

Don't Leave Your Calves out in the Cold this Winter, Strategies for Cold Weather Care

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As cold weather season approaches, it brings a set of challenges to growing and keeping calves healthy. Calves can do well in temperatures where they will not use additional energy to maintain body temperature. This is known as the thermoneutral zone (TNZ). A newborn calf's thermoneutral zone is between 50-78°F, while one-month old calves can a temperature range between 32-78°F. When the temperature falls below this range, and if the calves are not consuming enough energy, they can burn up their entire body fat reserve to maintain body temperature (calves are only born with 3-4% body fat, not much to spare!).

A good rule of thumb is that for every degree below the TNZ, the calf's energy requirement for maintenance increases by 1%. **Simple math:** when temperature reaches zero, a calf should receive 50% more energy (calories) just for maintenance. A calf will get little heat from rumen fermentation to help keep warm with limited starter intakes early on in life. With too few of calories consumed, this can lead to illness, poor growth/weight, and in some cases mortality.



Strategies for Cold Weather Calf Care

1. The First 24 Hours

Newborns should be moved to a warm environment such as a warming box, heated room, or hutch to help with drying the calf and avoid chilling. Provide navel dipping and vaccinations as recommended by herd veterinarian. Immediate colostrum delivery is more important than ever in cold conditions; providing passive immunity (**Goal: 200-300 grams of Immunoglobulins within 2 hours**) and a high source of energy and nutrients to start the calf off on the right hoof.

2. Cold Temperatures = More Groceries

As mentioned above as the temperature decreases, the maintenance energy needs of a calf increase. Take a close look at your calf milk replacer. The primary sources of energy in milk replacer are fat and carbohydrates (lactose), both needed by the calf. Lactose provides immediate energy and fat helps to build an energy reserve for the calf.

Delivering more nutrients to supply the energy needs and allow for growth can be accomplished a few ways:

- Increase from two to three meals a day will help with caloric intake when calves need it the most. (i.e. 7am, 12pm, and 7pm feedings)
- Increase the volume of milk fed by an additional ½ to 1 quart per feeding or add the 3rd feeding
- The amount of powder being mixed could be increased by 25-50% while still diluting in the same volume of water. (Not to exceed 18% solids, i.e. feed 12 oz/2 quarts instead of 8 or 10 oz/2 quarts)
- Switch to a milk replacer that has a higher fat content (at least 20%) or add an additional fat supplement (max. 2-4 oz./calf/day to allow for calf starter consumption) to a pre-existing milk replacer. Take into consideration type of fat supplement as some are higher quality or more digestible than others; great fat sources include whole milk fat, lard, and tallow, while using limited amounts of soy, palm, or coconut oil.
- Consider feeding pasteurized milk, it may provide higher energy milk from transition cows. Keep a check on solids content; adding a fat supplement or milk balancer to supplement nutrients if needed. There should be no more than 1% variation in milk solids daily.

Combine feeding strategies only if extreme cold conditions warrant, careful consideration to increased solids percentage and use of fat supplement should be reviewed with nutritionist or herd veterinarian

3. Keep Milk Warm and Consistent

A feeding temperature between 101 to 105°F, may require the mixing temperature to be slightly higher depending on how and when it will be fed to the calf. If fed to cool, calves will burn even more energy to maintain their core body temperature when drinking. If fed to hot, milk could scald the first few calves, making them hesitant for their next feeding. Remember, calves like routine! Same volume, same amount of solids, same time of day, and same temperature!

4. Warm Water is Essential

Offering water in the winter can be challenging, but is essential for the calf's health, digestion, and early intake of starter. Provide fresh, warm water up to 30 minutes after each milk feeding while calves are still up and moving.

5. Calf Starter by Day 3

While calves will consume very little early on, the sooner calves start eating grain, the more benefit they will get from the nutrients consumed and the heat generated in the rumen to keep themselves warm. Starter is an excellent way to provide a fat/energy source to calves during cold weather and should be offered by 3 days of age in small amounts.

6. Break out the Calf Jackets!

We all appreciate an extra layer during the cold months, calves are no different. Every calf should have a jacket on if they are less than 3 weeks old to help maintain their body temperature. Calves will grow while wearing a jacket and will need weekly adjustments, taking care that jackets are clean and Velcro/clasps are working, to stay comfortable.

7. Put yourself in their Environment

Keeping calves warm and dry can be one of the biggest challenges to any type of calf housing system in the winter. A quick way to assess the environment is to spend some time in there yourself. Kneel in the bedding and take note of your knees. Are they wet or dry when you stand back up? What is the air quality like at calf level? Drafts can easily stress calves, and not enough air movement can cause ammonia buildup within the calf pen.

8. Observe the Calf

Deep, dry straw is the preferred bedding choice for calves in the winter as it allows for calves to "nest" and retain body heat. A quick nesting score assessment developed by the University of Wisconsin provides these guidelines:

- Score of 3 – Legs not visible when calf is lying down
- Score of 2 – Legs partially visible when lying down
- Score of 1 – Legs completely exposed when lying down

If calf jackets are used, then score can be increased by one

9. Fresh Air is needed even in Winter

Proper ventilation whether calves are housed in hutches or barns mechanically or naturally ventilated is critical to calf health. Work with an agricultural engineer to determine proper air flow to evenly distribute fresh air throughout the barn to remove gases and moisture from the pens without causing a draft on the calves.

10. Research says....

Cornell University summarized their calf data over a 10-year period and found that 1-pound daily gain difference preweaning resulted in 850 pounds more milk in that calf's first lactation and when reviewed over three lactations, it totaled 2,280 pounds. Digging further, the wide range of daily gain preweaning (0.29 to 2.7 pounds daily gain) was mostly related to colder weather. Those calves that were born during the winter months (avg. temp 32°F) consumed less energy above their maintenance requirements than calves born during warmer months (avg. temp 67°F). When calves born in those winter months consumed additional energy above their maintenance requirements, they produced 517 pounds more milk in their first lactation and additional 2,000 pounds over three lactations. Providing higher energy intakes as calves during colder weather does have long lasting impact.

Raising healthy, vigorous calves should be a goal all year round, however increased attention in the winter months will help minimize calf stress and maximize daily growth. This will provide a greater opportunity of healthy replacements that are ready to come into the milking string on time!

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