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Studies on procurement, processing and distribution of Parag milk and milk products Palamaner in Chittoor district

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Abstract

Parag Milk Foods Ltd. is a leading dairy brand known for its efficient processing and distribution of high-quality dairy products. The company employs advanced technology in milk processing, ensuring products like milk, butter, cheese, and yogurt meet stringent quality standards. Parag Milk Foods Ltd. emphasizes the importance of maintaining the cold chain during distribution to ensure freshness and extend shelf life. With a robust logistics network, the dairy efficiently distributes products to urban and rural areas. The focus on sustainability is evident through eco-friendly packaging and waste management practices. Parag Dairy's commitment to innovation and customer satisfaction has solidified its reputation in the dairy industry.

Keywords: Parag Dairy, milk processing, dairy products, cold chain, distribution, logistics, quality standards, sustainability, eco-friendly packaging, innovation, customer satisfaction, procurement

Introduction

India has been the leading producer and consumer of dairy products since 1998, with a sustained growth in milk availability and consumption. The dairy market in India reached a value of 14,899.8 billion in 2022, but the industry is still highly unorganized, dominated by small and marginal dairy farmers. The Indian government has introduced various schemes and initiatives to develop the dairy sector, such as the "National Dairy Programme (Phase-I)" to improve cattle productivity and increase milk production.

Private companies and investors are entering the Indian dairy sector, focusing on value-added products like cheese, yogurt, and probiotic drinks. The market is expected to reach INR 31185.7 billion by 2028, exhibiting a CAGR of around 13% during 2023-2028. India's milk production is growing at a rate of 2% in the world, with the top milk-producing states being Rajasthan (33.27%), Uttar Pradesh (33.11%), and Madhya Pradesh (19%).

India is the highest milk producer in the world, contributing 24% of global milk production. The dairy products market is valued at around 4000 billion, with ice cream industry worth around 25 billion. 70% of milk is produced by marginal farmers, and carton milk or packaged milk is growing at 24% annually.

The Indian dairy industry has seen significant growth since the approval of the General Agreement on Tariffs and Trade (GATT) in 1993. India signed the Uruguay Round Agreement on Agriculture (AOA) in 1994, which brought agricultural policies under greater multilateral discipline

through the World Trade Organization (WTO). The AOA focuses on market access, domestic support, and export subsidies, but has faced challenges in addressing high tariffs on dairy products. The Milk and Milk Products Order (MMPO) was promulgated in 1992 to regulate milk and milk products production in India. In 2003, the GOI abolished restrictions on setting up milk processing and manufacturing plants, while retaining requirements for food safety and hygiene. Initiatives such as the Anand Pattern, a cooperative movement, and Operation Flood have contributed to the development of Indian dairying. These initiatives have helped to increase milk production and promote the country's dairy industry.

Objectives of the study

1. To estimate the purchase price of milk in the different season.
2. To evaluate economic performance of dairy plant.
3. To study the problems faced in procurement, processing and distribution of milk and milk products and to suggest remedial measures.

Research Methodology

This chapter discusses the study's plan, methods, data sources, and analytical procedure. It is divided into three parts: selection of dairy unit, data sources, data collection, and data analysis. Parag Milk Foods Ltd., Palamaner, is a popular private dairy unit in Andhra Pradesh, established in 1992. Data on management aspects, such as procurement,

processing, and distribution of milk and milk products, were obtained from the unit's annual report and relevant records for 2022-2023. A pretested schedule was used to gather information about resource, technical, financial, personnel, inventory, procurement, processing, and distribution management. Data collection was primarily based on secondary data from the selected dairy unit, including personal interviews with officers and office bearers. The study aims to provide meaningful results to achieve the objectives under study.

The study focuses on various areas of management within a milk processing unit, including resource management, plant and machinery management, financial management, personal management, procurement management, processing management, distribution management, and marketing. The costs of procurement, processing, and distribution are classified as fixed costs, variable costs, and total costs. Fixed costs include land rent, depreciation, building, machinery, equipment, and interest on fixed capital investments. Variable costs include wages, allowances, electricity, commission, transport charges, material and supplies. Total costs include fixed costs plus variable costs.

The estimated costs for procurement, processing, distribution, administration, and other charges were calculated on a per-unit basis, with land rent and interest on fixed capital calculated at a rate of ___ percent per annum on the value of land and fixed capital assets. Gross returns included the value of milk processed and milk product produced, interest received, and dividend realized from other institutions. Net profitability was estimated by deducting total costs from gross returns.

The Benefit Cost ratio was used to assess the economic performance of the milk processing unit. The break-even point was determined by dividing the total returns by the total costs. The study also examined the impact of the production process on the organization's net profitability.

History and profile of parag milk foods ltd., palamaner (chittoor district)

Parag Milk Foods Ltd., established in 2010, is a popular dairy unit located in Chittoor district, Palamaner town on the Andhra Pradesh-Karnataka border. The unit, known as "Gowardhan," has 15 acres of processing space and has established a special relationship with milk producers, distributors, and retailers. With steady growth in popularity, Parag Milk Foods chairman Shri Devendra Shah expects the company to reach Rs. 400 Crore revenue by 2027-2028. The company manufactures various milk products, including ghee, liquid milk, skim milk powder, dairy whitener, whole milk milk powder, cheese, real milk powder, and Gulab jamun mix. Parag Milk Foods Ltd. is an ISO 9000/22000, AGMARK certified company and markets its products under the brand name "Gowardhan." The company's milk procurement process involves cans and tankers, with milk collected from individual farmers, milk co-operative societies, and private contractors.

Parag Milk Foods Ltd. Dairy unit has a strong financial position and consists of various departments, including

administration, personnel, store, production, quality control, maintenance, and marketing. The top management ensures that responsibilities and authorities are defined and communicated within the organization. The management employees contribute to the achievement of the quality objectives of the dairy unit. The Chairman and Managing Director prepares corporate quality policy and objectives, sets direction with mission and vision, and guides the General Manager in making resource allocation.

The General Manager handles all financial and accounts activities, conducts monthly internal audits, plans day-to-day production, evaluates milk suppliers, and plans production according to market and availability of milk and other raw materials. The Production Manager plans production and ensures products are manufactured and packed according to customer or industry requirements. The Quality Control Manager decides specifications for raw ingredients packaging material and finished products, authorizes release of raw material, ingredients packaging material, and final products, and finalizes artwork for packing material in coordination with the General Manager. The flow chart for milk processing and ghee manufacturing outlines the process of preparing, preheating, setting, filtering, packaging, and storage. The Dahi unit receives milk, undergoes pre heating, clarifications, standardization, and homogenization.

Performance of milk procurement and milk sale of Parag Milk Foods Ltd.

The success of any milk unit is depending on various factors of which adequate procurement of raw milk is one of the important one. After the procurement of milk, the sale of goods quality milk is another factor indicating the business performance of a unit.

The information regarding the milk procurement and milk sale of Parag Milk foods unit. is given in table 7.2.

Table 1: Milk procurement and distribution during 2013 to 2022

Year	Procured quantity (Lakh lit.)	Milk sale (Lakh lit.)
2013-2014	345 (100)	355 (100)
2014-2015	401.92 (16.50)	401.15 (13)
2015-2016	472.65 (37)	468.60 (32)
2016-2017	558.90 (62)	557.35 (57)
2017-2018	669.30 (94)	667.40 (88)
2018-2019	748.65 (117)	745.50 (110)
2019-2020	786.60 (128)	786.33 (121.5)
2020-2021	928.05 (169)	927.97 (161.4)
2021-2022	1138.5 (230)	1137.96 (220.55)
2022-2023	1376.55 (299)	1375.63 (287.5)

(Figures in the parentheses are percentages to the base year 2013-2014)

It is evident from the table 1 that the procurement of milk and milk sale have increased by 299 percent and 287.5 percent, respectively during the period from 2013 -2014 to 2022-2023. The procurement of milk and milk sale has increased continuously from the base year 2013-2014 to 2022-2023. However, the rate of increase in procurement of milk was more than that of the rate increase in milk sale.

Table 2: Annual compound growth rates of procurement and sale of milk.

Sr. No.	Particulars	Compound growth Rate (CGR)	Linear Compound Growth Rate (LGR)
1.	Procurement of milk	22.84%	29.89%
2.	Sale of milk	22.55%	28.76%

*Indicates 10 percent level of significance

It is revealed from the table 2 that, the annual compound growth rates of milk procurement and sale were 22.84 percent and 22.55 percent, respectively. The same were positively significant at 10 percent level of significance.

Size of business

Parag milk foods ltd. Dairy unit is actively involved in the

activities of procurement, processing and distribution of milk as well as manufacturing and marketing of its milk products. The size of the business activity could therefore, be measured in terms of magnitude of the volume of milk and milk products processed by the Parag Milk Foods Ltd.unit (Gwordhan).

Table 3: Quantity of milk procured and its disposal (2022-2023)

Sr. No.	Particulars	Quantity of milk (lakh lit.)	Percent %
1.	Total quantity of milk procured during the year	1376.55	100
2.	Daily average procurement of the milk	3.75	—
3.	Average quantity of milk lost in procurement, handling and transport during the year	13.76	1
4.	Actual total quantity of milk processed	1362.79	99
5.	Quantity of milk distributed as liquid milk	967.59	71
6.	Quantity of milk used for manufacturing milk products	395.2	29

Table 3 depicts the detailed size of business handled by Parag Milk Foods Ltd. unit during the year 2022-2023

It is revealed from the table 3 that the total quantity of milk procured by the dairy unit was 1376.55 lakh. Litres with an average daily procurement of 3.75 lakh litres. In the total quantity of milk procured in a year the losses were to the extent of 13.76 lakh litres i.e. 1 percent in procurement, handling and transport. Thus, the quantity of milk processed by this dairy unit was 1362.79 lakh litres (99 percent) of the total milk procured by the dairy unit. Out of this 71 percent quantity of milk was distributed as liquid milk and

remaining 29 percent was used for manufacturing the different milk products.

Purchase cost of milk

The purchase cost of milk comprised of mainly the price paid to the milk producers. The raw milk price, paid to the milk producers was the major item of the total cost structure of the business. Table 4 present the information regarding the total quantity of milk procured, per litre price of raw milk in different seasons and average per litre price of milk during the year 2022-2023.

Table 4: Season wise quantity of milk purchased and average price paid for the milk (2022-2023)

Sr. No.	Season	Qty. of milk procured (lakh lit.)	Average purchase price (Rs./lit.)
1.	Flush season (May- October)	551.55	27
2.	Lean season (November- April)	825	27.45
3.	Total milk purchased	1376.55	27.29

It is revealed from the table 4 that, the p-rice paid to the milk producers by the dairy unit varied across the different seasons. The per litre average price paid to the milk producers during flush season was Rs. 27 and it was Rs. 27.45 during lean season. The average price paid to the producers by the dairy unit was Rs. 27.29 and the total quantity of milk purchased was 1376.55 lakh litres. Out of the total quantity of milk purchased, percent share of flush season was little higher 40 than that of lean season 60. It is very clear that average per litre price paid to the milk producers during lean season was relatively higher than the flush season.

Economic performance of parag milk foods ltd., (standalone financial data)

1. Balance sheet
2. Profit & Loss
3. Profit & Loss – Key Schedule
4. Cash Flow
5. Ratio

1. Balance sheet (2022-23)

Equity and Liabilities

• **Equity**

Share capital 1,171,998,260.00
 Reserves and surplus 7,009,560,000.00
 Other Equity 1,740.00
 Total equity 8,181,560,000.00

• **Liabilities**

Noncurrent Liabilities

Long Term Borrowings 2,046,030,000.00
 Net Deferred Tax Liabilities 14,570,000.00
 Other Long-term Liabilities 78,860,000.00
 Long Term Provisions 36,080,000.00
 Total Noncurrent Liabilities 2,175,540,000.00

Current Liabilities

Short Term Borrowings 3,223,780,000.00
 Trade Payables 1,298,170,000.00
 Other Current Liabilities. 946,410,000.00
 Short Term Provisions 4,270,000.00

Total Current Liabilities 5,472,630,000.00
 Total Equity and Liabilities 15,829,730,000.00

Assets

• **Net Fixed Assets**

Tangible Assets 3,111,990,000.00
 Intangible Assets 1,940,000.00
 Total Net Fixed Assets 3,113,930,000.00

• **Other Non-Current Assets**

Capital Working progress 86,440,000.00
 Noncurrent Investments 671,870,000.00
 Net Deferred Tax Assets -
 Long Term Loans and Advances 735,170,000.00
 Other Noncurrent Assets 63,730,000.00
 Total Other Noncurrent Assets 1,470,770,000.00

• **Current Assets**

Current Investments -
 Inventories 5,582,560,000.00
 Trade Receivables 1,598,700,000.00
 Cash and Bank Balances 145,290,000.00
 Short Term Loans and Advances 140,970,000.00
 Other Current Assets 3,691,070,000.00
 Total Current Assets 11,158,590,000.00
 Total Assets 15,829,730,000.00

2. Profit & Loss

Net Revenue 28,532,000,000.00

Operating Cost

Cost of Materials Consumed 23,781,000,000.00
 Purchases of Stock in trade -
 Changes in Inventories / Finished Goods -709,500,000.00
 Employee Benefit Expense 882,450,000.00
 Other Expenses 3,188,500,000.00
 Total Operating Cost 27,142,450,000.00
 Operating Profit (EBITDA) - 1,389,550,000.00
 Other Income 351,620,000.00
 Depreciation and Amortization Expense 540,730,000.00
 Profit Before Interest and Tax 1,200,440,000.00
 Finance Costs 528,570,000.00
 Profit Before Tax and Exceptional Items Before Tax 671,870,000.00
 Exceptional Items Before Tax -
 Profit Before Tax 671,870,000.00
 Income Tax -13,040,000.00
 Profit for the Period from Continuing Operations. 684,910,000.00
 Profit from Discontinuing Operations After Tax -
 Profit for the Period 684,910,000.00

3. Profit & Loss – Key Schedule

Profit & Loss Key Schedule (Rs. INR)

Managerial Remuneration
 Payment to Auditors 4,020,000.00
 Insurance Expenses 4,130,000.00
 Power and Fuel. 428,520,000.00

4. Cash Flow

• **Cash Flows from / (Used in) Operating Activities**

Profit Before Tax 671,870,000.00
 Adjustment for Finance Cost and Depreciation

1,069,300,000.00
 Adjustments for Current and Non-Current Assets - 2,932,440,000.00
 Adjustments for Current and Non-Current Liabilities - 315,630,000.00
 Other Adjustments in Operating Activities -287,540,000.00
 Net Cash Flows from / (Used in) Operating Activities - 1,794,440,000.00

• **Cash Flows from / (Used in) Investing Activities**

Cash Outflow from Purchase of Assets 193,310,000.00
 Cash Inflow from Sale of Assets
 Income from Assets 64,210,000.00
 Other Adjustments in Investing Activities -695,460,000.00
 Net Cash Flows from / (Used in) Investing Activities - 824,560,000.00

• **Cash Flows from / (Used in) Financing Activities**

Cash Outflow from Repayment of Capital and Borrowings 71,960,000.00
 Cash Inflow from Raising Capital and Borrowings 2,529,180,000.00
 Interest and Dividends Paid 500,450,000.00
 Other Adjustments in Financing Activities
 Net Cash Flows from / (Used in) Financing Activities 1,956,770,000.00
 Increase / (Decrease) in Cash and Cash Equivalents Before Effect of Exchange Rate Changes -662,230,000.00
 Adjustments to Cash and Cash Equivalents
 Net Increase / (Decrease) in Cash and Cash Equivalents - 662,230,000.00
 Cash and Cash Equivalents at End of Period 130,310,000.000

5. Ratio

Revenue Growth (%)	40.9
Gross Profit Margin (%)	19.1
EBITDA Margin (%)	4.9
Net Margin (%)	2.4
Return on Equity (%)	8.4
Return on Capital Employed (%)	8.9
Debt Ratio	0.3
Debt / Equity	0.6
Interest Coverage Ratio	2.3
Current Ratio	2.0
Quick Ratio	1.0
Inventory / Sales (Days)	71
Debtors / Sales (Days)	20
Payables / Sales (Days)	17
Cash Conversion Cycle (Days)	75
Sales / Net Fixed Assets	9.2

Problem faced by dairy unit

The problems faced by the Parag milk foods unit are listed below.

A. Problems in procurement of milk

1. Supply Chain Issues: Seasonal variations, weather conditions, transportation problems.
2. Quality Control: Adulteration bacterial contamination, inconsistency in milk quality.
3. Pricing: Price volatility, fair compensation for farmers.

B. Problems in processing of milk

1. Hygiene and Safety: Preventing contamination and maintaining high hygiene standards.
2. Technology: Keeping up with the latest advancements in dairy processing.
3. Regulatory Compliance: Meeting Stringent food safety and quality regulations.

C. Problems in distribution of milk

1. **Logistics:** Efficient management of the cold chain to maintain product quality.
2. **Market Access:** Reaching remote or underserved markets.
3. **Competition:** Competing with local and international brands.

Conclusion

The Indian dairy industry is undergoing restructuring due to globalization and increasing demand. The focus is on improving raw milk quality, enhancing processing efficiency, and developing value-added products. With increasing demand for milk in urban and rural areas, various private, cooperative, and government dairy units have entered the dairy business. Parag Milk Foods Ltd., located in Chittoor district, is a popular dairy unit that processes and produces various milk products. The research aims to study the organizational structure, management aspects of procurement, milk processing, and distribution of milk products in the Chittoor district. The study uses data from the dairy unit's annual reports and interviews for 2022-23, focusing on management aspects in procurement, processing, and distribution.

Parag Milk Foods Ltd., located in Palamner, Andhra Pradesh, has a 10 acres of land and has raised Rs. 15897.30 lakh through share capital, equity, and liabilities. The technical department is divided into three sub-departments: production, milk processing, and maintenance. Financial management is handled by the General Manager, Finance. HR management focuses on employee travel allowances, bonuses, and leave records.

The dairy unit maintains an optimal level of inventory material and procures milk based on factors such as raw milk prices, quality, and adulteration. The company's annual compound growth rates of milk procurement and sale are 29.89 and 28.76 percent, respectively.

During 2022-23, the total quantity of milk procured was 1376.55 lakh liters, with a significant difference in raw milk prices between flush and lean seasons. The company's net revenue is Rs. 28,532,000,000, with an Operating Profit (EBITDA) of Rs. 1,389,550,000.00.

Cash flow from operating activities shows a deficit of Rs. 1,794,440,000.00, primarily due to adjustments for assets and liabilities. Investing activities resulted in a net outflow of Rs. 824,560,000.00, while financing activities generated a net inflow of Rs. 1,956,770,000.00.

Ratio analysis shows revenue growth of 40.9%, gross profit margin of 19.1%, EBITDA margin of 4.9%, net margin of 2.4%, return on equity of 8.4%, return on capital employed of 8.9%, debt ratio of 0.3, debt/equity ratio of 0.6, interest coverage ratio of 2.3, current ratio of 2.0, quick ratio of 1.0, and cash conversion cycle of 75 days.

References

1. Bhattacharjee S. An economic evaluation of Katraj Dairy Unit. Unpublished M.Sc. (Agri.) thesis. Rahuri: MPKV; c2001.
2. David J. Dairy plant management. [City of publication]: [Publisher]; c2012. p. 265-275.
3. Gavali AV. An economic analysis of co-operative dairy industry in Western Maharashtra. Unpublished Ph.D. thesis. Rahuri: MPKV; c2001.
4. Kedari PP. Management aspect of milk processing: a case study of government milk scheme in Ahmednagar. Unpublished M.Sc. (Agri.) ABM thesis. Rahuri: MPKV; c2003.
5. Mengade SB. Management of procurement, processing, and distribution of Parag Milk and Milk Products, Manchar in Pune district – a case study. Unpublished M.Sc. (Agri.) ABM thesis. Rahuri: MPKV; c2004.
6. Pawar VV. Management of procurement, processing, and distribution of milk and milk products of Mauli Processing Unit in Ahmednagar district – a case study. Unpublished M.Sc. (Agri.) ABM thesis. Rahuri: MPKV; c2003.
7. Patil SH. Management of procurement, processing, and distribution of Gokul Milk and Milk Products of Kolhapur Zilla Sahakari Dudh Utpadak Sangh Ltd., Kolhapur: A case study. Unpublished M.Sc. (Agri.) ABM thesis. Rahuri: MPKV; c2005.
8. Arora P. Sales forecasting of milk product by quantitative technology: a case study. [City of publication]: [Publisher]; c2014.
9. Arora P. Estimation of cost of milk products. 5th International Conference; c2022.
10. Rao KP, Sharma P. Problem of dairy co-operative in URMUL, Bikaner, Rajasthan. *Indian Dairyman*. 2003;55:41-417.
11. Sharma P, Joglekar PV. Marketing of milk: an opinion survey of consumer perceptions. *Indian J Mktg*. 2002;32(1-12):10-13.
12. Shaikh NA. Operational excellence in manufacturing. XXXII Dairy Industry Conference; Chandigarh, India. [Conference proceedings]; c2003.
13. Vaswani LK. Towards efficient channel management in marketing dairy products. *Indian Dairyman*. 2002;54(2):108-111.
14. www.fao.org
15. ebooks.inflibnet.ac.in
16. www.pib.gov.in
17. www.imarcgroup.com
18. www.iasparliament.com
19. www.statista.com
20. www.fao.org
21. www.dahd.nic.in
22. www.nddb.coop