

Performance Review of Dairy Cooperative Sector in Odisha: An Analysis

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ABSTRACT

The dairy cooperative model began with Anand Milk Union Limited (AMUL) in 1942, catalysing the “White Revolution” that transformed India’s dairy sector. Today, dairy cooperatives benefited millions of farmers and consumers, making India world’s largest milk producer. India contributed about 24 percent of the global milk production, with a total of 221.06 million metric tonnes annually as per the financial year 2021-22. The study analysed structural change and performance of Odisha state cooperative milk producers’ federation both at federation and union level with the help of secondary level data. The study finds that continuous positive growth in milk procurement, societies organized number of functional DCS increases, increase in organized memberships and improvement in the financial performance of the entity demonstrates a stable share capital, accompanied by remarkable growth in turnover, gross profit, and net profit at federation level in between the studied years 2010-2011 to 2019-2020. The cooperative consistently expanded its operational reach by increasing functional DCS and attracting more members during the referred period. Although the dairy industry in Odisha showed remarkable growth in last decade there is still large gap between state and overall country level. There is huge potential present that needs to be harnessed. There for suitable steps will be required from the state government for utilizing the existing potential of milk through procurement by cooperative.

Keywords: Dairy, Performance, Review, cooperative sector, Analysis, Odisha

Indian society has more than hundred years of cooperatives history. This cooperative is further divided into two parts one was credit cooperatives like PACS, LAMPS, FSS etc. and another was non-credit cooperatives like sugar cooperative, dairy cooperative, cotton cooperative etc. The dairy cooperative model was emerged during the British colonial period in 1945, with the establishment of first farmers’ cooperative i.e. Anand Milk Union Limited (AMUL) in 1942 dairy cooperative introduced in the country. In 1965, the NDDDB was setup which drew up an all encompassing programme known as *Operation Flood* in 1970-71. After that this led to the “White Revolution” in India, transforming the dairy sector and inspiring the formation of similar

cooperatives nationwide. The white revolution was introduce and popularized during the year 1970s. The white revolution passes from various phases i.e. Phase I (1970-1980) saw the European Union provide funding for the first phase, followed by Phase II (1981-1985), Phase III (1985-1996), and Phase IV (1996-1999) and this revolution increasing milk output and empowered dairy farmers in all the states of the country by allowing them to direct their

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growth and resources. Today, dairy cooperatives benefited millions of farmers and consumers, making India one of the world's leading milk producers. The National Milk Grid connected milk producers with customers in over 700 towns and cities, reducing seasonal and regional price volatility and ensuring fair market pricing. At the conclusion of the White Revolution, 73,930 dairy cooperatives with over 3.5 billion dairy farmer members were established, contributing to the prosperity of numerous Indian villages till 2021.

The global production of cow's milk has shown a consistent upward trend, with India being the largest milk producer, contributing 24% to the global milk supply. In the fiscal year 2021-22, India's total milk output reached 221.06 million metric tonnes, solidifying its position as the world's largest milk producer. India's dairy cooperatives, which have around 1.5 crore members actively participate, collectively procure around 4.3 crore litres of milk, contributing approximately 9-10% of the total milk output during 2021-22.

Odisha which falls in the southern region of the country started sowing quantum jump over the year 1985. Dairying holds a significant place within the agricultural sector of Odisha state, with 1.7 million crossbreed cattle and 1.2 million buffaloes contributing to the milch animal population. Over time, Odisha has experienced significant growth in milk production, with an average of 23.70 lakh tonnes of fluid milk generated, accounting for about 1.5 per cent of the total national milk production. The Odisha State Cooperative Milk Producer's Federation (OMFED) was founded in the year 1985 and operates as the highest-tier Milk Producers' Federation in Odisha. The OMFED's main activities include promoting, production, procurement, processing, and marketing of milk and milk products for the economic development of the rural farming community in Odisha.

Odisha has a much lower milk supply than the rest of the country, with just 144 gm/capita/day compared to the average of 422 gm/capita/day and is far behind other states of the country. Farmers that produce milk are dispersed largely in an unorganised market and are paid very low amount for their products. In this case, the cooperative is the only viable option for increasing dairy farmers' profits.

On the above backdrop the present study was planned to analyze and measures the performance of dairy cooperatives at federation and union level as broad objective.

METHODOLOGY

The Odisha State Cooperative Milk Producers Federation, also known as OMFED, was founded in the year 1985 at Bhubaneswar which is the state capital. The dairy cooperatives in state are of three tier structure i.e. primary level societies, central level union and apex level federation. The present study is confined at union and federation level only. The study was carried out at the apex level and union level of Sambalpur Milk Union Limited (SAMUL). In the state presently 12 milk unions were functioning and Sambalpur Milk union having 2nd highest position amongst the other unions of state. To comprehend the growth in milk cooperatives, the utilization of the Compound Annual Growth Rate (CAGR) is considered a pertinent metric to assess both physical and financial parameters at both the federation and union levels. CAGR facilitates the determination of the average annual growth rate over a specific period, thereby providing valuable insights into the performance and trends of the cooperative. The compound annual growth model was used for analysis of growth because of R square value was highest. The CGAR was calculated by using formula given below.

To analyse the performance of union:

$$Y_t = AB^t$$

Where,

Y_t = Performance indicator

A = Intercept

B = Regression coefficient

T = Time period variable

By taking natural logarithms of both side the equation has been reduced to the following linear form with log 'Y' as dependent variables and 't' as independent variable:

$$\text{Log } Y = \text{Log } A + t \text{ Log } B$$

For convenience, if we put $\text{Log } A = a$ and $\text{Log } B = b$, the equation becomes:

$$\text{Log } Y = a + bt$$

The percentage rate of compound annual growth rate was calculated as:

$$r = (\text{anti log } 'b' - 1) \times 100$$

RESULTS AND DISCUSSION

01 : Physical performance of number of unions, number of organized DCS, number of functional DCS, total membership, and milk procurement analyzed and presented in table 1, at the federation level.

The table 1 provides a detailed overview of the number of union, number of organized and functional Dairy Cooperative Societies (DCS), organized memberships and milk procurement, at federation level between the years 2010-2011 and 2019-2020. It was observed from table that the number of organized DCS, has an increase at the rate of 1.09 per cent CAGR over the 10 year (Decade) period, from 4598.00 in 2010-2011 to 5908.00 in 2019-2020. Similarly, the number of functional DCS also increased from 3430.00 to 3724 .00 over the same period, with a CAGR of 0.41per cent. Regarding the milk procurement, the figures showed an overall increase of 1.77 per cent of CAGR. In 2020, the milk

procurement was 4.431 million metric tons, which was a significant increase about 29.32 per cent from 3.426 million metric tons in 2010-2011. The table further indicates that the total membership increases at the rate of 0.98% per cent of CAGR and is reached from 2.42 million in 2010-2011 to 3.07 million in 2019-2020.

Overall, the data in the table illustrates a gradual growth in milk procurement, organized and functional DCS, and total memberships at the federation level during the study period.

02 : Financial Performance of share capital, turn over, gross profit and net profit was worked out and presented in table 2 at the federation level.

The financial performance of the federation, as depicted in the table 2, demonstrates an encouraging and consistent growth pattern over the course of ten years. Notably, the Compound Annual Growth Rate (CAGR) showcases a positive rise in key financial metrics, with turnover, gross profit, and net profit exhibiting growth rates of 2.39%, 4.14%, and 2% respectively.

The share capital remains relatively steady throughout the period, with a minor increase from 999.38 lakhs in 2010-2011 to 1000 lakhs in the subsequent years. The turnover shows a general upward trend, growing from 38637 lakhs in 2010-2011 to 72675.23 lakhs in 2019-2020. It rises from 38637 lakhs in 2010-2011 to

Table 1: Physical Performance at Federation level

Year	No of Union	No. of Organised DCS	No. of Functional DCS	Total Membership	Milk Procurement (Litre)
2010-2011	12	4598	3430	242009	342660
2011-2012	12	4878	3606	255112	370660
2012-2013	12	4978	3644	260249	378932
2013-2014	12	5074	3602	264648	390254
2014-2015	12	5228	3642	269917	444471
2015-2016	12	5377	3770	278274	526255
2016-2017	12	5451	3776	284837	501075
2017-2018	12	5725	4006	284990	508099
2018-2019	12	5796	3888	299520	491586
2019-2020	12	5908	3724	306092	443140
CAGR (%)	0.00	1.09%**	0.41%*	0.98%**	1.77%**

**Significant at 1 percent level; *Significant at 5 percent level

Source: Sambalpur milk union.

Table 2: Financial Performance at Federation Level

Year	Share Capita	Turn over (in lakhs)	Gross profit (in lakhs)	Net Profit (in lakhs)
2010-2011	999.38	38637	3018.19	226.26
2011-2012	999.38	46595	1656.56	1035.08
2012-2013	999.38	52222	1796.23	1272.4
2013-2014	999.38	59857	2105.5	1141.11
2014-2015	998.38	67428.68	2024.11	1843.50
2015-2016	999.38	67309.68	2909.62	3057.45
2016-2017	999.38	74775.53	4287.02	472.00
2017-2018	999.38	70605.5	6147.85	2207.18
2018-2019	1000	72209.18	6139.06	1374.08
2019-2020	1000	72675.23	5937.13	2390.98
CAGR(%)	0.10*	2.39**	4.14**	2.00*

**Significant at 1 percent level; *Significant at 5 percent level.

Source: Sambalpur milk union.

Table 3: Physical Performance at Union Level

Year	Functional Society	Membership	Milk Procurement per day (in thousand litres)	Milk Procurement per year (in lakh litres)	Pourer Member
2010-2011	393	30371	32.72	119.43	10014
2011-2012	428	32326	43.10	157.73	11888
2012-2013	440	33794	43.70	159.52	12464
2013-2014	430	35253	50.59	119.43	12789
2014-2015	440	36866	62.40	227.77	15117
2015-2016	455	38957	77.82	284.83	17351
2016-2017	460	37502	75.41	275.24	18209
2017-2018	495	32259	73.34	267.68	17664
2018-2019	500	34474	70.43	257.08	15976
2019-2020	505	35575	68.60	250.35	16328
CAGR (%)	2.56*	1.15*	8.93**	9.78**	5.86**

**Significant at 1 percent level; *Significant at 5 percent level.

Source: Sambalpur milk union.

72675.23 lakhs in 2019-2020. This significant increase in turnover over the years reflects the entity’s expanding business operations, increased sales, or broader market reach. The gross profit and net profit are 5937.13 lakh and 2390.98 lakh in 2019-2020. This upward movement in net profit, coupled with the growth in gross profit, reflects the federation’s profitability and financial stability over the specified period.

In summary, the financial performance of the entity demonstrates a stable Share Capital, accompanied by remarkable growth in Turnover, Gross Profit, and

Net Profit over the span of ten years. These trends suggest efficient business operations, improved profitability, and effective financial management.

PHYSICAL PERFORMANCE AT UNION LEVEL

The data in the table 3 indicates that the number of functional societies, membership, pourer member and milk procurement per day and per year have increased at the federation level in India between the years 2010-11 and 2020-21. The Compound Annual Growth Rate (CAGR) for these figures are 3.04% for functional societies, 0.51% for membership, 5.28%

for milk procurement per day, and 2.79% for milk procurement per year. Additionally, the increase in the number of pourer members from 10,014 in 2010-2011 to 16,328 in 2019-2020 is reflective of the growing acceptance of dairy cooperative societies.

Table 4: Financial Performance at Union Level

Year	Share capital	Turn over (in lakhs)	Net profit (in lakhs)
2010-2011	294.7	5434.45	22.80
2011-2012	294.7	5555.55	23.50
2012-2013	394.7	6000.56	23.80
2013-2014	394.7	7777.87	25.69
2014-2015	394.7	6789.33	24.79
2015-2016	394.7	7000.33	37.89
2016-2017	394.7	8808.81	33.82
2017-2018	394.7	8325.30	38.36
2018-2019	394.7	7925.91	39.98
2019-2020	394.7	7629.85	40.00
CAGR(%)	2.87*	7.81**	4.70**

**Significant at 1 percent level; *Significant at 5 percent level.

Source: Sambalpur milk union.

In conclusion, the table 4 offers insights into the physical performance of the union over a decade. The data reveals growth trends in various metrics, including functional societies, membership, milk procurement, and pourer members during the years 2010-11 to 2020-21. This gradual growth attributed to several factors, illustrate the sustained growth and fluctuations in these physical performance

indicators, contributing to the union's operational expansion and improved efficiency during the specified time frame.

FINANCIAL PERFORMANCE AT UNION LEVEL

The financial performance at union level, as shown in the table 5, indicates an overall increase of 4.70 percent Compound Annual Growth Rate (CAGR) in net profit, 7.81 per cent CAGR in turnover, and 2.87 percent CAGR in share capital over the 10-year period.

The share capital remains consistent at 294.7 lakhs for the first few years (2010-2011 to 2011-2012). It then increases to 394.7 lakhs and remains constant for the rest of the years. Overall, the share capital shows a steady increase after the initial years. The net profit shows a general upward trend, increasing from 5434.45 lakhs in 2010-2011 to 8808.81 lakhs in 2016-2017. There is a slight dip in net profit in 2017-2018, followed by a gradual decrease in subsequent years. Despite the fluctuations, there's a notable overall increase in net profit over the years. The turnover starts at 22.80 lakhs in 2010-2011 and experiences fluctuations in the early years. From 2015-2016 onward, there's a significant jump in turnover, reaching a peak of 40.00 lakhs in 2019-2020. The turnover shows a substantial growth trend, especially in the latter part of the time period.

TRIENNIUM AVERAGE OVER YEAR

The number of operational Dairy Cooperative Societies (DCS) increased by approximately 3.10% from TE-2011 to TE-2014. There is a further increase of about 3.84% in the number of DCS from TE-2014

Table 5: Triennium Average Over Year

	TE-2011	TE-2014	Percentage change over previous year(%)	TE-2014	TE-2017	Percentage change over previous year. (%)
No. of Functional DCS	3617.33	3729.33	3.10	3729.33	3872.66	3.84
Membership	260003	277676	6.80	277676	296867.33	6.91
Milk Procurement (in litre)	379948.66	490600.33	29.12	490600.33	480941.66	-1.97
Membership/society	72	74	3.58	74	77	3.14
Turnover (in lakhs)	52891.33	70171.30	32.67	70171.30	72530.07	33.67
Gross profit	1852.76	3073.58	65.89	3073.58	3401.64	10.6
Net profit	1149.53	1790.98	55.80	1790.98	1990.75	11.80

to TE-2017. Membership also grew, with a 6.80% increase in the first and a 6.91% increase in the second triennium. This growth signifies an upward trend in membership, reflecting the cooperative's ability to attract and retain members. Milk procurement experienced a substantial growth of approximately 29.12% from TE-2011 to TE-2014. However, there is a slight decrease of about -1.97% in milk procurement from TE-2014 to TE-2017. The average membership per Dairy Cooperative Society (DCS) has shown consistent growth over the years. The membership per society increased by around 3.58% from TE-2011 to TE-2014. From TE-2014 to TE-2017, there is a further increase of 3.14%.

Turnover consistently grew in both periods, showing a growth of 32.67% in the first and 33.67% in the second. Gross profit demonstrated substantial growth in both trienniums, with a growth rate of 65.89% in the first and 10.6% in the second. The first triennium's showed remarkable growth but the second triennium's showed reduced growth. Net profit also increased in both trienniums, with a growth rate of 55.80% in the first and 11.80% in the second.

In summary, both trienniums witnessed growth and positive changes across key metrics within the dairy cooperative. The cooperative consistently expanded its operational reach by increasing functional DCS and attracting more members. While milk procurement experienced remarkable growth in the first triennium, it declined slightly in the second, highlighting the industry's susceptibility to external influences. The turnover, gross profit, and net profit all showed sustained growth in both periods.

CONCLUSION

Although the dairy industry in Odisha showed remarkable growth in last decade there is still large

gap between state and overall country level. There is huge potential present that needs to be harnessed. Odisha state is predominantly agrarian country remain mired in rural and agricultural backwardness. In the state lack of capital, education, scientific temper and adaptability to scientific method of farming will be enhanced from strengthening of cooperatives in general and milk cooperative in particular. Therefore attention may be required from the cooperative Department of the state. Facilities for attracting milk farmers towards cooperative during the festival period also need to be addressed.

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