

For Immediate Release
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What Is Cold to a Cow?
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I've been reading several articles recently about the impacts of cold stress on beef cattle. This could be a very critical issue for beef producers this winter, especially in light of limited supplies of marginal quality hay. A review of the topic is in order.

Tables exist for lower critical temperatures (the temperature when cattle feel cold stress) based on thickness and wetness of the hair coat. There are also charts which show how wind speed and air temperature create an effective temperature.

A cow with a dry winter hair coat feels cold stress at about 32 degrees Fahrenheit (F). A cow with a wet winter hair coat feels cold stress at 59 degrees. For each degree of cold stress, the cows' energy requirements increase by 1 percent.

If the cow has a dry winter coat and is exposed to an effective temperature of 10 degrees F, her energy requirements increase by 20%. An effective temperature of 10 degrees is achieved by 30 degree air temperature and 20 mile per hour (mph) wind speed, 25 degree air temperature and 15 mph wind speed, or 20 degree air temperature and 10 mph wind speed.

To deal with the cold stress, the cows' metabolic rate increases which increases the need for dietary energy, so the cow tries to eat more feed. The cow exposed to an effective temperature of 10 degrees F will need to consume about 4 pounds more hay or 2.5 pounds more grain in order to meet this increased energy demand. She may or may not be able to increase intake that much, especially if the hay is of poor quality.

In order to help cattle deal with the cold stress that is certainly ahead, keep a few concepts in mind. First, reduce exposure to the wind. Second, keep the cattle as dry as possible. This includes having dry feeding and loafing areas. Third, keep plenty of water available at all times. Restrictions in water consumption reduce feed intake. Fourth, consider feeding in the evening. Incremental heat production from digestion is greatest 4 to 6 hours after feed is consumed, so heat from fermentation would be greatest at night when temperatures are generally the lowest.

The last point is that the problem of low energy availability is corrected by increasing the energy density of the diet. Feeding, or trying to feed, more pounds of poor quality, low energy hay will not improve energy balance for the cow. In fact, it will probably make things worse due to the reduced rate of passage of feed through the digestive tract. The only way to increase energy density of the diet is to add more calories. This is done with supplemental grain or grain by-products.

Cattle are hearty animals that can adapt to a wide variety of environmental conditions. However, a few management changes can help alleviate the impact of these environmental stressors and help keep cattle producing at an acceptable level.

Additional information can be obtained by contacting me at the Benton County Extension Center at (660) 438-5012, by e-mail at schmitze@missouri.edu or by contacting your local MU Extension Center. University of Missouri Extension is an equal opportunity / ADA institution.