sum of Square	d.f.	Mean Square	F- value	P-value	F-crit. (5%)
Between Groups	19.42162058	4	4.855405	1.577071	0.189999	2.502656
Within Groups	215.5124622	70	3.078749			
Total	234.9340828	74				

From the analysis of variance of the above table-04 the calculated 'F' value of variables among five Co-operative Milk Unions operating profit ratio is 1.5770 which is less than the critical value of 2.5026 at 5 percent level of significance. There is a significant difference in operating profit ratios. Hence, the null hypothesis is accepted and the alternative hypothesis is rejected at 5 percent level of significance.

3 Net Profit Ratio

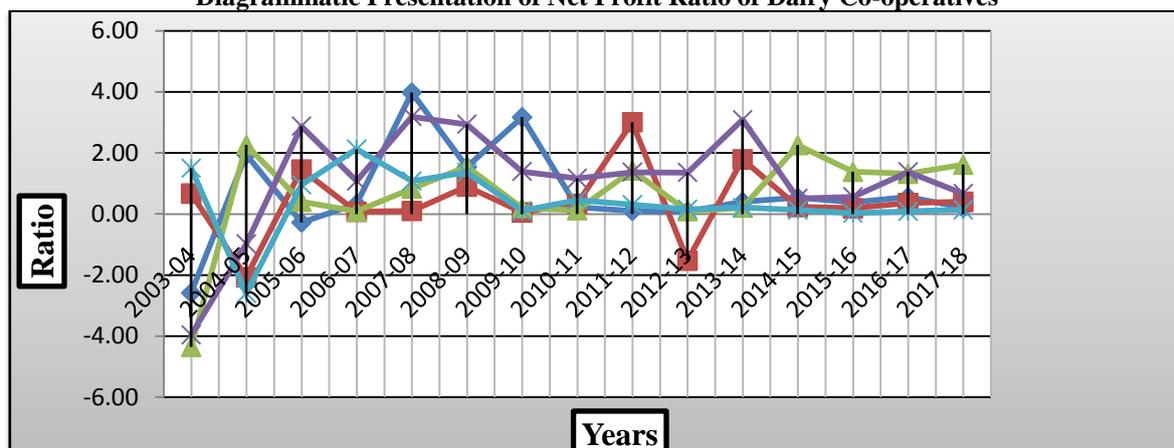
Net profit ratio measures the relationship between net profit and the net sales of the firm in terms of percentage. Net Profit Ratio = Net Profit / Net Sales *100

TABLE-05
Net Profit Ratios of Dairy Co-operatives in North Karnataka During the Period 2003-04 to 2017-18

YEAR	DAMUL	BEMUL	GUMUL	VIMUL	RBKMUL
2003-04	-2.58	0.67	-4.35	-3.96	1.50
2004-05	1.95	-2.07	2.27	-0.98	-2.60
2005-06	-0.28	1.46	0.41	2.88	0.95
2006-07	0.32	0.07	0.09	1.08	2.12
2007-08	3.98	0.10	0.84	3.19	1.08
2008-09	1.54	0.90	1.56	2.94	1.36
2009-10	3.17	0.06	0.20	1.39	0.11
2010-11	0.22	0.33	0.13	1.17	0.46
2011-12	0.10	3.00	1.43	1.37	0.31
2012-13	0.08	-1.52	0.10	1.36	0.15
2013-14	0.40	1.79	0.21	3.09	0.21
2014-15	0.53	0.23	2.26	0.51	0.13
2015-16	0.37	0.19	1.39	0.57	0.02
2016-17	0.55	0.36	1.32	1.38	0.09
2017-18	0.20	0.40	1.62	0.67	0.14
Mean	0.70	0.40	0.63	1.11	0.40
Grand Mean	0.65				
St. Deviation	1.52	1.21	1.58	1.81	1.05
Coeff. of Var	216.18	302.84	250.49	162.72	260.42
Skewness	0.36	-0.02	-2.35	-1.55	-1.38
Kurtosis	1.81	1.53	7.39	3.73	4.58

Source: Annual reports of North Karnataka Milk Co-operative Union Societies Ltd.

CHART-03
Diagrammatic Presentation of Net Profit Ratio of Dairy Co-operatives



From the above Table-05 it is evident that the net profit ratio of Dharwad Milk Union Ltd (DAMUL) shows by 3.98 per cent for the year 2007-08 which is highest during the study period, on the other hand in the year 2003-04 it shows net loss by 2.58 per cent. The Belgaum Milk Union Ltd (BEMUL) has its net profit 3.00 per cent for the year 2011-12 which is the highest during the study period and in the year 2004-05 there is a net loss by 2.07 per cent. The Gulbarga Milk Union Ltd (GUMUL) has its highest net profit ratio by 2.27 per cent for the year 2004-05 and it shows net loss in the year 2003-04 by 4.35 per cent. The Vijayapura Milk Union Ltd (VIMUL) evident its net profit ratio by 3.19 per cent in the year 2007-08 which is found highest during the study period but in year 2003-04 there is a net loss by 3.96 per cent. The Raichur, Bellary and Koppal Milk Union Ltd (RBKMUL) has made its more net profit ratio by 2.12 per cent in the year 2006-07 and there is a net loss by 2.60 per cent in the year 2004-05.

From the above table it is evident that the mean value of the net profit ratio ranges between 0.40 and 1.11. The Vijayapura Milk Union Ltd. (VIMUL) has highest mean value of net profit ratio by 1.11 per cent and in both the Belgaum Milk Union Ltd. (BEMUL) as well as the Raichur, Bellary & Koppal Milk Union Ltd. (RBKMUL) has lowest mean value of net profit ratio by 0.40 per cent and the study reveals that VIMUL placed good against other Milk unions. The industry mean value of net profit ratio stands to 0.65 per cent.

Among the Karnataka Milk Federation's various Dairy Co-operatives in North Karnataka, the two Unions namely Dharwad Milk Union Ltd and Vijayapura Milk Union Ltd has its mean value of net profit ratio greater than its industry mean.

It is evident from the above table that the mean value of net profit ratio of all the five Milk Unions in the study namely DAMUL, BEMUL, GUMUL, VIMUL and RBKMUL shows the greater profitable ratio and it indicates the capacity of Milk Unions to face the adverse economic condition.

The standard deviation of net profit ratio ranges between 1.05 and 1.81. Raichur, Bellary & Koppal Milk Union Ltd. (RBKMUL) shows the minimum standard deviation by 1.05 which is the stable performance and it indicates low variation in the net profit ratio comparing to other Co-operative Milk Unions in the North Karnataka region and the maximum standard deviation is found in Vijayapura Milk Union Ltd. (VIMUL) it shows high variation in the net profit ratio by 1.81.

The Co-efficient of variation of net profit ratio ranges between 162.72 and 302.84. Vijayapura Milk Union Limited (VIMUL) has minimum co-efficient of variation by 162.72 which has more consistency compared to other Co-operative Milk Unions. Belgaum Milk Union Ltd. (BEMUL) evident its co-efficient of variation maximum by 302.84, it indicates high unpredictability in the net profit ratio during the study period.

ANOVA FOR NET PROFIT RATIO

H₀: There is no significant difference in net profit ratio of district co-operative dairies.

The analysis of variance from the above Table-06 depicts that the net profit ratio reveals the calculated value of 'F' variables among the five Co-operative Milk Unions is at 0.6018 which is lower than the table value 'F' of 2.5026 at 5 percent significance level. Hence, there is no any significant difference in net profit ratio of co-operative dairies in North Karnataka. Therefore, the null hypothesis is accepted and the alternative hypothesis is rejected.

TABLE-06
Analysis of Variance for Net ProfitRatio

Source of Variation	Sum of Square	d.f.	Mean Square	F- value	P-value	F-crit. (5%)
Between Groups	5.129894	4	1.282473	0.601864	0.662543	2.502656
Within Groups	149.1585	70	2.130835			
Total	154.2884	74				

III. Findings

- Industry mean value of gross profit ratio of the Co-operative Milk Unions during the study period of fifteen years from 2003-04 to 2017-18 is revealed at 11.81 per cent. Standard deviation of Dharwad Milk Union is found smaller at 3.22 which confirm the stable performance in contrast with other Milk Unions. The C. V (24.28) of Dharwad Milk Union is more consistent. The CAGR of all the Milk Unions are found negative. The mean value of gross profit ratios to the net turnover from the study sample of five Co-operative Milk Unions are differs significantly. Subsequently, the null hypothesis is rejected.
- Industry mean of operating profit ratio of Milk Unions in the study area of North Karnataka is 1.61 per cent. Standard deviation of the Gulbarga Milk union is 1.08 which is the smallest among the unions; therefore it is more stable performance. Co-efficient of variation (70.53) of Vijayapura Milk Union is more consistent. The CAGR of VIMUL is found positive at 5.54 per cent and other Milk Unions are representing negatively. Mean value of operating profit ratio to the sales of the Co-operative Milk Unions are not differs significantly. Therefore, null hypothesis is accepted.
- The industry mean of net profit ratio of Co-operative Milk Unions of the study area expresses at 0.65 per cent. The lowest standard deviation of the Raichur, Bellary and Koppal Milk Union (RBKMUL) is 1.05; therefore it is more stable in performance. The lowest Co-efficient Variation of Vijayapura Milk Union is 162.72 which is the more consistent. The CAGR of all the Milk Unions are found negative. The mean value of net profit ratio to the net sales of the Co-operative Milk Unions are not differs significantly. Therefore, null hypothesis is accepted.

IV. Suggestions

- ✓ The policy makers, management or expertise and supervisors of all the Co-operative Milk Unions in North Karnataka must make optimum efforts and pay special attention to control the unproductive expenditures.
- ✓ All the Dairy Co-operatives in North Karnataka are suggested to increase the milk procurement by increasing the number of Dairy Co-operative Societies (DCS). For these societies, Dairy Unions need to incur the fixed cost. The increasing level or quantity of milk procurement reduces the cost per unit/litre, large capacity of production decreases the procurement cost.

V. Conclusion

Karnataka Milk Federation's District Co-operative Milk Unions in North Karnataka is competing with many private Dairy industries. The District Milk Unions need to acquire large market share to promote sales. Application of high technology increases production of Milk and Milk products, also support to maintain the quality standards.

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