

## **Cold Weather Management for Calves and Cows**

*Justin Rhinehart – Extension Beef Cattle Specialist; University of Tennessee*

As the days shorten and the fall air becomes cooler each day, it is a good time to start planning for winter weather. Cold weather can have a drastic impact on the performance of cows and calves. In fact, it can have as much of an effect on production as hot weather. So, understanding how cattle deal with cold will help understand how to bring cattle through without losing performance or wasting resources.

First, understanding some terminology is important. The **thermoneutral zone** is the range of temperature where weight gain and efficiency are at their peak. Another way to look at that is, when cattle are in their thermoneutral zone, they do not have to expend extra energy to maintain a constant core body temperature. The **lower critical temperature** is the point where cattle begin to experience cold stress. In an ideal environment, that temperature is 32°F. But, other factors such as wind and rain make a higher air temperature seem colder to cattle. This is called the **effective temperature**. So, a 10 mile per hour wind can create cold stress even when the air temperature is 40°F and the cattle have a dry winter hair coat.

The most logical way to combat cold stress is to provide shelter from wind and precipitation. This will allow cattle to realize a higher effective temperature. Building new wind breaks and shelters is likely cost-prohibitive. Planning pasture rotation so that cattle are in areas with shelter during winter months is often a better idea. If cattle are not able to avoid cold stress by seeking shelter, their metabolic rate will increase because the heat from normal body function is not adequate to maintain their core body temperature. The increase in metabolism will make the cattle require more energy for maintenance. Simply stated, when cattle are cold stressed, they need to eat more just to stay warm. Energy intake requirements can increase up to 20%. That can

translate into 3.5 to 4 extra pounds of hay intake or 2 to 2.5 extra pounds of supplement.

A good rule of thumb taken from several studies is that, for every one degree below the critical temperature, a cow's energy requirement increases 1 percent. It is also very important to keep water available because decreased water intake can reduce feed intake. Be sure to break ice in waterers and on ponds so cattle have access at all times. Anticipating the increased nutritional need from prolonged cold stress can provide some flexibility. It is a good idea to maintain cows in a body condition score 5 and heifers in a body condition score 6 so that they have energy reserves to draw from if nutrition is lacking.

Mud also has an effect on nutrient requirements of cattle. The relationship to how much more feed is required is less clear but some have estimated an increase in maintenance requirements of up to 30%. So, rotating feeding areas or improving rations for cattle that constantly have to deal with mud can improve performance.

For herds that calve late into the winter months, it will be important to keep an eye on calves born in extremely cold weather. Especially when it is wet and muddy (the ground has not frozen yet). If calves are dropped in mud or water, they can experience fatal cold stress very quickly. Even if calves are not lost to cold stress, it can negatively affect their immune system. Make sure that they have colostrums in the first 12 hours after calving. Again, make sure that younger cattle have some type of shelter from driving wind.

The best ally for handling cold stress is to be prepared. Anticipating increased hay, winter forage and/or supplement needs will ensure the cattle do not go without. But, remember that cattle are made to live in what people feel as inclement weather. So, providing adequate nutrition and some simple shelter should ensure that they remain healthy and productive through the winter.