
UNIT 7 MILK PROCUREMENT AND MODES OF PAYMENT

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7.0 OBJECTIVES

After reading this, we shall be able to:

- 2/21 state the milk disposal and procurement systems;
- 2/21 comprehend the economics of milk procurement; and
- 2/21 give the basis of pricing of milk and modes of payment.

7.1 INTRODUCTION

India has attained number one position in the world in milk production. The country produces about 91.0 million tonnes of milk annually and it has been increasing by about 5 per cent annually. Milk production is one of the largest single enterprises in India with an annual output valued at Rs. 90360 crores. One of the significant features of dairying in India is that it is basically a small holders' enterprise. Milk production is still in the hands of small holders who are spatially scattered. Majority of them maintain small herd of one to two milch animals. The productivity of these animals is also relatively low.

Prior to Operation Flood, dairying in the country was largely unorganized and left

in the hands of middlemen, vendors and halwais. There was little emphasis to link milk production in the rural areas with urban demand for milk and milk products. In the subsequent periods, the organized dairy sector in the co-operative, private and state domain has come up in a big way. The organized dairy sector vertically integrates the process of milk procurement, processing and marketing of milk and milk products. It has successfully reduced the role of middlemen in the dairy industry. At present there are 865 dairy factories in this sector in the country that procure milk and convert it into value added products for delivering to the consumers in the form consumers want.

There is huge demand for milk and milk products in India. About 15.51% of total expenditure on food items is spent on milk and milk products in rural areas whereas in urban areas it is still higher at 18.19%. To fulfill this huge demand of people for milk and milk products, organization of milk procurement is a first step in this direction. It is indeed a tremendous task to organize milk procurement from millions of tiny milk producers scattered all over the country side and transport it to the dairy factories for the manufacture of different dairy products. What type of the organizational structure is best suited to accomplish this task? What should be the price of milk to be paid to the producers and the selling price of milk and milk products by the dairy plants are some of the other relevant questions that need serious considerations?

7.2 MILK DISPOSAL PATTERN

Procurement covers collection of milk from rural producers or contractors, including setting up of chilling centres, provision of laboratory equipments and supplies, milking machines, cattle welfare including feed and fodder and transportation. What are the factors that affect milk procurement and or its constituents? It can be answered properly if we have some information about milk disposal pattern adopted by the milk producers in the area as they are the suppliers of milk from whom the milk is to be collected. In other words, it is concerned about knowing how much milk do the milk producers retain at home and how much do they sell after meeting their own requirements? To whom do they sell their milk and at what price? It is estimated that out of the total milk production, 40 per cent of the milk is retained at home either for self consumption and or conversion into few dairy products at household level in the rural areas. The rest 60 per cent of total production is marketed. Out of this marketed surplus, the share of traditional sector is about 78 per cent whereas the share of organized sector is 22 per cent. The quantity of milk which is surplus after meeting household requirements depends upon host of factors such as milk production per household per day, size and composition of the family, preferences of family members for milk and milk products, education level, economic conditions etc. Marketed surplus as a percentage of milk production may be as low as zero per cent i.e. no sale of milk at all and can go up to 100 per cent depending upon the above mentioned factors. Selling of milk provides cash to the farmers for meeting other needs. The milk producer may, in certain cases resort to distress sales, though he may not have any marketable surplus of milk. We have observed that many factors affect marketable surplus, thus all these factors directly or indirectly influence milk procurement.

7.3 MILK MARKETING SYSTEMS

How the link between the producer of milk and consumer is established? Or what are the channels of milk disposal available to the milk producers? Figure 7.1 given below illustrates that milk generally reaches the consumers through the following channels.

S.No	Milk Marketing Channels
1	Producer —————D Consumer
2	Producer ———D Vendor —————D Consumer
3	Producer ———D Halwahi —————D Consumer
4	Producer ———D Vendor —————D Processor ———D Consumer
5	Producer ———D Middlemen/Milk Producers Cooperative Society —D Milk Plant ———D Consumer

Figure 7.1: Milk Marketing Channels

The above Figure reflects the prevailing milk marketing systems in the country. The first four channels pertain to the unorganized sector while the fifth one is generally adopted by the dairy plants in the private/co-operative sector. To dispose off the surplus milk, the producer has choice of selecting the agency to whom he can sell his milk. The milk producer has the option of selling milk to the consumer directly either in the village itself or in the town/urban area as depicted in Channel-1. The milk producer can also sell milk to the vendor (Channel-2) who in turn sells it to the consumer. The Channel-3 connects milk producer to the Halwahi (sweet maker) and ultimately the consumer whereas in Channel-4 the first contact point is milk vendor in addition to the other marketing functionaries in milk trade as is evident in Channel-4. Milk producer can also deliver milk at the collection center of Milk Producers Co-operative Society in the village itself (if there is any such center) or in some nearby village where there is a milk collection center. Milk producer is at liberty to patronize one or more than one milk marketing agency depending upon his individual preferences, terms of payment settled and commitments between the seller and the purchaser. It is generally found that milk vendor collects the major share in the milk business in comparison to other agencies involved in the milk trade.

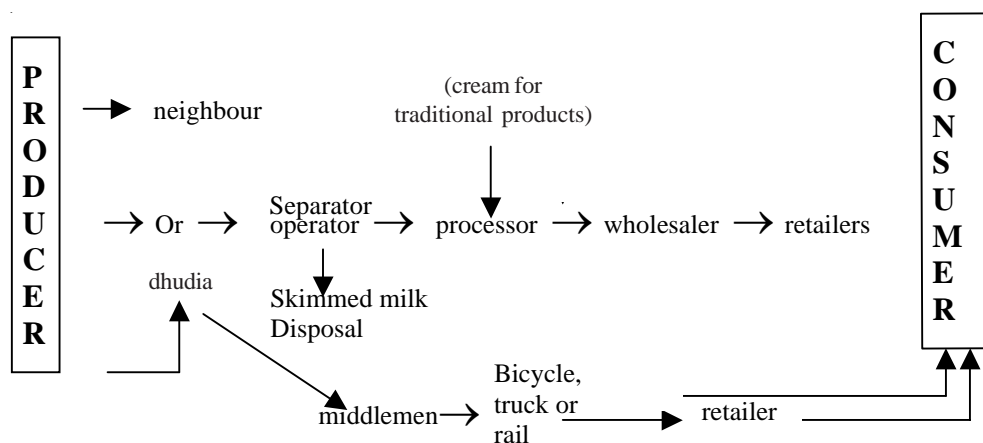


Fig. 7.2: Traditional Channel of Milk Transport

The flow chart in the figure 7.2 depicts the typical traditional channels of milk transportations from the producer to the consumer through the retailers.

7.4 MILK PROCUREMENT

We know that dairy industry is dependent on a perishable raw material i.e. milk which is subject to wide seasonal fluctuations. How and from where do the dairy plants collect milk to meet their daily requirement? Or what are the factors that influence milk procurement? The organized dairies collect their milk supplies from milk shed area.

A milk-shed area is the geographical region from which a marketing agency secures its fluid supply. The size of the milk shed area is primarily determined by the demand of the dairy plant. The larger the dairy plant the larger the milk shed and more costly the supply. If a dairy plant is large enough the milk shed may overlap of other cities. The number of milk collection centre, the number of milk producers pouring milk at the collection centre, distance of milk collection centres, price paid by different milk procurement agencies, regularity of payment are the other considerations that determine milk procurement.

The systems of milk procurement, which have grown in the organized sector of dairying, can be depicted as following (Fig. 7.3).

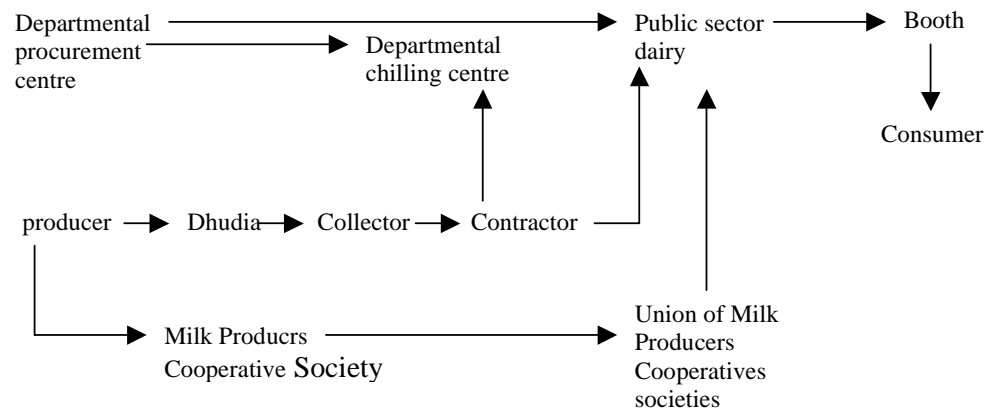


Fig. 7.3 : Milk Procurement by Organized Sector

How milk is procured by the dairy plant? As can be seen from the flow chart, the organized dairies collect milk through one or combination of the following systems:

i. Direct System

In this system the plant collects milk directly from the producers by establishing its own village procurement centres. The milk producers deliver their milk supplies at the collection centres. The payment for milk to the milk producers is made according to pre-specified rate based on quantity and quality of milk supplied.

ii. Agent System

The dairy plant appoints agents to procure milk in the specified area. Payment for the milk is made directly to the producers while the agent gets the commission on pro-rata basis.

iii. Contractor System

The plant purchases milk from the contractor according to terms of the contract. The details in respect of quality, quantity of milk in the flush and learn season, price and the payment etc. are specified in the contract.

iv. Co-operative System

The plant accepts milk from Milk Producers Co-operative Societies (MPCS) established and functioning at the village level. The milk producers in the villages give surplus milk to MPCS. The payment for milk is made according to quality and quantity of milk. The rates for fat and SNF are made known to the milk producers.

The co-operative sector has made tremendous progress in the organization of dairy co-operatives at the grass-root level in the villages and milk procurement in sizeable quantities. The extent of their reach can be judged from the number of dairy co-

operatives, their membership, quantity of milk procured and sold in different states under the co-operative sector during the year 2003-04 as given in Table 7.1.

Table 7.1: Milk Procurement in Different States under Co-operative Sector as on 31-03-2004

S.No.	Name of the Sates	DCS Organized	Farmer Members	Rural Milk Procurement (000Kg/Day)	Liquid Milk Sale (000L/Day)	Processing Capacity (000L/Day)
1	Andhra Pradesh	5590	785	953	898	2150
2	Assam	65	2	3	8	60
3	Bihar	4621	239	402	447	666
4	Delhi	-	-	-	1937	1350
5	Goa	169	19	43	89	75
6	Gujarat	12112	2580	5052	2107	6720
7	Haryana	4257	230	326	152	530
8	Himachal Pradesh	235	17	25	16	40
9	Karnataka	9311	1741	2243	1517	2530
10	Kerala	3218	706	614	740	905
11	Madhya Pradesh	5089	250	313	323	1000
12	Maharashtra	18349	1583	2683	2648	4650
13	Nagaland	76	3	2	4	10
14	Orissa	1654	122	127	132	185
15	Pondichery	93	30	55	52	50
16	Punjab	7283	404	745	496	1545
17	Rajasthan	9643	534	1035	855	1295
18	Sikkim	189	7	9	7	15
19	Tamil Nadu	7578	1988	1664	1206	2601
20	Tripura	84	4	2	9	10
21	Uttar Pradesh	17826	778	797	436	1670
22	West Bengal	2287	172	327	823	1600
	Total	109729	12194	17420	14902	29657

It is made clear at the outset that the dairy plants in the co-operative and public sector domain have adopted dairy co-operatives structure as a system not only for milk procurement but also for dairy development as well.

It may be emphasized that no city dairy can function properly unless it is linked up with a proper milk procurement organization preferably located at a distance from the urban consumption centers. Dependable sources of milk supply would be distant milk production centers rather than close peri-urban areas.

In the past, city dairies were established without much thought on the milk procurement arrangement. When the city dairies were commissioned there was immediate need for milk. Milk contractors and middlemen were ready to supply milk. The milk contractor supplied milk to the dairy when they found it more profitable to do so. This happens in milk surplus season when milk prices in the rural areas and consumer prices in the cities are low. During lean season the contractors take advantage of the high market price in the cities and divert the milk directly for sale through traditional milk vendors. Many dairies had to remain at the mercy of milk traders and contractors facing the problem of more milk than what they can

sell during flush season and less than what they need during lean season. The system of milk procurement through contractors and middlemen neither helps the producers nor the consumers.

The milk producer's interests shall be served best when he gets remunerative price for milk, the payment is regular and timely, incentives for higher milk production like availability of veterinary services free or at a nominal costs, readymade feed mixture at subsidized rates, supply of improved seeds and other technical services are provided to him.

On the dairy development aspects, National Commission on Agriculture had observed the weaknesses of agent system and the contractor system. It recommended establishing the milk co-operatives all over India on Anand Pattern as these societies serve the best interests of milk producers. These societies appoint their own employees, equip the centre with testing, measuring or weighing facilities and operate the collection centers. The chances of malpractices by the paid employees are reduced as they work under the constant watch of the milk producers. Moreover the price of milk is based on the two-axis pricing policy, calculated by fixing a pre-determined rate for fat and solids-not-fat. Milk producers are generally better off in this type of system of payment.

The most common system of procurement of milk now being followed by most of the government dairies is through establishment of milk collection centers and the collection-cum-chilling centers. The simplest form of milk chilling station is where milk can be chilled by ice. A chilling plant handling about 10,000 litres of milk per day is reported to increase cost roughly by 30 paise per litre to the cost of milk. A chilling plant handling smaller quantity of milk increases the cost further. In order to reduce the cost per litre, the chilling plant should be of a size giving the optimum economic returns. Generally speaking the minimum size of a chilling plant should have a handling capacity of 10,000 liters/day. The selection of the size of the chilling plant quite often poses a difficult problem for the dairy organization. Though the operational cost per litre of milk is lower with bigger sized plant but while taking a decision on the size of the chilling plant, the extent of availability of milk is also a determining factor. A decision of the capacity of the chilling station should, therefore, be taken in all cases after carefully weighing various factors and keeping in view the primary consideration of economy.

With good and reliable transport agencies, it should be possible to transport milk in fresh condition from village collection centers to a dairy plant located 50 to 60 km away. Chilling centers may, however, become unavoidable under certain situations e.g. where milk is to be procured from far away places and where transport facilities are not satisfactory. Actually it is the time lag between milking and its receipt at the dairy plant and the associated risk of spoilage of milk that would determine the requirement or other wise of a chilling centre. While it is necessary to maintain the quality of milk, it is equally necessary that procurement cost is kept as low as possible.

The dairy industry is also faced with the problem of uneven supply of milk during different months of the year whereas the demand of milk and milk products does not depict wide fluctuations. How to meet such situations to balance supply with the demand so that the wide gap between them is narrowed down? Sometimes large dairies requirement cannot be met from one source and that too from a nearby source of milk production. A large dairy has to be linked up with more than one milk shed. It is with these objectives that helped in establishment of rural feeder/balancing dairies to meet the milk requirement of new dairies set up in the metropolitan cities. Each feeder/balancing dairy was to be owned and operated by the milk producers themselves. The role and objectives of feeder/balancing dairies are elaborated below.

v. Feeder/Balancing Plants

To ensure a year-round steady and uniform supply of milk for city milk projects there is need to establish feeder/balancing plants. The feeder function of the plant is confined to the dispatch of chilled/pasteurized milk in bulk to the city distribution system whereas the balancing function of the plant is to balance the year round supply of the required quantity of milk to the cities and conserve the remaining quantity of milk procured in the form of milk products. It is generally observed that procurement of milk during the lean season declines to nearly one-third of that of the flush season whereas the year-round demand for milk in the city remains almost constant. One of the measures to meet this demand is to conserve surplus milk during the flush season in such a way that it can be utilized during the lean season. The surplus milk may either be converted into products ready for direct marketing or for reconstituting into fluid milk during the lean season.

The farmers should be provided with a guaranteed market throughout the year. It is, therefore, necessary to build up processing facilities that are large enough to process the entire marketable surplus milk during the flush seasons. This can be achieved with establishment of what has come to be known as Feeder/Balancing Plants as an integral part of a large city milk supply project.

vi. State Milk Grid and National Milk Grid

With the establishment of a number of fully functional feeder/balancing plants of adequate size in suitable locations within a state, it would be desirable to establish a State Milk Grid that would ensure steady milk supply all through the year in different parts of the state. Similar developments in the adjoining states may enable the creation of a regional milk grid and with progressive development it should be possible to establish a national milk grid for the whole country. Creation of the milk grid would require besides establishment of functional feeder/balancing plants, the building up buffer stocks of products like skim milk powder, white butter, butter oil and frozen cream.

Milk, after collection at the village collection centre needs to be transported as early as possible to the dairy plant or milk chilling centre for processing/cooling. Fast moving vehicles can be used to transport milk by road. The dairy organization has to decide whether to own its own fleet or hire it on contract basis. Further it requires schedules of the timings to be maintained at the collection centres to clearly demarcate the responsibilities to the village society, truck operators and the dairy plants. Road milk tankers are more economical and satisfactory for collection milk from chilling centres provided adequate quantity of milk is available for a single trip. The biggest size road milk tanker can carry about five times milk quantity in comparison to a truck which can carry about 75 cans of 40 litre capacity each.

7.5 ECONOMICS OF MILK PROCUREMENT

Milk and its procurement is the base on which the structure of dairy Industry is built. The efficiency with which milk procurement activities are undertaken affects the costs and returns of the dairy plants. The efficiency of procurement operations namely milk collection, chilling and transportation of milk has deep impact on the cost of milk procurement. The total cost of procurement of milk in addition to payment for milk, include milk collection cost, transportation cost, chilling cost and other procurement overheads. Generally it is found that milk collection cost per litre bears a negative relationship with the quantity of milk collected. As the quantity of milk increases the per litre cost of milk collection is decreased. It may be pointed out that there are seasonal fluctuations in the milk production which give rise to lean and flush seasons. It also affects the cost of milk collection. The density of

milk produced in the vicinity, quantity of milk supplied per household, proximity of the milk shed area to the plant, organizational set up, location of collection centres, milk losses at the collection centres are the other factors which influence milk procurement cost.

i. Milk Transportation Cost

Milk may be hauled from collection centres to the plant directly or to the chilling centre first and then transported to the plant after it is chilled at the chilling centre to avoid its spoilage. Depending upon the mode of milk transport used by the plant and or the transporter, the cost of milk transportation may vary depending upon quantity of milk transported. Due to economies that accrue when larger quantity of milk is transported, milk transportation cost per litre generally shows a decreasing trend. In addition to quantity of milk to be handled, system of transportation whether bulk or in cans, type of trucks used, distance of milk collection area from the plant, routes followed, road conditions, weather conditions are other determinants of transportation cost. The average transportation may come about around 50 paise per litre of milk transported. This cost may increase further if milk is taken to the chilling plant first and then transported subsequently after chilling at the chilling centre. Under the contractual arrangement made for haulage of milk from co-operative societies/collection centres to the chilling centres and or the reception dock of the dairy plant, then transportation cost per litre of milk generally behaves more or less like as depicted in Fig. 7.4.

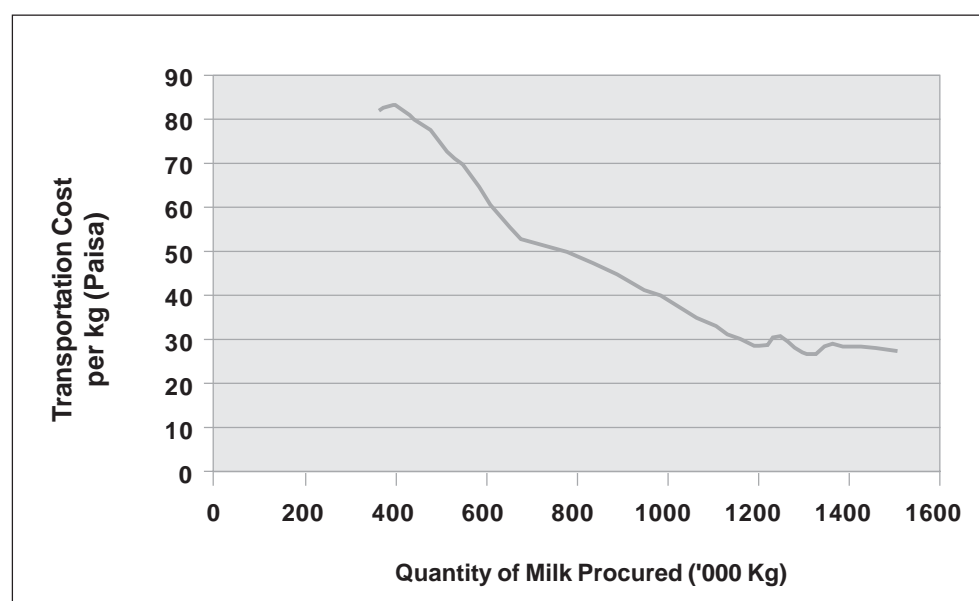


Figure 7.4: Cost of Transportation per Kg. of Milk

The above diagram is illustrative only indicating the underlying phenomenon. The actual cost may vary from plant to plant depending on the factors discussed above.

ii. Milk Chilling Cost

The mode of chilling, type of chillers used, efficiency of chilling machine, quantity of milk chilled, ambient temperatures are some of the significant factors which affect milk chilling cost. Chilling cost per litre during summers is relatively high partially due to high ambient temperature and also on account of relatively low volume of milk handled. As milk quantity increases the fixed cost is shared by larger volume resulting in lowering of overall average chilling cost/litre.

In addition to above activities of milk collection, transportation and chilling milk is to be received at the dock of the plant. Expenditure on the use of fixed assets which include depreciation and interest on fixed assets, salaries and wages of staff

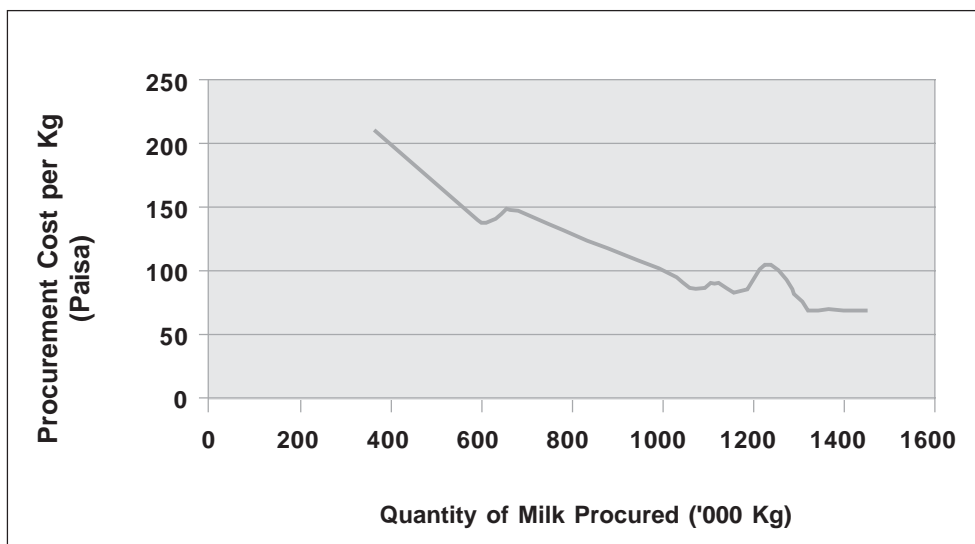


Fig. 7.5: Cost of Milk Procurement at Various Levels

involved in the milk reception, electricity cost, consumables, repairs & maintenance of machinery and other miscellaneous expenses add to total milk procurement cost to determine the cost of milk at the dock of the dairy plant. The cost of milk procurement excluding the payment made to the milk producers at various levels is illustrated in Fig. 7.5.

Check Your Progress 1

1. What are different methods of milk procurement? Discuss their relative merits and demerits.

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2. What is the necessity of feeder/balancing dairies and State/National Milk Grid? What role do they perform?

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3. Discuss the factors that affect milk procurement cost.

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7.6 PRICING OF MILK AND MODES OF PAYMENT

Milk thus procured is to be utilized in most efficient way in the production of different dairy products according to the consumer demand. The dairy plants have to look after the interests of milk producers as well as the consumers. It demands a rational pricing policy to meet the objectives of serving both these entities and at the same time to see that the plant's own economic viability and growth prospects are not lost sight of.

Price is one of the most effective means of achieving organizational objectives. Pricing can effectively serve as an instrument of supply and demand management. It has a significant role to develop and influence the structure of any segment of the economy including dairying. Most marketed milk is a joint product of mixed farming. For successful purchase pricing it is necessary that the purchase price should be such that it attracts the inputs required for milk production such as labour and cultivable land for growing fodders. The sufficient conditions for success include the competitiveness of the purchase price i.e. its absolute value v/s other prices offered, timing and reliability of payment.

The selling price for milk and milk products must be competitive with others selling prices, consistent with the objective of social justice, relative consumer preferences and techno-economics of dairying.

Determination of a pricing structure for milk has not only to be based on the demand-supply equilibrium but also on the compositional quality of milk. The market forces will determine the base price for milk. The dairy plants should decide what price is to be paid to the farmers on the basis of quality of milk. Most dairy plants have some kind of a purchase pricing policy, which has some kind of relationship to what the plants get from the sale of their milk and milk products. In the interest of the organized sector, the milk pricing system has to be such that it becomes instrumental in increasing milk production by ensuring lucrative returns to the milk producers.

A rational pricing structure should ensure that :

- 2/21 Milk production is encouraged.
- 2/21 The farmers get a fair return.
- 2/21 Producers should get the incentives to supply better quality and larger quantity of milk.
- 2/21 It should ensure the maintenance of an even supply of milk throughout the year.
- 2/21 Consumers should get wholesome milk at reasonable rates.
- 2/21 An attractive margin of profit to processors of milk and milk products.

A faulty pricing policy can lead to a combination of the following undesirable effects:

- 2/21 Encourage adulteration with water or with fat and solids not fat from non-milk sources.
- 2/21 Discourage production of one kind of milk while encouraging the production of other kind.
- 2/21 Encourage mixing of cow milk with buffalo milk or vice versa.
- 2/21 Encourage malpractices in payment for milk.

The pricing systems that are operative in the country for milk procurement are of the following type:

i. Pricing on Fat Content

Under this system milk is paid on the basis of its fat content alone.

- 2/21 This system discourages adulteration with water or mixing cow and buffalo milk with a view to gain an economic advantage.
- 2/21 This system involves relatively simple accounting.
- 2/21 This system encourages partial skimming and adulteration with cheaper fats.
- 2/21 Production of cow milk is discouraged, as milk is valued only on fat basis, completely disregarding the SNF contents. According to this system, cow milk containing 3.5% fat will be paid at half the rate for buffalo milk containing 7%

fat, even though the solids-not-fat (SNF) content of both the milk is nearly the same.

ii. Pricing on the Species Source

Milk pricing is made on the consideration of the species from which milk is drawn i.e. cow or buffalo. Usually a minimum fat standard for the different types of milk is adopted for acceptance or rejection of the product. Milk that meets the minimum fat standards is usually paid a flat price without regard to its compositional quality.

Such system provides no incentives for production of richer milk. The producers, therefore, under this system, would not get any extra payment for extra fat in their milk during lean season. Generally in the lean season milk production goes down while fat percentage goes up.

iii. Pricing on the basis of a Minimum Fat Percentage plus Premium for Fat

Under this system a minimum fat standard is laid and a base price is fixed for the minimum fat standard. Fat over and above the minimum standard is paid premium on pro-rata basis. It discourages the production of cow milk.

iv. Pricing on Total Milk Solids

This system is mostly adopted by traditional milk traders. Milk is paid on the basis of yield of *Mawa or Khoa*.

^{2/27} Fat & SNF are priced at the same level which in fact is not rational.

^{2/27} This system discourages the production of high fat milk.

^{2/27} It encourages partial skimming & adulteration of milk with cheaper non-milk-solids.

v. Two Axis Pricing of Milk

National Commission on Agriculture recommended that dairy industry should adopt two axis pricing policy for milk procurement as it is rationally based on evaluation of both fat and solids-not-fat contents of milk. According to the two-axis pricing policy, the price of milk is calculated by fixing a pre-determined rate for fat and solids-not-fat. In this system fat and SNF are, generally, given equal value and per kg. price for fat and SNF are fixed in that ratio at which these occur naturally i.e. round 2/3 of fat price per kg. for each kilogram of SNF. In actual practice incentive for higher than the minimum SNF and penalty for supplying lower grade of milk by way of deducting the amount at a higher rate otherwise payable for good quality milk is well specified.

This type of raw milk pricing automatically discourages adulteration. This system does not discriminate against the cow or the buffalo milk. To minimize the effect of seasonality on milk procurement seasonal price premium can be paid up to 30% of flush season rate during lean months as it will increase average plant utilization and reduce the cost of processing.

vi. Pricing of Milk Products for Sale

The sale price of milk and its products should be fixed in a manner that would enable the organized dairy industry to pay remunerative price to the milk producers and meet the cost of collection, processing and distribution of milk and milk products. The sale prices should also cover the cost of services rendered in connection with channellizing the inputs for milk production, keep a fair margin of profit and yet make the price of the commodities competitive.

In case of milk schemes sponsored by the Government, the consumer's price is

administered so as to keep it as low as possible. It becomes difficult to pay remunerative price to the producer and thereby induce more production and procurement. Commercial consideration of profit and loss should be the guiding policy to help and develop the dairy industry so that it becomes viable and commercially profitable. However, Govt. may have differential pricing of dual-price policy for milk distributed through milk supply schemes to render assistance to weaker sections of the community.

The only method for maintenance of the competitiveness of consumer price without reducing the remunerative price for producers is to keep marketing cost as low as possible. This can be done by attaining greater efficiency in procurement, processing and distribution of milk and milk products.

The Committee on Pricing of Milk set up by the Government of India detailed the criteria for a rational pricing policy. It recommended that a Milk Pricing Committee should be appointed at (a) each dairy plant, (b) in each state and (c) an inter-state authority should be set up to coordinate the activities of the dairy plants that collect milk from more than one state to fix the producer and consumer prices of milk from time to time. The Milk Pricing Committee of the state and dairy plants should be sensitive to the variations in the prices of various inputs for milk production and the benefits that the farmer can obtain so that milk production is not discouraged by the pricing structure. The committees should also keep in view the interests of the consumers and should critically examine the overhead charges for collection, processing and administration so that the gap between the producer and the consumer price is kept to the minimum.

Check Your Progress 2

1. What is Two-Axis Milk pricing? How do you consider this pricing system better than any other pricing system for milk payment.
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2. Tick the correct answer for the following statements.
 - (i) Milk producers sell milk to the Milk Producer Co-operative Society only
 - (ii) The share of milk vendors in milk collection is lowest among all the milk collection agencies.
 - (iii) Marketed surplus as a percentage of milk production may range from 0 to 100 per cent for an individual milk producer.
 - (iv) Milk Producer Co-operatives Societies (MPCS) procure milk from the members of MPCS only.
 - (v) Dairy Co-operatives Societies on Anand Pattern serve best the interests of milk producers.
 - (vi) While deciding the size of the chilling plant, major consideration should be given to economy of operations.
 - (vii) In India there is even supply of milk throughout the year.
 - (viii) The major objective of Feeder/Balancing plants is to compete successfully with the larger city dairies.

- (ix) Milk transportation cost per litre increases with the increase in milk quantity transported.
- (x) Two-Axis pricing policy is better than the other systems of milk payment.

7.7 LET US SUM UP

Milk is a critical input for any dairy plant and needs to be collected for the supply of fluid milk and milk products. The efficiency with which milk procurement activities are undertaken affect the costs and returns of the dairy plants. In the unorganized sector milk vendors command major share in milk collection. The organized dairies collect their milk supplies by one or combination of the methods comprising of direct system, contractor system, agent system and the co-operative system. The dairy plants under the co-operative and the public sector rely mainly on the co-operative structure of milk procurement.

To ensure a year-round steady and uniform supply of milk for large city milk projects there is need to establish feeder/balancing plants followed subsequently by establishing State Milk Grid for the state and National Milk Grid for the country.

Milk procurement cost is affected by various factors such as density of milk production, quantity of milk supplied per household, size and proximity of the milk shed area to the plant, organizational set up, location of collection-cum-chilling centres, milk losses at the collection centres, mode of milk transportation, and quantity handled, etc. Among the various methods of payment for the milk, two-axis pricing policy is rational one and has been accepted by the dairy industry by and large. The sale price of milk and its products should be fixed in a manner that would enable the organized dairy industry to pay remunerative price to the milk producers and meet the cost of collection, processing and distribution of milk and milk products and a fair margin of profit.

7.8 KEY WORDS

Milk-shed area	:	A milk-shed area is the geographical region from which a marketing agency secures its fluid supply.
Procurement	:	It comprises collection of milk from rural producers or contractors, including setting up of chilling centres, provision of laboratory equipments and supplies, milking machines, cattle welfare including feed and fodder and transportation.
Marketed Surplus	:	It is the quantity of any commodity that is actually sold in the market.
Two-Axis Pricing	:	It is a system of milk pricing which takes into account the compositional quality of milk and makes a rational evaluation of market realizations for fat and SNF.

7.9 SOME USEFUL BOOKS

Report of The National Commission on Agriculture 1976, Part VII Govt. of India,
Ministry of Agriculture and Irrigation, New Delhi
Special Number 'Dairying in India-1980', XVI Dairy Industry Conference, Pune.

7.10 ANSWERS TO CHECK YOUR PROGRESS

Your answers should include following points:

Check Your Progress 1

- 1) i. Discuss all the systems of milk procurements, i.e. direct system, agent system, contractor system and the co-operative system. Elaborate the strengths and weaknesses of each system.
- 2) i. Highlight the prevalent uneven supply of milk in the country during different seasons and state how establishing of feeder/balancing dairies can be instrumental in solving the problem. At the state/national level the role of State/National Milk Grid is to be explained.
- 3) i. We know what constitutes total milk procurement cost. Discuss the factors that affect various constituents of milk procurement cost. In other words, elaborate the factors that affect milk collection cost, milk transportation cost, milk chilling cost and milk reception cost.

Check Your Progress 2

- 1) i. The student is expected to discuss Two-axis pricing policy and highlight its advantages vis-à-vis other systems of milk payment.
- 2) (i) False (ii) False (iii) True (iv) False (v) True (vi) True (vii) False (viii) False (ix) False (x) True.