Have you ever wondered how cattle can live outside mostly unaffected by our cold Iowa winters? Many of our herds in Iowa don’t have a barn or shed to go into, so how come they don’t freeze; surely you or I would if we didn’t have the proper clothing. I remember as a young boy asking my dad, “If our cows always had their hairy coats on, how can they stay warm in the winter but not get too hot in the summer?” What would your answer to that question be? Try and come up with some ideas….

Hopefully you came up with something like, “in winter months animals grow a thick hair coat for added insulation and when warmer spring weather comes they shed much of it to stay cooler”. Or maybe you said, “More bedding is provided in the winter time so that animals can have somewhere dry to lie down,“ or maybe you thought of this one, “More feed is given to them so they can stay warm”. All of those answers would be great, but there is a lot more to understanding an animal’s (or human’s) ability to stay comfortable in different seasons and weather situations, something that is called thermoregulation.

In the brain (specifically the brainstem) there is a region called a thermoregulatory center. It’s a bunch of nerves that tell the animal when their surrounding environment is getting cooler or warmer. The thermoregulatory center is what makes an animal’s hair coat to grow thicker in the fall and shed out in the spring. In humans, this is what makes you shiver when you’re cold or sweat when you’re hot. All animals have a surrounding temperature that is most comfortable for them to live in. These temperature ranges are referred to as the animal’s thermoneutral zone, and this range varies from one species of animal to another.

For adult cattle, 45-55°F is the range, for baby calves its 55-68°F and 68-77°F for you and I. This doesn’t mean we need to move to sunny Arizona during the winter months, but rather a coat and hat can restore our thermonutral zone when the air is cold. Likewise, cattle in Iowa during the winter are able to live in or near their thermonutral zone when appropriate housing, feed and bedding are provided. However, when an animal is not in their thermonutral zone, stored body energy must be released to try and generate or dissipate heat.

The colder or hotter the animal gets, the more energy is used to try and stay near the thermonutral zone. This extra energy that is used means that either more feed must be provide or the animal just has less energy available for growth and weight gain. Additionally, it is more likely that cattle will get sick when they are outside their thermonutral zone, as the body’s immune system (the part of the body that fights off infections) requires a lot of energy, as well.

In the winter time, we can help our cattle stay near their thermonutral zone by making sure they always have plenty of clean and dry bedding, provide shelter from the wind, increase the amount fed and minimize the amount of manure that accumulates on their legs and bellies by keeping pens, lots and walk ways cleaned.
regularly. And remember, easy access to fresh, clean water is just as important in cold weather as it is in hot, so cattle can stay well hydrated – an important driver of feed intake and healthy immune function. If you keep up with all of these things, your cattle should sail through the cold weather without needing a visit from your veterinarian!