

The pros and cons of feeding pasteurized milk to calves

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Pasteurized whole milk is one of many strategies used to supply the liquid diet of growing calves. This whole milk can be sourced from several different areas of any given dairy operation, including saleable bulk tank milk, transition milk, mastitic milk and other non-saleable antibiotic-containing milk. While feeding saleable bulk tank milk to calves usually results in an economic loss to the producer, pasteurizing and feeding non-saleable milk — essentially waste milk — can be an effective, cost-efficient method for utilizing an otherwise unusable product, provided it can be managed properly.

How pasteurization works

A primary concern when feeding waste milk to calves is the bacterial load that may be present in the milk. Pasteurizing waste milk has been recommended in order to reduce bacterial contamination and limit the spread of diseases that can be transmitted through milk. Pasteurization is a method of exposing this waste milk to specific temperatures for specific amounts of time in order to reduce the pathogen load. **Table 1.0** lists the temperature and time guidelines set forth for adequate pasteurization.

It is important to note that pasteurization is not a sterilization technique. Recent research has demonstrated that any remaining bacteria in pasteurized milk has the ability to proliferate to dangerous levels if holding temperature and/or feeding time is mismanaged. Additionally, pasteurizing highly contaminated milk may allow certain varieties of viable pathogenic bacteria to survive the pasteurization process.

Types of pasteurizers

Batch pasteurization uses a vat or tank with a heating element that heats the milk. Agitators are used with batch pasteurization to eliminate cold spots within the tank. This system typically heats the milk for longer periods of time at lower temperatures, as compared to high-temperature short-time units. Thereafter, milk is cooled and can be fed to calves.

Advantage:

- Low-cost

Disadvantages:

- Large batches may take several hours to pasteurize
- Manual cleaning process

Continuous flow pasteurization circulates milk through a network of heated coils for a rapid increase in temperature. This high-temperature, short-time system can be equipped to rapidly cool the milk to feeding temperature once pasteurization is achieved.

Advantages:

- Rapid pasteurization
- Cleaning process may be automated, using a system similar to that used in milking systems

Disadvantages:

- Expense
- Requires an adequate supply of hot water

Table 1.0 Pasteurization time and temperature guidelines for human milk consumption.

Temperature (°F)	Time
145	30 min.
161	15 sec.
191	1 sec.
194	0.5 sec.
201	0.1 sec.
204	0.05 sec.
212	0.01 sec.

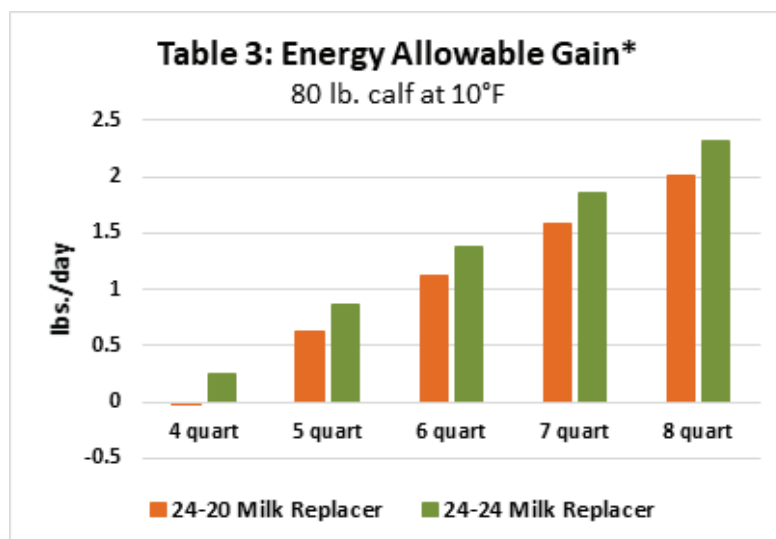


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CALF SUCCESS

3. Feed more volume of milk replacer solution:

Increasing total volume of milk solution fed, as well as increasing the fat percentage of the milk will maximize calf growth potential during cold weather. Providing calves with more solution throughout the day during the cold winter season allows for increased caloric intake, which provides more energy for growth and immune function. Table 3 shows how increasing the total volume of solution offered per day significantly increases the energy allowable gain of an 80-pound calf in 10-degree Fahrenheit temperatures.



What about calf starter?

Offering a high-quality calf starter is vital for calves to perform well and stay healthy no matter the season. Calf starter consumption in the winter not only promotes early rumen development, but also helps calves generate more body heat via increased energy intake and increased metabolic activity.

I thought increasing the fat content and volume of milk replacer would reduce solid feed intake?

Traditional milk replacers use animal fat as the foremost source of energy. Collaborative research conducted by Hubbard Feeds and the University of Minnesota has demonstrated that starter intake decreases as the amount of animal fat in the milk replacer increases, or as milk replacer volume fed increases. In cold weather, using the right blend of fats may improve calf health, starter intake, and performance, versus animal fat only.

There's more to the story than just temperature.

- **Body size/breed:** Small calves and small breeds (e.g., Jersey calves) have higher maintenance requirements than large calves or large breeds. These smaller animals need to be carefully managed and monitored during the cold winter months. Contact your Hubbard Feeds representative to find out more about cold weather feeding for small breed calves.
- **Hair coat:** Calves can adapt to cold weather with a thick hair coat, but they need additional support to maintain core temperature. The hair coat should be dried, fluffed and free of snow, mud, and/or manure as soon as possible after birth. Consider using calf jackets to help insulate young calves once their hair coat is clean and dry.
- **Housing:** Calves should be housed in draft-free pens or stalls with proper ventilation. Bedding in the winter should be deep, allowing for calves to nest. Clean and dry long-stemmed straw bedding is ideal in the winter to help insulate calves.
- **Water:** Delivering warm water to calves during the winter months helps them digest nutrients and promotes solid feed intake. Develop a plan to deliver warm water to calves immediately after milk feedings, while they're still standing.