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Dairy plant design aspect

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Outline

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- Perishable nature of milk
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- Modes of transport of milk
- Milk procurement and reception at dairy plant
- Contamination and its prevention
- Cleaning and sterilization



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Introduction

There is a need for highest standard of hygiene. Milk is most suitable medium for the growth of microorganism, therefore every possible measure should be taken to reduce the possibility of contamination, especially after processing. A good layout design and use of proper materials and techniques make great contribution towards hygiene. The dairy layout needs careful thought and planning keeping in view manufacture of the products and their commercial aspects.



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Increased safety and improved working conditions

Good plant layout incorporates safety into the plant by eliminating hazards at work stations, in materials

handling, storage activities, maintenance operations and the like. Man hour losses can be cut down to minimum.

Reduction in losses of capital equipment and materials is another result of provision of a good physical plant environment improves the overall working conditions.

Increased employee

moral tends to reduce production costs and helps develop a stable operating force.



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Perishable nature of milk

Milk by its nature is perishable. The following three factors contribute to its being perishable;

- (a) Contamination with bacteria
- (b) Warm temperatures, and
- (c) Prolonged time before cooling or processing



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Flexibility

Management should lay stress upon maximum flexibility in production facilities and distribution methods consistent with low cost operations. Production facilities and layout can be designed to attain flexibility and adaptability to meet changing economic and technological conditions.



Modes of Transportation of milk

Mode	Optimum load (kg)	Optimum distance (km)
Head load	15 to 25	3 to 8
Shouldering	Up to 30-	3 to 6
Animal (Ponies, Horses, Donkeys)	80	6 to 10
Bullock cart	300 to 400	10 to 12
Tongas	200 to 300	12
Bicycles	40 or more	15
Cycle rikshaw	100 to 150	10
Boat (for crossing rivers)	50 to 200	2 to 8
Auto-rikshaws	250 to 500	15
Motor truck	3 tonnes	15
Railway wagon	11 tonnes	100 or more
Road tanker	5 tonnes	100 or more
Rail tanker	5 tonnes	100 or more



Milk procurement and reception at dairy plant

- The usual methods of milk collection and reception at dairy plant are:
- Milk procurement through individual producers: In this milk is brought to the dairy plant by the individual producers in their own vessels any type. This is possible for those producers who are located nearby milk processing dairy.
- Milk collected through co-operative organizations: Here, co-operative societies form an organization which is responsible for uninterrupted supply of milk to the dairy plant. Supply of milk can also be effected by single cooperative society formed by milk producers. This is beneficial to the producers as there is no middle man to share the profit.
- Milk procured through contractors: There is less return to the milk producers, as milk contractor will keep his share in the profit.
- Milk reception from milk collection cum chilling centers: This method is generally possible and is prevalent in organized sectors, and dairy corporations in India.



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Thank you