



Retailer Insights on Amul's Fresh Milk Products Supply Chain Study in Anand City and Vidyanagar, India

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

This study investigates retailer insights within supply chain of Amul fresh milk products in Anand city and Vidyanagar. A cross-sectional study using semi-structured questionnaires for data collection and statistical tools for analysis. Spanning from 1st March to 7th June, 2024, the project is guided by specific objectives provided by AMUL Dairy. These objectives include studying the insights of retailer with in supply chain of fresh milk products. Data collection through semi-structured questionnaires distributed to 40 retailers random sampling methods. Analysis includes statistical tools like frequencies, percentages, and Likert scales to derive insights the positive aspects of fresh milk products supply chain in Anand city and Vidyanagar. Retailers express high levels of

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satisfaction with promotional materials, indicating effective marketing strategies and strong brand presence. These findings highlight the strengths of Amul's supply chain, demonstrating successful collaboration and high level of customer satisfaction among stakeholder. Additionally concludes with actionable recommendations for fresh milk products supply chain, but notes that the data may not be generalizable due to statistical insignificance.

Keywords: Amul; retailer; fresh milk product; supply chain.

1. INTRODUCTION

Globally, approximately six billion people include milk and milk products in their diet [1]. India stands as the leading producer and consumer of these products, contributing 24% of the world's total milk production [2]. The majority of milk procurement in India occurs in the western and southern regions of the country [3].

The demand for milk in India is driven by factors such as population growth, urbanization, and rising per capita income. As purchasing power increases, food habits and lifestyles change, contributing to higher milk consumption. For a predominantly vegetarian population, milk is the primary source of animal protein. Additionally, the rising interest in high-protein diets and the growing awareness and accessibility of dairy products through organized retail channels are further boost this demand. Both rural and urban areas have seen a consistent increase in milk consumption. According to the Consumer Expenditure Survey (CES) 2011-12 by NSSO, approximately 78% of the rural population and 85% of the urban population consumed milk. These trends suggest that the demand for milk and milk products will continue to rise.

In 2021, the dairy based product market in India was valued at about Rs. 13.17 lakh crore, growing at an annual rate of approximately 15% over the past 15 years. It is expected to reach around Rs. 30.84 lakh crore by 2027, according to an IMARC report from 2021. Liquid milk comprises about half of the total dairy market. The share of the organized sector in the liquid milk market has grown from 32% to 41% over the past three years and is projected to reach 54% by 2026. The market for liquid milk is expected to grow by around 16% over the next 5-6 years, while products such as cheese, flavoured milk, lassi, buttermilk, whey, and organic milk are projected to grow at over 20% per annum. Traditional dairy products like paneer, ghee, ice cream, khoa, and curd are expected to grow annually by 11% to 20% [4].

1.1 Company Profile

Kaira District Co-operative Milk Producers' Union Ltd (Amul) [5]

- a. **Date of Registration:** Founded on 14th December 1946
- b. **Area of Operation (milk collection):** Primarily in the Kaira District, which includes Anand, Kheda, and Mahisagar Districts in Gujarat, extending to West Bengal, Punjab, Maharashtra, Assam, Bihar, Andhra Pradesh, and Tamil Nadu.
- c. **Membership:** Comprises 3,579 village cooperative societies with a total of 9,42,208 members.
- d. **Certifications:** ISO 9001:2015, ISO 14001:2015, ISO 45001:2018, 22000:2018, and FSSC: 22000 V 5.1-ISO TS 22002-1:2009. (Food) certified Co-operative
- e. **Infrastructure:** Total milk handling capacity of 75.3 lakh liters per day. Operates various dairy plants including in Gujrat Dairy Plant - Anand, TFC - Mogar, and Dr. Kurien Cheese Plant - Khatraj.
- f. **Production Range:** Offers a wide range of dairy products including fresh milk, butter, cheese, paneer, infant milk food, milk powders, flavoured milk, fermented food, ghee, cocoa products, cooking chocolate, ice-cream, malted milk food, extruded food, bread spreads, sweets, frozen food, bakery products, nutrition products, dairy-based carbonated fruit drinks, protein water, ketchup, mayonnaise, energy drinks, and FMCG products.

List of Amul fresh milk products: Buffalo Milk, Gold, Shakti, Taaza, Cow Milk, T-Special, Masti Dahi, Light Dahi, Prolife Buttermilk, Satva Buttermilk, Jeera Buttermilk, Probiotic Buttermilk, Lassi, Probiotic Rose Lassi, Probiotic Mango Lassi
- g. **Sales Turnover:** Reached Rs. 11,803 crores in the fiscal year 2022-23.

h. **Global Footprint:** Expanded reach globally, significantly contributing to India's reputation as a leading exporter of dairy commodities.

Amul's legacy of quality, innovation, and community-centric approach has made it an integral part of Indian households, symbolizing the success of the cooperative movement in the country's dairy sector.

1.2 Study Objective

- To study of Retailer insights within the supply chain of Amul fresh milk products in Anand city and Vidyanagar.

In this context, the present study aims to determine the retailer insights with in the supply chain of Amul fresh milk products.

2. METHODOLOGY

The study titled "Retailer insights on Amul's fresh milk products Supply chain study in Anand city and Vidyanagar" was conducted from 1st March to 7th June, 2024.

Source of Data: The primary data was collected through questionnaires. Primary data was collected from the selected respondents (retailers) with the help of schedule. Secondary data was collected from journals and website

Research Design:

- Sample Selection:** In sample selection the study includes area of the study, sample size and sample selection procedure.

- Area of the Study:** The study was conducted in Anand city and Vidyanagar.
- Sample Size:** A total of 40 respondents were selected, with 20 respondents from Anand city and 20 respondents from Vidyanagar.
- Sample Selection Procedure:** Random sampling was employed to select the respondents, ensuring a representative sample reflecting both geographical areas and demographic diversity.
- Statistical Tools & Packages:** Statistical tools were used to analyse survey data, including percentages, Mainly Tabular, weighted average, rank, Likert scale.

Likert Scale analysis: A Likert scale is a type of psychometric response scale used to measure attitudes. It is a 5- or 7-point ordinal scale used by respondents to rate the degree to which they agree or disagree with a statement [6].

Likert scale

$$= \frac{\sum fx}{\text{Total number of Respondents}}$$

Where,

$\sum fx$ = Weighted Sum

3. RESULTS AND DISCUSSION

3.1 Respondent Retailers Demographics with in the Amul Fresh Milk Products Supply Chain

This following Table 1 provides demographics details of respondent retailers in the Amul fresh milk products supply chain [7].

Table 1. Respondent Retailers Demographics and Operational Insight (n=40)

Sr no	Category	Details	No. of Retailers	%
1	Gender	Male	40	100
2	Location	Anand City	20	50
		Vidyanagar	20	50
3	Age Distribution	21-30	7	17.5
		31-40	10	25
		41-50	17	42.5
		Above 50	6	15
		Primary	5	12.5
4	Education	Secondary	10	25
		Higher Secondary	8	20
		Undergraduate	13	32.5
		Postgraduate	4	10

Source: Primary data

The Table 1 shows that all the respondents were 100% male, with an equal distribution across Anand City and Vidyanagar (20 retailer,50% each). From the Table 1 respondents were in the age group majority of 42.5% of the retailers were aged between 41-50 years. In terms of education, majority 32.5% of the retailers had undergraduate degrees [8].

3.2 Respondent Retailers Operational Insights on Amul Fresh Milk Products Supply Chain

This following Table 2 provides operational characteristics, and challenges faced by respondent retailers in the Amul fresh milk products supply chain [9].

From the below Table 2 indicates that regarding their duration with Amul, over half (52.5%) of the respondent retailers had been associated with the company for more than five years. From the below Table 2 it can be seen that Most respondent retailers (72.5%) operate grocery stores. A majority of respondent retailers (67.5%) rely on Direct Factory Bookings for order booking. The below Table 2 shows that Awareness of Various Aspects of Dairy Products Awareness concerning different aspects of dairy products. It highlights that a substantial majority

of respondent retailers were knowledgeable across key areas: 85% respondent retailers were knowledgeable about "Handling Practices," and 95% respondent retailer were aware of the "Shelf-life of the Product". The below Table 2 illustrates that Leakage pouches were a significant operational challenge, among surveyed retailers 67.5% of respondent retailers affecting. For business continuity, brand reputation was crucial, with 100% of respondent retailers emphasizing its importance, followed by product quality, noted by 82.5% of retailers [10].

3.3 Respondent Retailers Satisfaction with Various Aspects of Amul's Marketing and Support

This following Table 3 summarizes respondent retailers satisfaction with various aspects of Amul's marketing and support activities, as measured by the Likert scale [11].

This Table 3 illustrates the satisfaction levels of retailers with various aspects, categorized into five levels: Highly Satisfied (scored 5), Satisfied (scored 4), Neutral (scored 3), Dissatisfied (scored 2), and Highly Dissatisfied (scored 1).

Table 2. Respondent Retailers Demographics and Operational Insight (n=40)

Sr no	Category	Details	No. of Retailers	%
1	Duration with Amul	<1 year	4	10
		1-2 years	2	5
		2-5 years	13	32.5
		>5 years	21	52.5
2	Outlet Types	Grocery Stores	1	2.5
		Bakeries	4	10
		Departmental Stores	29	72.5
		Amul Parlors	6	15
3	Order Booking Methods	Phone Calls by Wholesalers/ Distributors	2	5
		Direct Factory Bookings	27	67.5
		Phone Calls by Retailers	5	12.5
		Salesman Visits	6	15
4	Awareness of Dairy Products	Product Varieties	26	65
		Product Display	26	65
		Storage Requirements	30	75
		Handling Practices	34	85
5	Operational Challenges	Shelf-life of the Product	38	95
		Leakage Pouches	27	67.5
6	Business Continuity	Brand Reputation	40	100
		Product Quality	33	82.5

Source: Primary data

Table 3. Respondent Retailers Satisfaction with Various Aspects of Amul's Marketing and Support (n=40)

Sr no	Category	Details	HS (5)	S (4)	N (3)	D (2)	HD (1)	Weighted Sum	Average Likert Score
1	Promotional Materials	Posters and Banners	13	16	3	3	5	149	3.725
2	Sales Team Support	Sales Team Support	7	22	4	5	2	147	3.675
3	Communication Strategies	Effectiveness of Communication on New Product Launches	21	6	3	3	7	151	3.775

Source: Primary data

The average score on the Likert scale is calculated as follows:

Average Likert Score: Weighted Sum/ Total Responses

The Table 3 shows that respondent retailers exhibit consistent satisfaction levels across various promotional materials. Posters and banners received a Likert score of 3.725, indicating the majority of respondent retailers were satisfied with Amul's promotional material availability. Additionally, the support and assistance provided by the sales team were rated with a Likert score of 3.675, reflecting overall respondent retailer satisfaction with the sales team's support. Additionally average Likert scale score of 3.775 indicates that retailers were generally satisfied with the effectiveness of communication on new product launches, as this score exceeds the midpoint of the Likert scale.

4. CONCLUSION

- Based on survey analysis, the study reveals that all of Amul's respondent retailers were male, with a majority being well-educated and having long-term associations with the company. Most respondent retailers operate grocery stores and use direct factory bookings for order bookings. Respondent retailers show high awareness of product handling and shelf-life but some face issues with leakage pouches. Respondent retailers were Satisfied with Amul's promotional materials and sales team support was positive. Brand reputation and product quality were crucial for business continuity with Amul according to respondent retailers. The sample consists of 40 respondents or retailers from Anand city and Vidyanagar region Consequently, the findings of this study should be interpreted within these geographical and sample size limitations.

5. SUGGESTION

- Based on the survey analysis; to address the issue of leakage pouches among the survey respondents 67.5% respondents retailers impacting, it is recommended to conduct inspections in transport vehicles after taking fresh milk products out from the dairy and before delivering the products to their retail shops in the Anand City and Vidyanagar region.

- According to the survey analysis, to encourage retailers in the Anand City and Vidyanagar region to utilize the existing effective feedback mechanism, consider implementing regular reminders and training sessions specifically on how to effectively report operational issues, such as the problem of leakage pouches.
- By evaluating the survey analysis, which highlight both product quality and brand importance as crucial factors, the company should focus on enhancing these aspects to maintain and strengthen in the Anand City and Vidyanagar.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

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CONSENT

As per international standards or university standards, respondents' written consent has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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