Practical Exercise 7

Calculation of milk payment based on fat and two axis pricing policy of Dairy Cooperative Society (DCS)

Objective: *Improve skill of the students in calculating price of milk.*

As discussed in the Chapter 5, there are three approaches to fix price of milk and these are:

1. **Pricing on pro-rata fat basis:** Price of milk is fixed in proportion to the fat content of milk considering the minimum SNF content. This method is good for buffalo milk.
2. **Pricing on two axis basis:** Price of milk is fixed in proportion to two main constituents of milk i.e. fat & SNF.
3. **Pricing on equivalent fat unit basis:** The SNF units are converted into equivalent fat units in proportion to the relative market prices of fat and SNF.

Pricing of milk on fat basis

There are two important information to be known in calculating price of milk on fat basis. One is price of fat fixed by the Cooperative Society and another, fat percentage

of milk. Suppose, the price of fat fixed by the Society is Rs 370 per kilogram and the milk brought by farmer contains 6 per cent fat.

Price of milk (Rs/litre) = {(fat percentage/100)*quantity of milk}x price of fat

= {(6/100)*1}x370

= 0.06 x 370 = Rs 22.2 per litre

The above calculations have been done without considering the weight-volume difference. Based on specific density of heavy cream, one litre of fat is equal to 0.978 to 0.994 kilograms depending upon temperature. The exact calculation of pricing should consider this factor.

Accordingly,

the price of milk (Rs/litre) = {(fat percentage/100)*quantity of milk} x 0.978x price of fat

= {(6/100)*1}x 0.978 x370

= Rs 21.71 per litre

Pricing of milk on two axis basis

The co-operatives, fixed the milk price on the basis of two axis pricing policy (i.e.) considering the both fat and SNF (solid not fat). In this method, the prices of fat and SNF are calculated separately. There is no uniform pattern followed throughout the country to give weightage to SNF fat value. The price of fat & SNF are fixed by the Milk Unions depending on the price of ghee (butterfat) and skim milk powder (SMP). Based on the relationship between the prices of these two products and quantity of milk required to prepare a given quantity of SMP, in practice, price of SNF is taken 2/3 rd of the price of fat i.e. if price of fat is Rs 370 per kilogram, the price of SNF is considered 247 (2/3*370). The union had fixed standards in the pricing of milk.

Let us suppose that the fat percentage in the given sample of milk is 4.00 and SNF percentage is 8.00. The price of milk will be computed as:

Price of milk = {(percentage of fat/100)*quantity of milk}x price of fat + {(percentage of SNF/100)*quantity of milk}x price of SNF.

= {(4/100)*1}x 370 + {(8/100)*1}x 247

= Rs 34.56 per litre

Had the SNF constituent not considered, one litre of milk with 4 per cent fat could have fetch price only equal to Rs 14.80 per litre.

The estimation of fat contents in milk is easy and therefore, it is done at the Cooperative Society level or village level. The determination of SNF in milk is difficult and time consuming. Hence, SNF contents are either consider at specified minimum level or estimated at Union level/District level.

Activity

1. Write a note on methods of estimating fat and SNF contents in milk.

STUDY QUESTIONS

1 Calculate the price of milk using two axis method if the fat and SNF contents of milk are 5 and 9 per cent, respectively. Consider the price of fat equal to Rs 400 per kilogram.

2 Taking the figures give in Q.1, estimate the difference in price of milk using pro-rate fat basis and two axis basis.