

CALVING EASE

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Feed More as the Weather Gets Colder, Or, Seasonally Adjusted Nutrient Intake

Regardless of your growth goals, if you were achieving these goals during the summer and you continue the same feeding program as the weather gets colder you will not see the same level of success. So, what to do now fall months are upon us?

What is “colder?”

Use the sweatshirt test. Do you need to wear a sweatshirt when working with the calves before 8:00 AM? For most of us that means it is in the 60's. The bottom of the thermoneutral zone for young (less than three weeks old) calves is about 60°F.

Below 60° these young calves use body stores of energy to maintain their core body temperature. Older calves are another management group. The bottom of their thermoneutral zone is close to 40°. And, their ration is usually both milk and calf starter grain.

In the area where I live nighttime temperatures regularly fall below 60° starting in mid-September and continue through May. Average daily temperatures for the Rochester, New York, weather station in 2006-7 were below 60° for close to 245 days. For a rough approximation of your climate use this URL <http://www.usclimatedata.com/climate/buffalo/new-york/united-states/usny0181>

How does cold weather affect the amount to feed?

For calves more than three weeks old and eating calf starter grain the answer is simple. Provide free choice water and calf starter grain. Assuming that you are feeding at least one pound of milk replacer powder or four quarts of whole milk daily, the calf starter grain often doubles or even triples the amount of energy available for growth beyond maintenance requirements.

It is straightforward. Grain and water. Everyday even when the weather is below freezing. All they want to eat and drink. It is a real chicken: egg relationship. Water intake drives grain consumption. Grain intake drives water consumption.

For young calves that depend on milk or milk replacer for both energy and protein the answer is nearly as simple. Colder weather requires more dry matter intake to achieve the same growth goals compared to “summer” weather.

How much is “more?”

The amount of milk replacer or milk dry matter required to meet the maintenance requirements of calves at varying temperatures. The calculations assume 2.45 mcal ME per lb. dry matter.

Bodyweight (pounds)	68	50	32	15	5	-5	-20
60	0.6	0.8	0.9	1.0	1.1	1.2	1.4
80	0.8	0.9	1.1	1.3	1.4	1.5	1.7
100	1.0	1.1	1.3	1.6	1.7	1.8	2.0
120	1.1	1.3	1.5	1.7	1.9	2.0	2.3

Note that the values in the body of the table are dry matter, not as-fed liquid.

This table is all about maintenance needs. So, let’s look at a 100 pound calf at 50 degrees. The table value is 1.1 pounds of dry matter needed just for maintenance. That is equivalent to 8.8 pounds of milk or milk replacer as-fed (assumes 12.5 percent dry matter – average value for tank milk and milk replacer mixed 0.5 pound powder makes two quarts). That is about 4.25 quarts.

My example 100 pound calf could be between five to fifteen days old. She is eating very little calf starter grain. She is depending almost entirely on milk or milk replacer for both energy and protein. As long as the weather stays warm she may very well stay healthy until her grain intake comes up to supply nutrients needed for growing.

What if she is unlucky and is born in late fall or winter? If we fail to feed enough to meet both maintenance and growth needs there is a good chance she will get sick during those critical first three weeks of life. If you want to do some calculations for your calves to provide for maintenance and one pound of gain per day, just add 0.5 pounds of dry matter to the table values. Thus, for the example 100 pound calf at 50 degrees the required dry matter intake for both maintenance and growth increases from 1.1 to 1.6 pounds or 6 quarts as-fed milk per day.

Feeding strategies for cold weather are discussed in several resources. If you go to the Internet site www.atticacows.com check on Calf Facts. Then scroll down to “Feeding More Energy in Cold Weather” and “Good Growth in Cold Weather2.” Both of these short two-page papers describe practical on-farm ways to supply needed nutrients in young pre-weaned calves. A much more complete twenty-four page, nutritional guide is at: <http://extension.psu.edu/publications/feeding-newborn-dairy-calf/view>

References: Drackley, J. K. 2005 Early growth effects on subsequent health and performance of dairy heifers. Van Amburgh, M. E. and J. K. Drackley. 2005 Current perspectives on the energy and protein requirements of the pre-weaned calf. Chapters 12 and 5 respectively in “Calf and heifer rearing: Principles of rearing the modern dairy heifer from calf to calving.” Nottingham Univ. Press. P.C. Garnsworthy, Ed.

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