



Raising Healthy Calves in Cold Weather

Winter Feeding - why be concerned?

At 0°F, a 90 lb. calf eating 1 lb. of powder or solids daily (1 gallon of 12.5% solution) can “burn up” its entire body fat reserve (~3-4% of BW) within 18 hours! Bring on the groceries!

Calves' energy intake is the sum of the starter and milk/milk replacer consumed. So you might ask, “can't the calves just eat more starter to compensate?” Yes, they can, *if they are ruminating*. And if they're eating 1-2 lbs. of grain/day. But most calves less than 2 weeks old are not. Milk or milk replacer is the sole source of energy for pre-ruminating calves, and a significant source for the remainder of energy needed by ruminating calves.



What's cold to a calf?

A newborn calf's thermoneutral temperature is about 50-80°F. By a month old, a calf's lower critical temperature is more like 32°F.

Depending on a number of factors, newborn calves are neither heating nor cooling themselves somewhere between 50 and 80°F. Some of these variables are:

- Wind exposure
- Breed
- Hair coat condition (wet, rain, snow, mud, manure)
- Thickness of hair (adaptation)
- Bedding type and condition

Calves may need 1/3 more energy when temperatures drop from 55°F to 25°F. Realize, though, that the extra energy required is not used or available for growth or support of a developing immune system – the extra energy is diverted from weight gain and growth to maintenance of core body temperature.

Some researchers estimate that 20% more energy yet is required for immune system development.

How much energy is in a milk replacer?

On an as-fed basis, a typical all-milk protein milk replacer will contain:

- 1.87 Mcal ME/lb for a 10% fat milk replacer
- 2.08 Mcal ME/lb for a 20% fat milk replacer

Why not double for a 20% fat product vs. a 10% fat product? The difference is the energy displacement of fat vs. lactose.

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So, what are the ways to maximize or increase energy intake during times of cold weather?

- Feed a 20% fat milk replacer
- increase liquid feeding rate 25-50%, or
- give an extra pint AM & PM, or
- an extra 1/2 - 1 bottle at noon to calves less than 3 weeks of age, or
- if limited by bottle size to a specific liquid amount, increase the milk replacer powder dilution rate to 25-50% higher mixing rate, and then feed normal amount of liquid, but do not exceed 20% solids, and keep water available.
- Keep liquid water available if at all possible - calves consume considerably more starter when water is available
- Don't forget the "warm soup effect" – warm fluid feeding can warm moderately chilled calves.
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Any feeding change should be transitioned slowly to allow the digestive system of the young calf to adjust.

What about supplementing extra fat?

Fat supplements add energy, but feeding over ¼ lb. of fat supplement/day often results in reduced starter intake - counterproductive!

Calves will take off muscle as well as fat if they are below their maintenance energy requirements. This can be caused by temperature alone, but is exacerbated by the environmental factors listed above, plus:

- Reduced feed intake
- Disease challenge
- Weaning stress

Research has shown that calves will maintain health and acceptable weight gain with 50% higher milk replacer feeding rate during cold weather.

Bottom Line: More groceries save lives!
