

# An Overview on Importance of Milk Preservation Methods in Dairy Farming

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## Opinion Article

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## ABOUT THE STUDY

Milk is a highly perishable food that needs to be properly stored to maintain its quality and safety. The preservation of milk is essential to prevent spoilage and extend its shelf life. This article will discuss different methods of milk preservation. Cool temperature has been the primary method for extending milk freshness. When windmills and well pumps were first invented, one of their first uses on the farm, aside from providing water for animals, was to cool milk in order to extend its storage life until it was transported to the town market. The naturally cold underground water would be pumped indefinitely into a cooling tub or vat. Tall, ten-gallon metal containers were filled with freshly obtained, naturally warm milk and immersed in this cooling bath.

## Milk preservation methods

**Refrigeration:** One of the most common ways of preserving milk is refrigeration. Milk should be stored at a temperature of 4°C or below to prevent the growth of bacteria. Refrigerated milk can last for up to five days. It is

recommended to store milk in its original container, and to avoid transferring it to other containers as it may cause contamination.

**Freezing:** Freezing is another preservation method for milk. Milk can be frozen for up to three months. However, it is important to note that freezing can affect the texture and taste of milk. When thawed, the milk may separate, and the fat may rise to the top. It is recommended to shake the milk bottle well before consuming it.

**Pasteurization:** Pasteurization is a heat treatment process that destroys bacteria and other microorganisms in milk. There are two types of pasteurization involves High-Temperature Short-Time (HTST) and Ultra-High Temperature (UHT). HTST pasteurization involves heating milk to 72°C for 15 seconds, while UHT pasteurization involves heating milk to 135°C for 2-5 seconds. Pasteurized milk can last for up to two weeks if kept refrigerated.

**Ultra-high temperature treatment:** UHT treatment is a method of milk preservation that involves heating the milk to a high temperature of 135°C for a few seconds. This process kills all bacteria and spores in the milk, making it safe for consumption. UHT-treated milk can be stored at room temperature for up to six months without refrigeration.

**Evaporation:** Evaporation is a process in which water is removed from the milk, leaving behind a concentrated milk product. This method is used to produce condensed milk and evaporated milk. Condensed milk is made by evaporating about 60% of the water from milk, while evaporated milk is made by evaporating about 60% of the water from skim milk. Both condensed milk and evaporated milk can be stored for several months if unopened.

**Drying:** Drying is a process in which milk is sprayed into a hot chamber, where the water evaporates, leaving behind a dry milk powder. This method is used to produce milk powder, which is used as an ingredient in various food products. Milk powder has a longer shelf life than liquid milk and can be stored for up to two years if kept in an airtight container.

**Fermentation:** Fermentation is a process in which microorganisms, such as bacteria or yeast, convert lactose in the milk to lactic acid, which lowers the pH of the milk and inhibits the growth of harmful bacteria. Fermented milk products, such as yogurt, kefir, and sour cream, have a longer shelf life than fresh milk and can be stored for up to two weeks. Hence, milk preservation is essential to prevent spoilage and ensure the safety of the product. Different preservation methods, such as refrigeration, freezing, pasteurization, UHT treatment, evaporation, drying, and fermentation, can be used to extend the shelf life of milk. The choice of preservation method depends on the required shelf life, the intended use of the milk and the available resources