

# Calculation of Consumption Norms for Dairy Raw Materials

## Aim of the work

- To learn how to calculate consumption norms of dairy raw materials.
- To understand the relationship between raw materials and finished dairy products.
- To determine raw material requirements based on production output.

## Theoretical background (brief)

Consumption norms show how much **raw milk or dairy raw materials** are required to produce a certain amount of finished product. These norms depend on:

- Fat and protein content of raw milk
- Type of dairy product (milk, butter, cheese, yogurt, etc.)
- Processing losses
- Technological yield

Correct calculation of consumption norms is essential for production planning and cost control in the dairy industry.

## General formula

$$\text{Consumption norm: } N = \frac{M_{raw}}{M_{product}}$$

where:

- $M_{raw}$  – amount of raw dairy material used (kg)
- $M_{product}$  – amount of finished product obtained (kg)
- $N$  – consumption norm (kg of raw material per kg of product)

## Practical example 1: Pasteurized milk

### Given data:

- Finished product: **Pasteurized milk**
- Raw milk used: **1020 kg**
- Finished milk obtained: **1000 kg**

### Calculation:

$$N = \frac{1020}{1000} = 1,02$$

### Result:

To produce **1 kg of pasteurized milk**, **1.02 kg of raw milk** is required.

## Practical example 2: Butter production

### Given data:

- Raw milk processed: **5000 kg**
- Butter obtained: **200 kg**

### Calculation:

$$N = \frac{5000}{200} = 25$$

### Result:

The consumption norm for butter production is **25 kg of raw milk per 1 kg of butter**.

## Practical example 3: Cheese production

### Given data:

- Raw milk used: **8000 kg**
- Cheese obtained: **1000 kg**
- Processing losses: **5 %**

### Step 1: Adjust raw milk for losses

$$M_{effective} = 8000 \times (1 - 0,05) = 7600 \text{ kg}$$

### Step 2: Consumption norm

$$N = \frac{7600}{1000} = 7,6$$

### Result:

To produce **1 kg of cheese**, **7.6 kg of raw milk** is required.

## Independent practical tasks

1. **Yogurt production**  
Raw milk used: 2100 kg  
Finished yogurt obtained: 2000 kg  
Calculate the consumption norm.
2. **Cream production**  
Raw milk used: 3000 kg  
Cream obtained: 600 kg  
Calculate the consumption norm.
3. **Cheese production**  
Raw milk used: 10,000 kg

Losses: 4 %

Cheese obtained: 1,200 kg

Calculate the effective raw milk and consumption norm.

## **Conclusion**

Calculation of consumption norms helps optimize dairy production, reduce losses, and ensure efficient use of raw materials.