

Cold Stress in Calves

Professional Veterinarian Services Technical Bulletin



Cold stress occurs when a calf expends energy to stay warm. This diverts energy away from growth and the immune system, thus compromising weight gain and calf health.

Newborn calves are the most susceptible to cold stress due to their low body fat and minimal grain intake, so an increase in scours and pneumonia cases is very common during the colder months. Taking a few extra steps to ensure calves are well tended to and comfortable will go a long way in helping them reach their full potential.

Immediately following birth

- Allow the cow to lick the calf.
- If the calf is placed in a stock tank, hang a heat lamp overhead as long as the cow can't reach the cord.
- Dip the navel with a tincture of iodine to prevent bacterial migration from the navel to the bloodstream.
- Place a calf jacket on the dry calf to prevent heat loss.
- Long-stem straw is the ideal bedding and should be deep enough to enable a calf to nestle in for warmth. The calf's entire foot and at least part of the leg should be covered with bedding to provide proper insulation.
- Keep bedding clean and dry, as wet bedding robs more heat from the calf.

The importance of colostrum

Colostrum is critical because it provides antibodies for the newborn calf, and it contains a high level of fat and other proteins for energy.

- Feed high-quality maternal colostrum to newborn calves within 2 to 6 hours of birth (1 gallon for larger breeds, 3 quarts for smaller breeds).
- The full amount of colostrum should be fed at one time to maximize antibody absorption for best protection. Dividing colostrum into two feedings decreases the antibody absorption of the second feeding by at least 50%.
- The colostrum must be at least 105°F to prevent clostridial issues and provide instant heat.
- If colostrum isn't available, use a colostrum replacer containing 150-200 grams of IgG.
- Colostrum can be given via a bottle or tube, but if the calf doesn't drink all of it by bottle the remainder must be tubed.



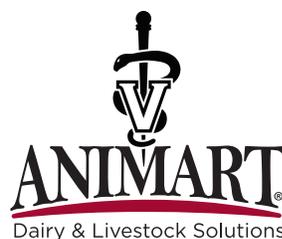
Did you know....

For calves less than 3 weeks of age, cold stress begins at 60°F, and for every 1°F drop in temperature below 50°F, a calf requires 1% more energy just to stay alive. Even more energy is required for growth. Calves over 6 weeks of age don't begin to feel cold stress until temperatures fall below 42°F. Rain, snow and wind will further exacerbate cold stress if there is not adequate protection from the elements.



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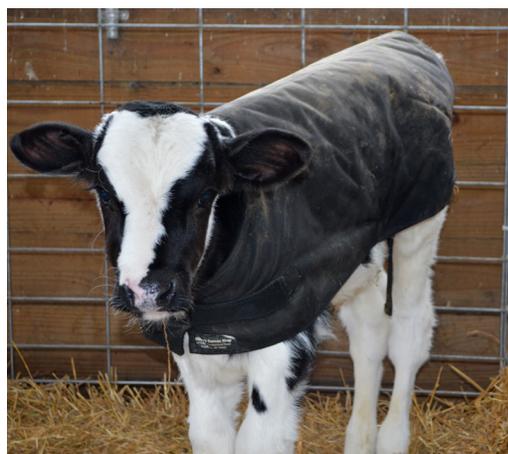
Achieving proper weight gain

An effective way to manage cold stress is to provide more calories. There are several options:

- Introduce a third feeding that provides the same volume as the other two feedings. Calves don't necessarily have to be fed every eight hours, but the timing should be consistent (example: 6 a.m., noon and 6 p.m.).
- Keep the volume of milk the same but add more milk replacer powder or fat. If choosing this option, monitor total milk solids so they do not rise above 15% to prevent abomasal bloat.
- Try offering more milk at each feeding. However, keep in mind some calves can't cope with the larger volume and may bloat or refuse milk.
- Calves often eat more starter when it is cold, but this may be driven by hunger due to an insufficient amount of milk offered. Multiple studies have proven that calves grow the best on milk, so relying on grain for maximum growth is counterproductive. If you choose to provide more starter, keep in mind the calf's water needs will increase, so provide warm water multiple times a day.

Responding to sickness

- Do not take calves off milk if they scour because they will rapidly starve to death.
- Fluid therapy is essential to prevent dehydration.
- Calves with mild diarrhea should be given at least 2 quarts of electrolytes twice a day, in addition to milk.
- Scouring calves that are depressed with a poor appetite and sunken eyes need a total of 14 quarts of fluids per day. This includes milk if they will drink it. A couple bags of Lactated Ringer's solution aren't enough to revive the calf. A more aggressive treatment with IV fluids is often necessary.



Did you know....

A 100-pound calf fed 2.5 quarts of a 20/20 milk replacer mixed per package directions will gain 0.7 pounds of body weight per day when the air temperature is 60°F, but will actually lose weight when fed the same amount at 20°F.

