

PASTEURISED MILK & CREAM PROJECT

Introduction:

Milk is an important human food. It is palatable, easy to digest and highly nutritious. It contains protein, fat, lactose, minerals and vitamin – A,B,C, D & E. There are different kinds of milk obtained from different animals like cow, buffalo, goat, camel and many others. The total solids in cow's milk range from 11% to 13% where as in buffaloes milk the range is from 15% to 19%. The compositions of milk from various animals are as follows:

	Carbohydrate	Protein	Fat
Cow	4.1 – 6.3%	2.5 – 4.0%	3.0 – 6.0%
Buffalo	4.5%	4.3%	7.55%
Goat	4.5%	3.7%	4.8%
Sheep	4.9%	6.5%	6.9%

Milk chilling/pasteurization industry plays an important role in augmenting and supplying protein rich milk and milk products at an affordable price for the masses. The modernization of dairying has had its impact at all levels from production of milk in the rural areas to its handling transportation, processing and retailing to urban customers. Presently only 12% of the milk market is represented by packaged and branded pasteurized milk, valued at about Rs 8,000 Crores. Plastic pouches replaced the bottles. Plastic pouches made transportation and storage very convenient, besides reducing costs. Milk packed in plastic pouches/bottles has a shelf life on just 2 – 3 days.

Market Potential:

India has emerged as one of the largest milk producing country in the world despite low yields. India is the second largest milk producing country with appropriate production of about 79 million tones of milk during 2000-01. In the last two decades under the aegis of National Dairy Development Board (NDDB), a major white revolution has taken place which has led the country from a situation of scarcity to that of surplus. The efforts undertaken by NDDB have not only led to enhance production, improvement in methods of processing, development of strong marketing network but also led to the emergence of dairying as an important source of employment and income generation in the rural areas. Establishment of milk collection centers and chilling centers has enhanced the life of raw milk and enabled minimization of wastage due to spoilage of milk.

With the rising income level of the growing middle class in India, the demand for milk and milk products is also increasing significantly. Besides traditional milk products which have urban as well as rural markets, there is also a tremendous scope for marketing of value added milk products. There is an increasing demand for hygienically packed milk and other products like ice-cream, cream and malted foods. Some of the major dairy plants in India are Amul Dairy (Gujarat). Mother Dairy (Gujarat), Nestle India Ltd., (Punjab). The major milk producing states in India are Gujarat, UP, Punjab, Harryana, Maharastra, Rajasthan, MP, Bihar and West Bengal. For the past five years the average growth rate in milk production in India has been registered 9% growth over the previous year.

Note: Milk and Milk Products Order (MMPO) regulates milk and milk products production in the country. The order requires no permission for units handling less than 10,000 litres of liquid milk per day or milk solids upto 500 TPA. All the milk products except malted foods are covered in the category of industries for which foreign equity participation upto 51% is automatically allowed. Ice-cream, which was earlier reserved for manufacturing in the small-scale sector, has now been de-reserved. As such, no license is required for setting up of large-scale production facilities for manufacture of ice-cream. Exports of some milk-based products are freely allowed provided these units comply with the compulsory inspection requirements of concerned agencies like: National Dairy Development Board, Export Inspection Council etc., Bureau of Indian standards has prescribed the necessary standards for almost all milk-based products, which are to be adhered to by the industry.

Plant Capacity:

The production basis for a typical tiny unit would be as under:

Working hours/day	: 8 (1 shift)
Working days in a year	: 365
Production capacity	: Processing of 1500 Litres Milk per day. Milk in pouch : 1000 ltrs/day Cream: 100 Kg. per day.(20% yield)

The unit has been assumed to operate at 70%, 80% and 90% of its installed capacity in the first, second and third year and onwards of its operation.

Raw Material:

The major raw materials and consumables required for production of pasteurized packaged milk where the by-product is cream are raw milk collected from the local and nearby dairy farms in cans. The pasteurized milk and cream will be packed in pouches (1/2 ltr/1 litre) and plastic cartons for dispatch. The procurement costs of these materials are to be considered at the prevailing market price.

Process:

The major process steps involved are as follows:

Milking: The most important part of a milk collection is how cattle are prepared for milking. Poor milking practice cause poor quality of milk and mastitis. The milk produced from the cattle must be clean and low in sediment.

Storing: The collected milk should be stored at 10°C to prevent bacterial spoilage. Mechanical coolers do the cooling of stored raw milk.

Homogenization: This process mixes all type of milk and emulsifies the milk for better emulsion of that milk does not separate on standing.

Cream separation: Clarification at this stage is carried out with simultaneous cream separation. The process of clarification is carried out in cold condition but after homogenization.

Pasteurization: The milk after clarification and separation is subject to a temperature of 62° – 63°C for about not less than 30 minutes. The process is carried out in vat pasteurizer with jackets and agitators. Separated cream is also pasteurized.

Refrigeration: The pasteurized milk is stored in a chilled condition for further packing and delivery. The cream is also stored in chilled in a storage tank before packing.

Machinery:

The major equipment required by the unit for producing pasteurized milk and cream by processing raw milk are as follows:

Milk cans, storage tanks, homogenizer, refrigeration plant, filtration plant, pasteurizer, emulsifies cream separator, pouch packing machine, boiler etc.

Infrastructure:

The basic infrastructure required are:

Land	:	2,500 sq.ft.
Building	:	1,500 sq.ft.
Power	:	60 KW
Water	:	8,000 KL. Per day.
Manpower	:	15 Nos. (Administrative (5), Factory Staff (10),

Total Capital Requirement:

The total capital requirement including fixed capital and working capital is estimated at Rs 38.10 lakhs as follows. Of this, the project cost comprising fixed capital and margin money on working capital is Rs 34.70 lakhs.

A. Fixed Capital:		(Rs in lakh)
Land		Rented
Building		Rented
Machinery		25.00
Miscellaneous fixed assets		5.50
Preliminary and pre-operative expenses		<u>2.00</u>
	Total (A)	32.50
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B. Working Capital:		
Raw materials & Consumables	1 week	1.20
Finished goods	1 week	1.70
Working expenses	1 month	0.80
Receivables	1 week	<u>1.90</u>
	Total (B)	5.60
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	Total (A)+(B)	38.10

Note: Working capital may be financed as:

Bank Finance	Rs 3.40 lakhs
Margin Money	<u>Rs 2.20 lakhs</u>
		Rs 5.60 lakhs
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Means of Finance:

The project cost of Rs 34.70 lakhs including margin money for working capital may be financed as under:

Promoter's contribution (35%)	Rs 12.15 lakhs
Term Loan (65%)	<u>Rs 22.55 lakhs</u>
		Rs 34.70 lakhs
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Operating Expenses:

The annual operating expenses are estimated at Rs 80.30 lakhs (70% capacity utilization) as given below:

		(Rs in lakhs)
1. Raw materials & consumable		59.00
2. Utilities		1.50
3. Wages & Salaries		7.50
4. Overheads		1.30
5. Selling expenses @ 0.5% on annual sales		4.50
6. Interest on term loan (13.50%)		3.00
7. Interest on Bank Finance for working capital (12.75%)		1.00
8. Depreciation @10%		<u>2.50</u>
		80.30
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Sales Realization:

The basis on which average ex-factory sales realization from the sale of pasteurized milk and cream at 100% capacity utilization is as follows:

Items	Qty./ day	Unit Sales Price (Rs)	Total Sales Per day (Rs)	Total Sales Per annum (Rs)
Pasteurized milk	1000 Ltrs.	20/Ltr.	20,000	73,00,000
Cream	100 Kg.	150/kg	15,000	54,75,000

Based on this the annual sales realization is estimated to be Rs 127.75 lakhs and at 70% capacity utilization the same is Rs 89.40 lakhs.

Profitability :

Based on the sales realization and the operating expenses, the profit would be Rs 9.10 lakhs per year (70% capacity utilization). This works out to a return on investment of 22%. The plant will break even at 49% of the rated capacity.

Highlight:

The major highlights of the project are as follows:

Total capital requirement	:	Rs 34.70 lakhs
Promoter's contribution	:	Rs 12.15 lakhs
Annual sales realization (70% cap.)	:	Rs 89.40 lakhs
Annual operating expenses (70% cap.)	:	Rs 80.30 lakhs
Annual profit (pre-tax)	:	Rs 9.10 lakhs
Pre-tax Return on Sales	:	10%
Break Even Point	:	49%
No.of persons employed	:	15

List of Machinery Suppliers:

List of Support Organization:

1.	M/s Redson Engrs. Pvt. Ltd., F-9/B, 1 st Phase, Hydrabad – 500 055	1.	M/s National Dairy Development Board, P.B. No. 40, Anand GUJRAT
2.	M/s Raylons Metal Works, J.B. Nagar, Ram Krishna Mandir Road, Andheri (W) Mumbai – 400 059	2.	M/s National Dairy Development Board, (Regional Office) D.K. Block, Sector-II, Salt Lake City, Kolkata – 700091
3.	M/s Universal Dairy, Mahavir Road, Anand – 3880 001 GUJRAT	3.	M/s National Dairy Research Institute, Karnal – 132 001 Haryana
4.	M/s Dairy Equipments & Co., 111, Wadola Udyog Bhawan Mumbai – 400 001		