



Strategic Analysis of Ambient Dairy and Non Dairy Product Portfolio of Gujarat Dairy Cooperatives

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

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ABSTRACT

The aim of present study is to analyse the vast ambient product portfolio of Gujarat's dairy cooperatives, with a primary focus on the Gujarat Cooperative Milk Marketing Federation (GCMMF) and its flagship brand, Amul. The Gujarat Dairy Cooperatives is a globally recognized model for farmer-owned and controlled dairy businesses. It has significantly impacted the state's economy and rural livelihoods. The cooperative structure, spearheaded by Amul, has fostered the "White Revolution" in India, making the country the world's largest milk producer. Since a long time it has maintained its dominance in Dairy Sector. One of the main strength of the organization is its ability to go for "Related Diversification" which enables it to leverage existing resources, capabilities, and customer base. Amul has expanded its portfolio in vast dairy as well as non-dairy products (such as Bakery, Chocolates, Organic and so on). The study investigates the strategic diversification of Amul's product range across multiple categories—including ghee, milk powder, protein beverages,

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spreads, bakery items, chocolates, organic and health-focused foods—designed to meet evolving consumer preferences, nutritional demands, and market trends. Through a product-centric analysis, the study examines variant types, packaging, shelf life, functional benefits, and market reach, particularly in general and modern trade formats. The study indicates that Gujarat Dairy Cooperatives, under the Amul brand, have developed a comprehensive and diversified product portfolio of ambient offerings that cater to a wide demographic — from infants to fitness enthusiasts. The Key findings indicate that GCMMF has -Breadth and depth of portfolio across ghee, milk powders, beverages, proteins, chocolates, bakery, and organic products, Strategic alignment with health and wellness trends, such as lactose-free drinks, high-protein products, and sugar-free cookies, Use of ambient packaging formats (tetrapak, PET bottles, cans) to enhance shelf life and convenience, and Multi-channel distribution through General Trade (GT), Modern Trade (MT), e-commerce, and institutional sales, enabling wide accessibility. As a result, it attempts leverage its existing brand and customer base. Further its vast product portfolio exhibits the strong Research and Development capabilities with respect to Product. The product strategy is holistic, integrating nutrition, affordability, tradition, and innovation, thereby cementing Amul's role as not just a dairy leader but a complete food solutions provider in India and select global markets.

Keywords: *Amul; Gujarat dairy cooperatives; ambient products; product portfolio; bakery products; organic foods.*

1. INTRODUCTION

Amul, the flagship brand of the Gujarat Cooperative Milk Marketing Federation (GCMMF), stands as a symbol of quality dairy products in India. This study makes an attempt to highlight the wide product range, nutritional profiles, packaging, and market reach of Amul's Product Portfolio of 'Ambient Products', reflecting how the brand caters to an evolving consumer palate. The dairy industry in India holds a pivotal role in the nation's agricultural economy and food security. Among the states leading this sector, Gujarat has emerged as a dairy powerhouse, significantly contributing to India's overall milk production. According to Gurjar and Modi (2024), Gujarat produced 17.281 million metric tonnes of milk in 2022–23 and districts such as Banaskantha, Sabarkantha, Mehsana, Anand, and Kheda were identified as key contributors.

The state's robust cooperative infrastructure, epitomized by the Gujarat Cooperative Milk Marketing Federation (GCMMF) and its flagship brand Amul, has enabled large-scale milk procurement, processing, and diversified product innovation (Mech et al., 2023). According to Gurjar (2016) "Gujarat's dairy cooperatives have been a frontrunner in propagating the benefits of 'Amul Pattern' Dairy cooperatives in the state as well the entire country. The contribution of Gujarat dairy cooperatives in the Indian dairy sector is immense and it is quite evident if one looks at the origin and spread of 'Amul Pattern,' tremendous growth and development of the cooperatives under GCMMF. Also the GCMMF's brand "Amul" is the "Largest Fully Integrated

Food Brand" of the country. Its turnover has grown remarkably at a cumulative average growth rate (CAGR) of 21% during the last five years. In the year, 2024-25, its revenue rose to Rs 65,911 crore, an 11% increase from previous year's turnover of Rs 59,259 crore.

Further, evolving lifestyle patterns, increased urbanization, and the integration of holistic health practices such as yoga have also influenced the consumption of dairy-based products. Modi et al. (2024) emphasized the complementary relationship between dairy nutrition and yoga for digestive health and overall well-being, suggesting that dairy spreads like ghee or probiotic-based butters play a crucial role in dietary routines across all age groups. The dairy sector in India has undergone significant transformation over the past few decades, largely driven by the cooperative model championed by Gujarat Cooperative Milk Marketing Federation (GCMMF), which manages the iconic Amul brand. Founded in 1946, Amul has expanded its product line to encompass not just fresh dairy products but also ambient dairy and non-dairy items such as tetra-pack milk, milk powder, condensed milk, chocolates, soups, and frozen snacks (Patel et al., 2025). This shift reflects Amul's responsiveness to changing consumer lifestyles and growing urban demand for convenience, hygiene, and longer shelf-life products.

Given this convergence of tradition, innovation, and health awareness, the study aims to explore the product portfolio of Ambient Products (which can be stored at ambient conditions) offered by

Gujarat's dairy cooperatives, particularly focusing on their composition, packaging, market applications, and alignment with broader consumer and nutritional trends.

2. LITERATURE REVIEW

India's dairy sector has shown remarkable growth over the last two decades, with Gujarat leading several milestones. According to Modi et al. (2025), Gujarat's milk production increased by 212% between 2001–02 and 2023–24, from 5.86 million tonnes to 18.31 million tonnes. Additionally, Gujarat's share of national milk production rose from 6.95% in 2001–02 to 7.65% in 2023–24. The per capita availability of milk in Gujarat also surpassed the national average, increasing from 418 grams per day in 2009–10 to 700 grams per day in 2023–24, whereas India's per capita availability increased from 273 grams per day in 2009–10 to 471 grams per day in 2023–24.

Research conducted in Ahmedabad and Pune has demonstrated strong consumer awareness and positive perceptions of Amul's traditional products like milk, butter, and ghee. However, awareness of newer offerings such as flavored milk, UHT products, and lactose-free variants remains limited, particularly among younger and more health-conscious demographics (Sayankar & Pawar, 2024). This suggests an opportunity for GCMMF to bolster product-specific marketing campaigns and engage new market segments more effectively.

At the retail level, the acceptance of Amul's ambient products is influenced by factors such as profit margins, supply support, and promotional schemes. Retailers in the Pune metropolitan area, for instance, emphasized that effective distributor services and sustained consumer demand were crucial for the success of products like Amul Gold and Amul Taaza (Sayankar & Pawar, 2024). This aligns with broader findings from supply chain literature which highlight that robust logistics and demand management systems are essential for perishable and ambient product categories (Thakkar & Ravalji, 2019).

India's overall dairy production continues to rise steadily, supported by government initiatives focused on enhancing livestock productivity, improving animal health, and upgrading feed quality. Despite this growth, India's fluid milk production still falls short of its potential due to infrastructural bottlenecks and a relatively low proportion of high-yielding cattle (Bhagal &

Beillard, 2023). These systemic limitations underscore the importance of investing in ambient dairy products, which can serve as strategic buffers against supply fluctuations and regional disparities.

As sustainability becomes a central concern among consumers, attention is also shifting toward plant-based and lab-grown dairy alternatives. Research shows that lab-based milk, produced through microbial fermentation, holds promise for reducing greenhouse gas emissions and alleviating pressure on conventional dairy supply chains (Jindal & Deora, 2022). Moreover, consumer preference is increasingly driven by environmental awareness and demand for ethical sourcing, prompting brands to innovate in both product development and packaging (Tamboli et al., 2023).

Amul has embraced this consumer shift to some extent through its health and nutrition-oriented products such as Amul Pro, camel milk, and lactose-free variants. Nonetheless, comparative studies suggest that to remain competitive, dairy cooperatives must adopt targeted marketing strategies that highlight not just product features but also brand values aligned with sustainability and consumer wellness (Kayande, 2023; Manikandan & Balamurugan, 2024).

Ultimately, Amul's success in expanding its ambient and non-dairy product portfolio rests on its ability to navigate evolving consumer preferences, enhance retail partnerships, and integrate digital platforms for market outreach. As Dighe et al. (2025) emphasize, Amul's blend of cooperative ethics, quality assurance, and market innovation makes it a leading case in how legacy brands can adapt to emerging food consumption trends in India and beyond.

With the Amul brand at the forefront, GCMMF has leveraged this milk surplus to launch processed and value-added dairy items. Dave and Gurjar (2025) highlighted how the Amul cooperative model has not only ensured economic upliftment of farmers but also facilitated product innovation and national brand recognition.

According to DAHD's Annual Report (2024), the contribution of milk production by Cow, Buffalo and Goat. The analysis shows nearly 45% of the milk production is contributed by Indigenous/ Non-Descript Buffaloes followed by 30% by crossbred cows. The Indigenous/Non-descript cows contribute 20% of the total milk production

in the country. Goat milk shares a contribution of 3% in the total milk production across the country. The contribution of exotic cows in total milk production is 2%.

Animal husbandry and milk production also has an effect on environment. According to Gurjar, M.D. et. al. (2022), the Dairy sector affects the environment in terms of Animal husbandry activity mostly by production of methane, Dairy Processing operations, large Effluents, huge use of Electricity and fuel energy for Heating and Cooling Operations, Large use of Water in dairy operations, and so on and some of the solutions are - – Plantation, Rural Sanitation, Bio-CNG production, Use of Solar Energy, Innovations in the Energy efficient equipment and processes.

Aswini et. al (2020) The study has been carried out with 120 respondents of milk products from the point of purchase. findings on the buying behavior of consumers towards milk and milk products Majority of the respondents purchased 500-1000 ml quantity of milk. Ghee was the major milk product preferred by the consumers. Quantity of milk showed significant relationship between age, monthly income and family size. Further, could be noted that paneer was the most purchased milk product by the respondents on weekly (44.44 per cent) and fortnight (25.00 per cent) basis. 31.70 per cent of respondents purchased ghee milk product on monthly basis.

Chaoxun Ding et. al (2023) in their study titled The impact of product diversity and distribution networks on consumption expansion heightened that “There is a long-term and stable relationship between distribution networks and resident consumption. An increase in the number of distribution networks can increase residents’ total consumption and improve the consumption level”.

Food safety has increasingly become a vital determinant of consumer preference in the dairy industry, particularly in developing economies. Wang et al. (2008) explored Chinese consumer perceptions of safety attributes in milk products, emphasizing the emerging role of quality management systems like HACCP (Hazard Analysis Critical Control Point). Their study found that although awareness of HACCP among consumers in Beijing was initially low, the willingness to pay (WTP) for HACCP-certified products increased significantly once consumers were informed about its safety implications. The research further established that dairy products with HACCP certification sold at a price premium

of approximately 5%, suggesting that food safety is transitioning from a regulatory necessity to a marketable product attribute in the dairy sector. This evolution indicates a growing consumer demand for certified, ambient-stable dairy products in urban markets, which has implications for dairy cooperatives like those in Gujarat. As these cooperatives expand their ambient product portfolios—particularly UHT milk and packaged beverages—understanding the relationship between certification, branding, and consumer perception becomes crucial. The findings of Wang et al. offer a comparative framework to evaluate how food safety awareness and premium pricing can shape the product positioning strategies in the Indian cooperative dairy sector.

According to Rejeesh and Tom Anto (2023) assert that ‘Active packaging of dairy products helps to reduce material permeability which in turn extends their shelf life. Active packaging techniques relevant to dairy products make use of carbon dioxide absorbers, moisture/flavor/odor absorbers, releasing compounds, oxygen scavengers or by maintaining temperature control and antimicrobial packaging. Antimicrobial packaging gains interest due to their ability to deliver quality and safe food products. Biodegradable packaging answers the ecological viewpoint while the durability of low waste materials has a correlation with product shelf life which needs to be addressed’.

According to Naveen and Ramesh (2022). Their study reveals that product can affect a consumer's decision while purchasing a product. And packaging is very important promotional and silent promotional tool in today's marketing communications. Consumer has become quite aware of what they are purchasing over the years. And Consumers are showing positive attitudes towards packaging because it ensures product safety and hygiene. The packaging color helps consumers differentiate their favorite brands, and it helps companies catch the attention of consumers. Printed information contains all the information related to the product's quality, price, and description, which aids in identifying the product and facilitates the purchase decision process. A product's value in the minds of consumers is also increased by innovation in its packaging design.

2.1 General Trade and Modern Trade

General trade refers to the traditional form of retail where goods are sold through small,

Table 1. Key Differences between General Trade and Modern Trade

| Feature | General Trade (GT) | Modern Trade (MT) |
|-------------------------|------------------------------------------|-------------------------------------------------|
| Retail Format | Small, independent stores | Supermarkets, hypermarkets, retail chains |
| Distribution | Multi-tiered, decentralized | Centralized purchasing & replenishment |
| Payment Terms | Credit-heavy | Mostly upfront or scheduled payments |
| Brand Visibility | Limited shelf space, depends on retailer | Branded aisles, planograms, end caps |
| Technology Usage | Minimal (manual tracking) | POS systems, digital inventory, data analytics |
| Customer Experience | Personal relationships with shopkeepers | Self-service, loyalty programs, standardization |
| Geographic Reach | Deep rural and semi-urban penetration | Primarily urban and semi-urban |
| Promotion Opportunities | Localized activations, schemes | In-store displays, bundling, brand takeovers |

Source: <https://beatroute.io/sales-execution/what-is-general-trade-vs-modern-trade/>

independent, and often family-run stores or local kirana shops. These outlets typically operate on a smaller scale, with limited technology use, personalized customer interactions, and often informal credit systems. General trade is widespread in many developing markets and serves the bulk of daily consumer needs.

Modern trade involves organized retail formats such as supermarkets, hypermarkets, large chain stores, and online retail platforms. These outlets are usually part of bigger retail chains, have standardized operations, use advanced technology for inventory and sales management, and offer a wide variety of products under one roof. Modern trade focuses on convenience, product variety, and often competitive pricing.

3. RESEARCH OBJECTIVES

The present study has following research objectives:

1. To analyze the product portfolio of ambient dairy and non-dairy products offered by Gujarat Dairy Cooperatives, focusing on variety, innovation, and nutritional value.
2. To explore the extent of product diversification across various categories such as ghee, milk powder, beverages, protein products, and snacks.
3. To study the type of packaging, shelf life, and market channels (General Trade vs. Modern Trade) for ambient products and understand their role in distribution.

4. RESEARCH METHODOLOGY

This study adopts a descriptive research design, relying on secondary data analysis. The methodology includes:

- **Data Sources:** Product brochures, GCMMF annual reports, market research articles, peer-reviewed publications, and company websites.
- **Approach:** Qualitative analysis of product attributes (nutrition, shelf life, packaging), quantitative review of SKU diversity, and regional market segmentation.
- **Analytical Framework:**
 - **Product Line Depth & Breadth:** Evaluating the variety and specialization across each product category.
 - **Scope:** Focus is limited to ambient (non-refrigerated shelf-stable) dairy and non-dairy product segments produced by Gujarat-based cooperatives, primarily under brand Amul.

The collected data was compiled and presented in a structured tabular form so as to give an overview of products' features, shelf life, storage condition, product category and so on. Suitable interpretations were drawn from the data.

5. RESULTS AND DISCUSSION

5.1 Product Portfolio of Ghee

Ghee is a traditional clarified butter widely used in Indian cuisine and Ayurvedic medicine, renowned for its rich nutritional profile and health benefits. It is a highly concentrated source of energy, making it an excellent fuel for the body. Composed almost entirely of milk fat—about 99.7% fat with just 0.3% moisture—ghee contains no carbohydrates, sugar, or sodium, which makes it suitable for various dietary preferences and restrictions. Beyond its high

Table 2. A Brief summary of Amul Ghee Product Portfolio

| Variant | Product Description | Application | Product Range (SKUs) | Markets | Product Length | Product Variety | Special Features |
|---------------------|---------------------------------------------------------------------|---------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------|
| Amul Ghee | Classic ghee from fresh cream with rich aroma and granular texture | Cooking, garnishing, sweets, spread | Pouch: 500ml, 1L Jar: 200ml–1L Tin: 200ml–5L Bulk: 10–15kg | Core nationwide product with export presence (UAE, USA, AUS) | Wide range from 200ml to 15kg | Classic flavor, balanced profile | Vitamins A/D/E/K, export ready, granular, consistent quality |
| Amul Cow Ghee | Made from 100% cow milk, light color and aroma | Cooking, sweets, garnishing, spread | Pouch: 500ml, 1L Jar: 200ml, 500ml Tin: 1L Bulk: 15kg | Across India | Household + institutional packs | Cow milk-based, milder aroma, all-age suitability | Vitamin A rich, gentle on digestion, preferred in family households |
| Amul Brown Ghee | High-heat cooked ghee with roasted flavor for Eastern Indian palate | Pulav, roti, sweets, garnishing | Jar: 200ml, 500ml | Region-specific (Eastern India – WB, Odisha, Assam) | Limited SKUs for niche markets | Roasted/Caramelized flavor, darker hue | Rich aroma, Vitamin A, culturally aligned taste |
| High Aroma Cow Ghee | Intensely aromatic ghee from cow milk using special tech | Dosa, biryani, sweets, garnishing, sautéing | Jar: 200ml, 500ml, 1L Tin: 1L Sachet: ₹10 | Premium, region-specific (South India) | Sachets to 1L tin (multi-level options) | High aroma, perfect granules, cow milk, designed for South Indian cuisine | Vitamin A/D/E/K, premium aromatic profile, tech-enabled production |
| Sagar Ghee | Budget-friendly ghee brand with Amul's hallmark quality | Cooking, sweets, roti, garnishing | Pouch: 500ml, 1L Tin: 1L–5L Bulk: 10–15kg | Focused in Western India (Gujarat, Maharashtra, Rajasthan, Goa) | Household and bulk segments | Affordable ghee with classic flavor and texture | Fresh cream base, value-for-money, consistent supply for mass market |

energy content, ghee is a rich source of essential fat-soluble vitamins such as A, D, E, and K, which play vital roles in maintaining vision, bone health, antioxidant defense, and blood coagulation. Traditional wisdom and recent studies have highlighted ghee's ability to improve digestion, nourish the skin, and enhance immunity, making it a valued ingredient both for culinary use and holistic wellness. Its unique combination of nutritional richness and therapeutic properties ensures that ghee remains a staple in many households and diets worldwide.

Amul's ghee portfolio demonstrates a strong product line strategy by offering a well-balanced mix of depth and breadth. It caters to different geographies, taste preferences, and price segments, while maintaining Amul's core brand promise of quality and nutrition. This portfolio strategy enhances market penetration, consumer loyalty, and competitiveness across both mass and premium segments in India and abroad.

5.2 Product Portfolio of Milk Powder

Amul's milk powder portfolio reflects a multi-segmented strategy. Amulya & T-Special dominate the premium and high-fat whitener segment. Amulspray anchors infant nutrition, with RTF format as a pioneering innovation. The Camel Milk Powder aligns with growing health-conscious trends. Value packs and regional SKUs (e.g., Sagar T-Special) reflect deep market penetration.

Amul's milk powder and dairy whitener portfolio is a textbook case of multi-tier product strategy, allowing the brand to cater to diverse consumer segments, regional preferences, and functional needs. Through smart product line extensions, regional customizations, and channel diversification, Amul positions itself not just as a dairy giant but as a trusted health and nutrition brand.

This dynamic product mix ensures high shelf presence, strong brand recall, and the ability to defend market share against both domestic and multinational competitors in every price and usage segment. Overall, Amul balances functional, nutritional, and convenience-driven SKUs with strong GT and MT presence, backed by brand equity.

5.3 Product Portfolio – 'Protein Products'

Amul's protein product range provides a variety of tasty, low-fat, no added sugar options catering to different consumer needs—from high protein fruit shakes to lactose-free and traditional flavoured drinks. These products effectively target fitness enthusiasts and health-conscious consumers seeking convenient, nutritious protein-rich beverages.

Protein Content & Calories: The Blueberry Shake leads in protein with 20g per 200 ml serving but also has the highest calorie count (138 kcal). Both the Rose Lassi and Buttermilk offer slightly less protein (15g) and fewer calories (~107-108 kcal), making them lighter options.

Fat & Sugar: All products are low in fat and contain no added sugars, aligning with health-conscious consumers. The buttermilk has the lowest fat content (1.0g) and the highest total sugar content (8g), but these sugars are naturally occurring, as no added sugar is present.

Special Features: The Rose Lassi stands out as lactose-free due to enzyme treatment, suitable for lactose-intolerant individuals. The Blueberry Shake offers a fruity, ready-to-drink option with whey protein, while the Buttermilk combines traditional refreshment with high protein content.

Convenience: All products come in 200 ml single-serve packs designed for on-the-go consumption and do not require refrigeration if stored properly, offering practicality.

5.4 Product Portfolio - Beverages

Amul's beverage portfolio is diverse and well-rounded, catering to a wide range of consumer needs and preferences—from refreshing milk-based coffee drinks and exotic mocktails to probiotic health drinks and sports beverages. The variety in packaging formats and shelf lives allows Amul to target multiple market segments, including on-the-go consumers, health-conscious individuals, and traditional taste seekers.

This strong portfolio demonstrates Amul's commitment to innovation and quality, reinforcing its leadership in the dairy and beverage market with products that blend nutrition, taste, and convenience. Whether it's traditional flavors like Lassi or trendy, modern mocktails and protein-enriched sports drinks, Amul offers something for every lifestyle and occasion.

Table 3. A Brief summary of Amul 'Milk Powders' Product Portfolio

| Product Name | Description | Pack Sizes | Features | Applications | Availability |
|----------------------------------------------|----------------------------------|--------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------|
| Amulya | High Fat Dairy Whitener | 1 kg, 500g, 200g, 100g, ₹10, ₹5 | Creamiest in category; high fat (20%); used in tea/coffee & desserts | Tea, coffee, sweets, curd, cakes | Pan-India GT, MT, eCom |
| Amul T-Special | Premium High Fat Dairy Whitener | 1 kg, 400g, 200g, ₹10 | High solubility, creamy texture, targeted at NE states | Tea, coffee, milk drinks, desserts | NE & Northern states in GT & MT |
| Amul Whole Milk Powder | Spray dried Whole Milk Powder | 450g tin | 26% fat, 26% protein; no added sugar | Tea, coffee, smoothies, curd, baking | Pan-India GT, MT, eCom |
| Amul Camel Milk Powder | Functional Health Milk Powder | 25g sachet | Diabetic friendly; lactose tolerant; natural insulin-like protein | Health drink preparation | GT, MT, eCom (select stores) |
| Amulspray | Infant Milk Substitute | 1 kg, 500g, 200g, 100g, ₹20, ₹10, ₹6 | Formulated per BIS; fortified with vitamins and minerals; trusted brand | Infant nutrition (as per doctor's advice) | Pan-India, GT, MT, medical & eCom |
| Amulspray Ready-to-Feed Infant Formula (RTF) | Liquid Infant Formula | 250ml | India's first RTF infant milk; aseptic packaging; convenience-focused | Direct infant feeding (as per health worker guidance) | Pan-India in medical, GT, MT, eCom |
| Amul Instant Tea Mix | Tea + Sugar + Milk Powder Premix | 10 sachets x 14g | 3-in-1 tea mix; no boiling needed; easy travel companion | Instant tea on the go | GT, MT, eCom |
| Sagar T-Special | Medium Fat Dairy Whitener | ₹10, ₹5 | Affordable, suitable for rural & semi-urban market | Tea & coffee preparation | Bihar, Madhya Pradesh, Uttar Pradesh, Chhattisgarh, Jharkhand |

(Note: GT: General Trade and MT: Modern Trade)

Table 4. A Brief summary of Amul 'Protein Products' Portfolio

| Feature | Amul High Protein Blueberry Shake | Amul High Protein Rose Lassi | Amul High Protein Buttermilk |
|----------------------|-------------------------------------------------------------|----------------------------------------------------|-------------------------------------------------------|
| Product Type | Protein Shake | Lactose-free Rose Lassi | Protein Buttermilk |
| Packaging | 200 ml PET Bottle | 200 ml Tetra Pak | 200 ml Tetra Pak |
| Lactose | Contains milk (not lactose-free) | <0.2 g (Lactose-free via enzyme) | Contains milk |
| Sodium | 40 mg | 64 mg | 100 mg |
| Shelf Life | 180 days (cool & dry place) | 180 days (cool & dry place) | 180 days (cool & dry place) |
| Storage Condition | Ambient | Ambient | Ambient |
| Special Features | No added sugar, low fat, 20g whey protein, blueberry flavor | Lactose free, no added sugar, low fat, rose flavor | No added sugar, low fat, 15g whey protein, refreshing |
| Usage/Application | Ready to drink, best chilled | Ready to drink, best chilled | Ready to drink, best chilled |
| Allergen Info | Contains Milk | Contains Milk | Contains Milk |
| Calories Per Serving | Moderate (138 kcal) | Low (107 kcal) | Low (108 kcal) |

Table 5. A Brief summary of Amul 'Beverages' Product Portfolio

| Product Name | Description | Packaging | Shelf Life | Storage | Key Features |
|--------------------------------------------|----------------------------------------------|------------------------------------------------|-------------------|----------------|----------------------------------------------|
| Amul Kool Café Classic | Coffee flavored milk drink | 200 ml Glass Bottle, Tetrapak, Pet Bottle, Can | 180 days | Ambient | Refreshing coffee milk, multiple pack types |
| Amul Kadhāi Doodh | Caramelized flavored milk drink | 200 ml Glass Bottle, 200 ml Can | 180 days | Ambient | Natural caramelized flavor, no preservatives |
| Amul Irish Drink Mocktail | Creamy milk mocktail with coffee & chocolate | 200 ml Glass Bottle, 125 ml Can | 180 days | Ambient | Premium mocktail, on-the-go packaging |
| Amul Pina Colada Mocktail | Pineapple & coconut flavored milk drink | 200 ml Can | 180 days | Ambient | Unique tropical flavor, stylish can |
| Amul Tru Apple Seltzer | Carbonated apple flavored milk seltzer | 250 ml Can | 270 days | Ambient | Fizzy milk + fruit essence, soda alternative |
| Amul Smoothies (Vanilla, Chocolate, Mango) | Creamy flavored milk smoothies | 200 ml Pet Bottle | 120 days | Ambient | Multiple flavors, creamy & refreshing |
| Amul Stamina (Sports Drink) | Whey protein enriched sports drink | 200 ml Pet Bottle (Lime n Lemon, Orange) | 120 days | Ambient | First whey protein sports drink in India |

5.5 Product Portfolio – Chocolates

The Amul chocolate portfolio showcases a diverse and comprehensive range of products catering to varied consumer preferences and market segments. From classic dark chocolates with varying cocoa percentages to premium single-origin variants, Amul offers a spectrum that appeals to both casual consumers and connoisseurs. The inclusion of exotic milk chocolates, exclusive white chocolates, and innovative emotion packs further enriches the product mix, enhancing brand appeal.

Additionally, Amul's strategic expansion into related segments such as wafer chocolates, filled bars, syrups, and assorted gift packs indicates a well-rounded portfolio designed to capture opportunities across different consumption occasions. The availability of institutional chocolate variants in bulk packaging further reflects Amul's presence in commercial and industrial markets.

Overall, the extensive SKU variety in sizes and flavors ensures accessibility and flexibility,

allowing Amul to meet diverse consumer needs while maintaining a strong foothold in the competitive chocolate market. This diversified approach strengthens Amul's position as a leading chocolate brand in India.

5.6 Product Portfolio - Peanut Spread

Both 'Amul Peanut Spread Creamy' and 'Crunchy' share identical nutritional profiles and ingredient compositions, highlighting a high protein content of 25% and an energy density of 605 kcal per 100g. The primary difference lies in texture, with the creamy variant providing a smooth, non-sticky mouthfeel, while the crunchy likely includes peanut pieces for added texture.

Both products offer long shelf life (9 months) and easy storage at room temperature, making them convenient, nutritious spreads ideal for protein-rich snacking or use in various recipes. Their balanced fat and carbohydrate content combined with significant protein makes them suitable for health-conscious consumers looking for tasty and functional spreads.

Table 6. A Brief summary of Amul 'Chocolates' Product Portfolio

| Major Category | Sub Category | Variants | SKU Sizes |
|-------------------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| Amul Chocolates | Classic Dark Chocolates | 55% Dark, 75% Dark, 90% Dark, 99% Dark | 15g, 40g, 100g, 125g, 150g, 250g |
| | Premium Dark Chocolates | Tropical Orange 55%, Fruit N Nut 55%, Mystic Mocha 55%, Green T 55%, Sugar Free 55% | 35g, 40g, 150g |
| | Single Origin Dark Chocolates | PERU, VENEZUELA, TANZANIA, ECUADOR, COLOMBIA, MADAGASCAR, IVORY COAST, INDIA origin (all 55% Dark) | 125g |
| | Exotic Milk Variants | Milk Chocolate, Belgian Milk Chocolate, Camel Milk Chocolate, Hazelnut Chocolate, Raisin N Almond, Choco Cracker, INDIA origin Milk Chocolate | 12g, 20g, 35g, 40g, 40g, 100g, 125g, 150g, 250g, |
| | Exclusive White Chocolates | Super Fruit, White Limon | 150g |
| | Emotion Packs | Happy Birthday, Best Wishes, I LOVE YOU | 150g |
| | Amul Wafer Chocolates | Dark Passion, Bindaaz | 15g, 300g tub |
| | Amul Chocozoo | Chocomini, Chocozoo | 250g |
| | Amul Filled Bars | Almond Bar, Energy Bar | 35g, 40g |
| | Amul Syrups | Chocolate Syrup | 30g sachet, 250g, 650g |
| Amul Institutional Chocolates | Assorted / Gift Packs | Rejoice assorted gift pack, Almondo, Dark Emerald | 200g, 229g, 280g |
| | | Dark Chocolate DCH-47, Milk Chocolate MCH-23, White Chocolate WCH-28, Dark Compound DCO-18, Milk Compound MCO-11, White Compound WCO-20 | 500g, 5kg (Choco Chips) |

Table 7. A Brief summary of Amul ‘Peanut Spread’ Product Portfolio

| Product Name | Amul Peanut Spread Creamy | Amul Peanut Spread Crunchy |
|--------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------|
| Description | High protein peanut spread with creamy, non-sticky mouth feel | High protein peanut spread with creamy, non-sticky mouth feel |
| Ingredients | Roasted Peanut (90%), Sugar, Ground Nut Oil, Iodized Salt, Stabilizer | Roasted Peanut (90%), Sugar, Ground Nut Oil, Iodized Salt, Stabilizer |
| Energy (Kcal/100g) | 605 | 605 |
| Shelf Life | 9 Months | 9 Months |
| Storage Condition | Room temperature, refrigerate after opening | Room temperature, refrigerate after opening |
| Product Features | 25% protein, better spreadability, creamy & non-sticky mouth feel | 25% protein, better spreadability, creamy & non-sticky mouth feel |

5.7 Products Portfolio - Bakery Products

Amul, a leading cooperative dairy brand under GCMF, has strategically diversified into the bakery segment to extend its dominance beyond dairy into value-added consumer foods. The bakery product portfolio reflects Amul's strong brand equity, product innovation, and alignment with health and convenience trends.

Product Diversification and Category Strength: Amul's bakery line is broadly divided into several categories: cookies, bread and buns, cakes, rusks, toast, and snacks such as khakhra. Within cookies, Amul offers both traditional and functional variants, including Butter Cookies, Millet-based Cookies (Milletelo), Digestive Cookies, Short Bread, Chocolate Cookies, High-Protein Cookies, and Sugar-Free Cookies. These variants cater to a broad spectrum of consumer preferences—ranging from indulgence to health-conscious choices—signifying a portfolio strategy that emphasizes market segmentation and niche targeting. The introduction of butter-based bread and pav, including multigrain, whole wheat, and milk bread, capitalizes on Amul's dairy heritage. The bakery SKUs also highlight institutional pack sizes, especially in cookies, reflecting a focus on HORECA (Hotel/Restaurant/Café) and bulk-buying consumer segments.

Brand Synergy and Ingredient Leverage: A key differentiator is Amul's use of its flagship dairy ingredients, such as Amul butter, ghee, and milk solids, across bakery offerings. This vertical integration not only supports cost leadership but also reinforces brand consistency and trust. For instance, products like Butter Cake, Butter Toast, and Cheese Cookies leverage core dairy ingredients, creating a strong brand association and value perception.

Health, Convenience, and Innovation Focus:

With offerings like Milletelo Cookies, High-Protein Cookies, and Sugar-Free Cookies, Amul is positioning itself within the emerging functional foods and health-conscious snacking space. The use of millets and whole wheat reflects alignment with national nutrition goals (e.g., International Year of Millets, 2023) and changing consumer behavior toward wholesome ingredients.

The availability of multiple pack sizes (ranging from 18g to 1200g) also signals Amul's emphasis on SKU optimization for retail shelf diversity, affordability, and consumer convenience, which are critical for deep market penetration in both urban and rural sectors.

Amul's entry into the bakery segment is a strategically aligned extension of its dairy business, leveraging brand equity, backward integration, and product innovation. The diversified portfolio—spanning indulgence, health, and convenience—positions Amul competitively in a growing market for packaged baked goods. To sustain and grow its market share, Amul should continue investing in product innovation, branding, and modern retail visibility, while capitalizing on its unmatched distribution strength and dairy-based ingredient credibility.

5.8 Product Portfolio – Health Focussed (Ambient Product)

Amul's foray into the health food segment reflects a strategic diversification aimed at aligning with evolving consumer preferences for nutrition-rich, functional, and convenient food options. The brand has leveraged its core strengths—trusted dairy heritage, strong distribution network, and affordable pricing—to create accessible health-oriented products for a broad consumer base.

Table 8. A Brief summary of Amul 'Bakery Products' Portfolio

| Category | Subcategory | Variants | SKUs (Pack Sizes) |
|---------------------------|-------------------------------------|--------------------------------------------------------------|--------------------------------|
| Cookies | Butter Cookies | Butter, Coconut, Oats & Honey, Nuts & Raisins, Jeera, Cashew | 40g, 50g, 200g |
| | Butter Cookies (Institutional) | - | 18g |
| | Milletelo Cookies | - | 200g |
| | Digestive Cookies | - | 200g |
| | Short Bread Cookies | - | 100g |
| | Chocolate Cookies | Chocolate | 50g, 200g |
| | Butter Nankhatai (Whole Wheat/Atta) | Cashew, Almond, Elaichi | 50g, 200g |
| | Butter Cookies Gift Packs | Assorted | 300g |
| | Cheese Cookies | Cheese | 50g, 150g |
| | High Protein Cookies | High Protein | 150g |
| Fresh Butter-Based Bakery | Butter Bread | Sandwich, Whole Wheat, Brown, Multigrain, Fruit, Milk | 200g–1200g (varies by variant) |
| | Butter Pav | Butter Pav | 250g, 300g, 400g |
| | Butter Bun | Butter Bun | 300g, 400g |
| | Butter Pizza Base | Butter Pizza Base | 200g, 250g |
| Rusk | Rusk | Elaichi, Jeera, Milk | 200g each |
| Butter Cake | Eggless Butter Cake | Classic, Choco Chips, Fruit N Nut, Choco Walnut | 150g each |
| Butter Toast Snacks | Toast | Milk, Wheat | 200g each |
| | Khakhra | Butter (Plain), Ghee (Plain), Ghee (Jiralu Masala) | 200g each |
| Tea Special | Rusk | Tea Special Rusk | 65g, 200g, 700g |
| Guilt-Free Cookies | Sugar-Free Cookies | Sugar-Free | 50g, 200g |

Table 9. A Brief summary of Product Features and Functional Benefits of Amul Pro

| Feature | Benefit |
|----------------------------|------------------------------------------------------------------------------------|
| DHA (Docosahexaenoic Acid) | Supports brain development, vision, and immune function in children. |
| 25 Vital Nutrients | Enhances immunity, metabolism, nervous system health, and physical energy. |
| Milk Enhancer | Improves taste and nutrition of regular milk, encourages regular milk consumption. |
| Convenient Usage | Easy to mix with both hot and cold milk; suitable for home and school use. |

Products like Amul PRO, fortified with DHA and 25 essential nutrients, mark Amul's entry into the competitive malted health drink space dominated by legacy brands.

The product contains malt extract, sugar, and milk solids as its primary ingredients, along with cocoa solids. It includes emulsifiers to maintain texture, and is enriched with DHA, vitamins, and minerals for added nutrition. The flavor is enhanced with artificial flavors such as milk caramel, cocoa chocolate, and malted milk, and it also contains iodized salt. Please note that the product contains allergens like barley and milk.

Similarly, the inclusion of high-protein cookies, sugar-free options, millet-based snacks, and whole wheat bakery variants highlights the company's shift toward functional foods that promote wellness, cognitive development, and disease prevention.

Hence, Amul's health food portfolio shows promise in bridging the gap between indulgence and nutrition, and its future growth will depend on continuous product innovation, clinical validation of health claims, and robust marketing communication to build consumer trust and long-term brand loyalty in this high-potential segment.

5.9 Product Portfolio – Organic products

Amul's foray into the organic food sector demonstrates a well-thought-out strategy built on trust, health-consciousness, affordability, and sustainability. With the right mix of product expansion, consumer education, and modern distribution, Amul Organic has the potential to become a dominant player in India's organic revolution—making organic truly accessible to every Indian.

5.10 Product Portfolio - Puffles

Amul Puffles is available in three flavors — Fiery Peri Peri, Pudina Pataka, and Cheesy Burst —

focusing on key product info and nutritional highlights.

Amul Puffles offers a range of crispy, crunchy corn-based snacks in distinct flavors — Fiery Peri Peri, Pudina Pataka, and Cheesy Burst — all packaged in convenient 30g bags with a shelf life of 120 days. Each variant provides a satisfying blend of energy and protein with zero trans fats, making them ideal for a tasty on-the-go snack. Notably, the Cheesy Burst and Fiery Peri Peri flavors have higher sodium content compared to Pudina Pataka, and Cheesy Burst contains the highest added sugar among the three. These snacks are widely available across select cities like Anand, Vadodara, Gandhinagar, and Ahmedabad.

Table 10. A Brief summary of Amul's Organic Product' Portfolio

| Category | Product | Pack Sizes | USP |
|------------------|-------------------------------------------------------------|----------------|--------------------------------------------------|
| Flours | Whole Wheat Atta, Besan | 1kg, 5kg, 500g | Organic staples, high protein, pesticide-free |
| Rice & Cereals | Basmati, Dehraduni Basmati, Sona masoori rice, Poha | 1kg, 5kg, 500g | Premium origin, budget-friendly, regional appeal |
| Pulses & Beans | Chana, Masoor, Toor, Moong, Rajma, Urad, Kabuli, Desi Chana | 500g, 1kg | Vacuum-packed, nutrient-rich, variety-driven |
| Tea & Sweeteners | Organic Tea, Organic Sugar | 250g, 1kg | Natural flavor, sulfur-free, clean energy |
| Spices | Ginger Powder, Turmeric Powder | 100g | Ayurvedic focus, pure organic |

Table 11. A Brief summary of Amul's Puffles product portfolio

| Attribute | Fiery Peri Peri | Pudina Pataka | Cheesy Burst |
|--------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|
| Product Name | Amul Puffles - Fiery Peri Peri | Amul Puffles - Pudina Pataka | Amul Puffles - Cheesy Burst |
| Description | Ready-to-eat savoury corn snack, one of 4 flavors | Ready-to-eat savoury corn snack, one of 4 flavors | Ready-to-eat savoury corn snack, one of 4 flavors |
| Packing (Weight) | 30g | 30g | 30g |
| Energy (kcal/100g) | 397 | 383 | 396 |
| Shelf Life | 120 Days | 120 Days | 120 Days |
| Storage Condition | At Room Temperature | At Room Temperature | At Room Temperature |
| Product Features | Crispy and crunchy puffed corn snack, convenient anytime, anywhere | Crispy and crunchy puffed corn snack, convenient anytime, anywhere | Crispy and crunchy puffed corn snack, convenient anytime, anywhere |
| Availability | Anand, Vadodara, Gandhinagar, Ahmedabad | Anand, Vadodara, Gandhinagar, Ahmedabad | Anand, Vadodara, Gandhinagar, Ahmedabad |

6. SUMMARY AND CONCLUSION

The study reveals that Gujarat Dairy Cooperatives, under the Amul brand, have developed a comprehensive and diversified product portfolio of ambient offerings that cater to a wide demographic — from infants to fitness enthusiasts.

Key findings include:

- Breadth and depth of portfolio across ghee, milk powders, beverages, proteins, chocolates, bakery, and organic products.
- Strategic alignment with health and wellness trends, such as lactose-free drinks, high-protein products, and sugar-free cookies.
- Use of ambient packaging formats (tetrapak, PET bottles, cans) to enhance shelf life and convenience.
- Multi-channel distribution through General Trade (GT), Modern Trade (MT), e-commerce, and institutional sales, enabling wide accessibility.
- Regional customization (e.g., Brown Ghee in Eastern India, T-Special in the North East) demonstrates market sensitivity.

The product strategy is holistic, integrating nutrition, affordability, tradition, and innovation, thereby cementing Amul's role as not just a dairy leader but a complete food solutions provider in India and select global markets.

7. LIMITATIONS OF THE RESEARCH STUDY

While the study provides valuable insights, it is subject to several limitations:

1. Secondary data reliance: Findings are based solely on existing literature, brand reports, and publicly available product data.
2. Limited comparative benchmarking: The study focuses on Amul and does not deeply compare other state cooperatives or private competitors.
3. Major focus is on Product range, variants, pack size and other related aspects, hence several other aspects regard product features (such as composition, ingredients, etc.) have not been included. Further, the focus is to just give an idea of enormous product

range / variants/ pack size/ pack forms; hence the product portfolio discussed above is not exhaustive, there may be many flavours, many options of a particular product which might have not been considered here.

8. RECOMMENDATION FROM THE STUDY

Amul's ambient product strategy empowers small retailers without refrigeration to participate in India's growing packaged food market. Stakeholders across the chain—from shopkeepers to distributors, and from public policy to private health brands—can benefit by aligning with Amul's evolving product focus on nutrition, affordability, convenience, and health trends.

Those small entrepreneurs who don't have refrigeration facilities, but still want to sell Amul products, you are well-positioned to leverage Amul's ambient product portfolio—products that don't require refrigeration and have longer shelf lives.

Policy Makers & Rural Development Agencies can Encourage infrastructure-light entrepreneurship in rural areas using ambient dairy products.

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 this manuscript.

COMPETING INTERESTS

Authors have declared that they have no known competing financial interests or non-financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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