# A Comparative Study on Various Dairy Co-operative Societies of Amar Dairy-Amreli (2013-14 to 2017-18)

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***Abstract*- India is one of the highest milk producer country in the world, in which the dairy co-operative societies (DCS) plays the main role in the milk procurement process, and that's why these dairy co-operative societies are considered as the real backbone of Indian dairy industries. This paper has been mainly focused on analyzing the last five year milk procurement data of some selected dairy co-operative societies of Amar dairy, from Amreli district and from outside Amreli districts, also trying to check the significant difference in between all eleven tehsils of Amreli district and in last five years milk procurement data collected.**

## 1. INTRODUCTION

The word co-operative is defined as "an autonomous body gathered voluntarily to fulfill their ambitions, and to meet cultural as well as socio-economic needs through a jointly owned and democratically controlled enterprise." In short and simple words, it is also explain as an organization for the business owned and operated by the group of people for their mutual benefits, while the dairy co-operatives are the organizations formed by some chief milk producers of villages.

Dairy co-operatives follow multi-level formation in which village's dairy co-operative societies at the bottom, then at district or sub-district level, milk processing unions are there, and at the state level state co-operative marketing dairy federations are working. Village level dairy co-operative societies form a milk union at district level to process their milk in a plant, and district level milk unions federate into a state level milk marketing federation for the systematic marketing of their milk and its products.

Milk procurement from the villages and its marketing in the city areas was the actual problem in Indian dairying system at the earliest stage. Polson - a private dairy at Anand is one of the urban milk supply chain, which procured milk from producers through middlemen, processed it and then sent it to the urban areas and profited well. Then due to some conflict between milk producers and a Polson, the milk producers registered the Kaira District Co-operative Milk Producers Union on the advice of Shri Sardar Vallabhbhai Patel, and then the union is popularly known as AMUL, in 1946.

The success story of Kaira District Co-operative milk Producers Union in milk procurement, its processing system and its diversification into various milk products have been the most impressive growth story in co-operative sector. This success of Kaira Milk cooperative has popularly known as 'Anand pattern'. This was the actual origin of organised milk marketing system in India.

## 2. OBJECTIVE OF THE STUDY

The main objective of the present study is to make the comparison between some selected dairy co-operative societies of the Amar dairy – Amreli spreads inside and outside the Amreli district.

## 3. RESEARCH METHODOLOGY

For analysis on the above mentioned objective of this paper the empirical study has been made for the period of last five years, starting from 2013-14 to 2017-18. Both primary as well as secondary data is accumulated to fulfil the aim of the study.

## 4. DAIRY CO-OPERATIVE SOCIETIES OF AMAR DAIRY – AMRELI

Amreli District Co-operative Milk Producers Union Ltd. 'Amar dairy' started its journey with 26 village dairy co-operative societies of 2 taluka's by procuring only 2500 Kgs of milk per day during the

financial year 2007-08. While today, more than 1000 village dairy co-operative societies of 20± taluka's by procuring more than 1,50,000 Kgs of milk per day during the financial year 2017-18. In flush season, the highest milk procurement was nearer to 2,50,000 Kgs per day.

The researcher personally visited more than 500 village dairy co-operative societies from Amreli and outside Amreli district affiliated to Amar dairy – Amreli, and selected the sample of 236 dairy co-operative societies which are functioning consistently during last five years of study period, in which 10 are female operated and 226 are operated by male. Also out of 236 sampled DCS 207 are from Amreli district and 29 are from outside Amreli district. The collected data has been classified and tabulated as per the requirements of this research. For further study and data analysis various statistical tools, techniques and some statistical tests are performed. The period 2012-13 to 2017-18 is taken for the study purpose.

## 5. DATA ANALYSIS AND INTERPRETATION

The table 1 shows the data of yearly total milk procurement sharing of male and female operated dairy co-operative societies during the study period.

Table 1

| Year | Total milk procurement of male operated DCS (in Kgs) | Total milk procurement of female operated DCS (in Kgs) | Total |
|---|---|---|---|
| 2013-14 | 1,23,68,751 (94.13%) | 7,71,339 (5.87%) | 1,31,40,090 |
| 2014-15 | 1,92,03,444 (93.01%) | 14,42,111 (6.99%) | 2,06,45,555 |
| 2015-16 | 1,77,69,049 (95.38%) | 8,61,085 (4.62%) | 1,86,30,134 |
| 2016-17 | 1,36,33,116 (96.43%) | 5,05,385 (3.57%) | 1,41,38,501 |
| 2017-18 | 1,48,34,511 (95.94%) | 6,26,979 (4.06%) | 1,54,61,490 |
| Total | 7,78,08,871 (94.87%) | 42,06,899 (5.13%) | 8,20,15,770 |

Here it is the graphical representation in figure 1, which shows that the highest total milk procurement is in the year 2014-15, and highest milk procurement by male operated DCS is about 96% in 2016-17, while highest milk procurement by female operated DCS is very much close to 7% in 2014-15.

From the pie-chart as in figure 2, it is shown that 95% milk is procured by male operated DCS, and only 5% milk is procured by female operated DCS during the study period.

Figure 1

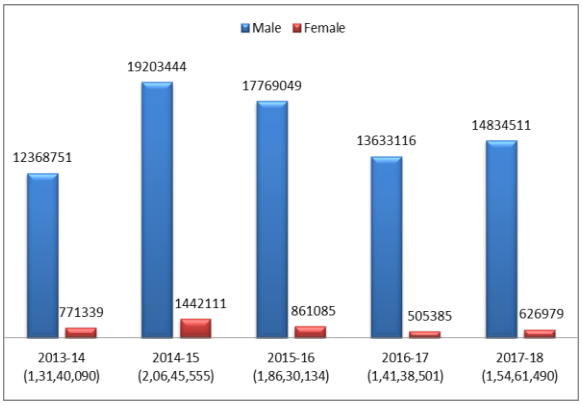
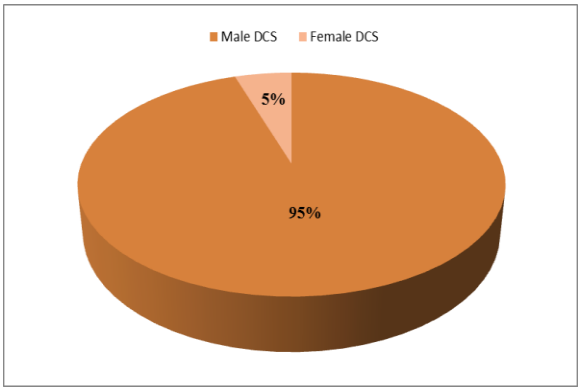



Figure 2




Now, the table 2 shows the data of yearly total milk procurement sharing by Amreli and non-Amreli district's dairy co-operative societies during the study period.

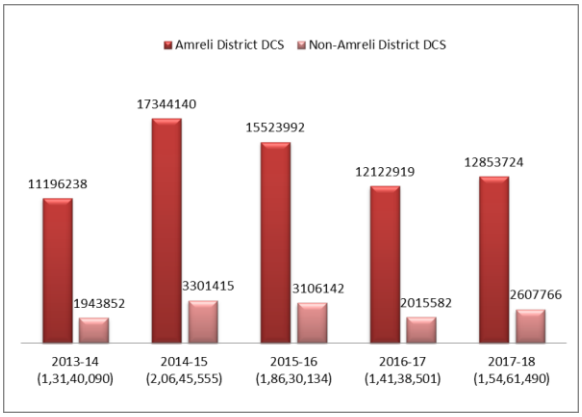
Table 2

| Year | Total milk procurement of Amreli district's DCS (in Kgs) | Total milk procurement of non-Amreli district's DCS (in Kgs) | Total |
|---|---|---|---|
| 2013-14 | 1,11,96,238 (85.21%) | 19,43,852 (14.79%) | 1,31,40,090 |
| 2014-15 | 1,73,44,140 (84.01%) | 33,01,415 (15.99%) | 2,06,45,555 |
| 2015-16 | 1,55,23,992 (83.33%) | 31,06,142 (16.67%) | 1,86,30,134 |
| 2016-17 | 1,21,22,919 (85.74%) | 20,15,582 (14.26%) | 1,41,38,501 |
| 2017-18 | 1,28,53,724 (83.13%) | 26,07,766 (16.87%) | 1,54,61,490 |
| Total | 6,90,41,013 (84.18%) | 1,29,74,757 (15.82%) | 8,20,15,770 |

Here it is the graphical representation in figure 3, which shows that the highest total milk procurement

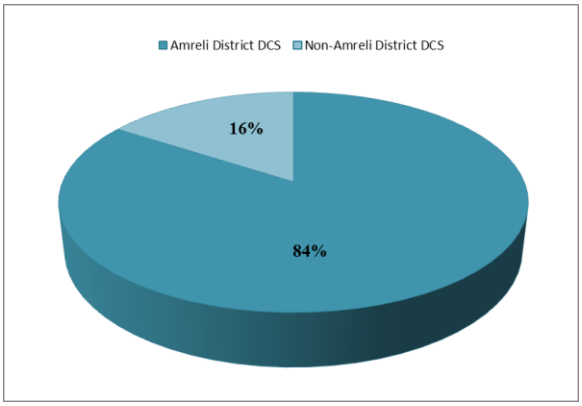
is same in the year 2014-15, and highest milk procurement by Amreli district's DCS is nearer to 86% in 2016-17, while highest milk procurement by non-Amreli district's DCS is close to 17% in 2017-18.

Figure 3




From the pie-chart in figure 4 it is shown that, during the study period overall 84% milk is procured by DCS of Amreli district and remaining 16% milk is procured by DCS of outside Amreli district.

Figure 4




The researcher arranged the collected data as taluka wise (11 taluks's in rows) and year wise (2013-14 to 2017-18 in columns) of average milk procurement per DCS of Amar dairy – Amreli and try to setup two-way ANOVA with the following hypothesis to be tested.

H01: There is no significant difference between Rows (talukas).

H02: There is no significant difference between Columns (years).

Now, some finding facts of the analysed data are,

Correction Factor (c.f.) = 2625.45

Total Sum of Squares (T.S.S.) = 33258.55

Row Sum of Squares (R.S.S.) = 14866.95

Column Sum of Squares (C.S.S.) =7840.55

Error Sum of Squares (E.S.S.) = 10551.05

ANOVA TABLE

| Sources due to | Degrees of Freedom | Sum of Squares | Mean Sum of Squares | $F_{CAL}$ | $F_{TAB}$ |
|---|---|---|---|---|---|
| Rows (Talukas) | 10 | 14866.95 | 1486.70 | 5.64 | 2.09 (5%) 2.83 (1%) |
| Column (Years) | 4 | 7840.55 | 1960.14 | 7.43 | 2.61 (5%) 3.83 (1%) |
| Error | 40 | 10551.05 | 263.78 | – | – |
| Total | 54 | 33258.55 | – | – | – |

For Rows (Talukas): From the ANOVA Table, we have seen that Fc > Ft at 5% level of significance and (10,40) d.f., also Fc > Ft at 1% level of significance and (10,40) d.f. Hence H01 is Rejected. Therefore, we can say that, there is a significant difference among Rows. i.e. there is a variation between Talukas.

For Columns (Years): From the ANOVA Table, we have seen that Fc > Ft at 5% level of significance and (4,40) d.f., also Fc > Ft at 1% level of significance and (4,40) d.f. Hence H02 is rejected. Therefore, we can say that, there is a significant difference among Columns. i.e. there is a variation between Years.

## 6. CONCLUSION

In this study we can concluded that, there is a need of women's empowerment in procurement sector of Amar Dairy – Amreli by increasing the female operated DCS, because only 10 female DCS out of 236 sampled DCS procure 5% of total milk. These analyses of data also reveal the fact that, the procurement of milk is slightly more within the Amreli district as compared to procurement from other districts. Besides these, much more variations are seen in the procurement of milk in all different talukas as well as in the year wise milk procurement data.

## 7. ACKNOWLEDGEMENT

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REFERENCES

[1] B.S. Mathur, Co-operation in India, Agra: Sahitya Bhawan, 2015, p. 10
[2] Milk Procurement and Technical Inputs Manual, National Dairy Development Board, Anand, pp. 13-14
[3] http://www.amrdairy.com
[4] http://google.com