

Conserving Energy for a Cold Winter – Calories and Cattle

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Published in the Alabama Cattleman – January 2015

Well folks, after about a month and a half of celebrating the holidays, you might be thinking that your pants are fitting a little bit tighter than usual. This is the time of year when many of us are reflecting on that second helping of sweet potato casserole, and are starting to think about shedding a few pounds. Part of this requires a decrease in one thing...calories. On the contrary, this is the time of year when our cattle require a few extra calories to help combat the negative effects of cold weather. In other words, they are burning through calories trying to maintain the correct body temperature. How do we help meet this requirement? One word....energy! Now, let's burn a few calories by taking a walk through factors affecting these requirements and how we can help our cattle overcome energy losses. Here is what we need to know as we get up and get moving to the pasture to check cattle:

1) Energy requirements are affected by animal hair coat.

The lower critical temperature is the break point where we begin to see the energy requirements of cattle change. At this point, usually cows begin to shiver. This process requires extra energy. The lower critical temperature is affected by hair coat. First, is the hair coat dry or wet? The table below illustrates that wet conditions significantly change the critical temperature of the animal. Even though we boast about our good weather in the South compared to our northern friends, we have to remember that our humid conditions often lead to wet winters. In recent years, we have had **COLD**, wet winters! The result is that this requires more energy for our animals to maintain themselves through the winter.

Second, how well developed is the hair coat? Is it a summer, fall, or winter coat? As hair coat changes from summer to winter, an animal in good body condition can withstand harsher conditions.

Coat Description	Critical Temperature
Wet or summer coat	59° F
Dry fall coat	45° F
Dry winter coat	32° F
Dry heavy winter coat	18° F

*Temperature when in body condition score 5.

2) Energy requirements are affected by cold weather.

The lower critical temperature for a brood cow is 32°F under cold, dry conditions. A general rule of thumb is that cow energy requirements increase 1% for each degree the wind chill is below 32°F. The real kicker is under cold, wet conditions. At this point, the lower critical temperature is 59°F. For every degree that the wind chill is below 59°F, a cow's energy requirement increases by 2%. Let's put this into perspective:

Critical temperature under cold, wet conditions: **59°F**
Wind chill is **25°F**.
Magnitude of cold: $59 - 25^{\circ}\text{F} = 34^{\circ}\text{F}$
Energy adjustment is **2%** for each degree of difference
A **68% increase in energy supply** is needed to overcome loss from the cold.

In our example above, we would need a 68% increase in energy supply to the animal to meet this need. A 1,200 pound brood cow in peak lactation needs about 16 pounds of total digestible nutrients (TDN) per day. Under these conditions, she would need an additional 10 pounds of TDN per day. How can we even begin to overcome such a large need practically speaking? Hang with me here to find out...

3) Changing energy requirements often means supplemental energy is needed.

Providing additional forage during cold weather is certainly a good practice. Research suggests that cattle will increase forage intake by as much as 30% under cold conditions. This increase in intake means that the animal is using most of this energy for one thing....increased maintenance requirements. Cattle with a full rumen generate heat and energy that can help the animal achieve a more desirable body temperature. However, remember that **forage nutritional value is key EVERYTIME**. Depending on the quality of the forage and the magnitude of the cold, hay alone may or may not meet this increase in animal energy requirements. Even with increased forage consumption during cold weather, it is likely that feeding low quality forage alone will not meet the higher energy requirements of the animal. As cattle consume more low quality forage, the risk for compaction of the digestive tract increases, and can lead to serious health issues.

So what do we do? Supplement. In the case of cold, wet weather, it is nearly impossible to overcome a large energy loss at once. Any diet changes should be made gradually to prevent digestive problems. A more practical approach is to provide a small amount of supplemental energy DURING and AFTER the cold event (3 to 5 days). On average, feeding 0.3 to 0.5% of animal BW per day of a digestible energy source (i.e. soyhulls, corn gluten feed) will help overcome losses during this time period. Consider feeding cattle in the late afternoon or early evening. Increased heat production by the animal occurs 4 to 6 hours after forage and feed is consumed. Therefore, providing feed before temperatures reach their lowest point for the day can help combat some loss from the cold as well.

Check out our Timely Information Sheet on this topic area under the 'Nutrition' tab at www.alabamabeefsystems.com

***This article is the fourth in a series on Management Systems for Changing Seasons. For regional beef cattle updates, visit www.secattleadvisor.com or follow me @ACESBeef on Twitter.