



COLD STRESS: WHAT IS COLD TO A COW?

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As we all know there is no typical weather pattern in Arkansas. We experienced a mild fall this year and thus far winter has been interesting with below average temperatures followed by above average temperatures.

The downside is that we don't know what might happen in the months to come, as we approach what are typically the coldest months of the year. Most cattle producers know and appreciate that cold weather increases nutrient requirements. However, the obvious questions that come to mind are "What is cold to cow?" and "What increases (energy, protein etc.) and by how much?"

UPCOMING EVENTS

Little River County Cattlemen's Meeting

Last Monday each month
through May-6:30 p.m.
CCCUA-Ashdown

Heifer Management

SWREC-Hope
Tuesday, Feb 10, 2015
2:00 p.m.

4-States Ag Expo

Fairgrounds-Texarkana
Thursday, Feb 12
Registration: 8:00 a.m.
Programs: 8:30 a.m.
P.A.T. Class: 2:00 p.m.

LRC Farmer's Market

Thursday, March 12
CCCUA-Ashdown
6:00 p.m.

Cattle are most comfortable within the thermonuetral zone when temperatures are neither too warm nor too cold. During the winter months cattle experience cold stress anytime the effective ambient temperature, which takes into account wind chill, humidity, etc., drops below the lower critical temperature. The lower critical temperature is influenced by both environmental and animal factors including hair coat and tissue insulation (body condition). The table below lists the estimated lower critical temperatures of cattle in good body condition with different hair coats. In wet conditions cattle can begin experiencing cold stress at 59°F, which would be a relatively mild winter day. However, if cattle have time to develop a sufficient winter coat the estimated lower critical temperature under dry conditions is 18°F.

Cold stress increases maintenance energy requirements but does not impact protein, mineral or vitamin requirements. The general rule of thumb (for a cow in good body condition, BCS = 5 or greater) is to increase the energy density of the ration by 1% for each degree (Fahrenheit) below the lower critical temperature. As temperatures begin to fall, you would think cattle would increase intake. However, it has been documented that grazing beef cows may spend less time grazing, or eating hay, as temperatures decline below freezing, which reduces forage intake and makes the challenge of meeting the cow's nutrient requirements even greater. In many cases feeding a greater amount of low-quality hay may not provide sufficient energy. Therefore providing additional energy by feeding a relatively higher-quality hay or grain may be required.

ESTIMATED LOWER CRITICAL TEMPERATURES FOR BEEF CATTLE

COAT CONDITION	CRITICAL TEMPERATURE
Wet or Summer Coat	59 degrees F
Dry Fall Coat	45 degrees F
Dry Winter Coat	32 degrees F
Dry Heavy Winter Coat	18 degrees F

THE 3 STAGES OF PARTURITION (CALVING)

Before the first heifer begins the calving process this spring, it would be wise to review what takes place in a normal delivery. Understanding “normal” will help us better recognize problems when they occur and therefore provide assistance when necessary.

Stage 1: The first stage of parturition is dilation of the cervix. The normal cervix is tightly closed right up until the cervical plug is completely dissolved. In stage 1, cervical dilation begins some 4 to 24 hours before the completion of parturition. During this time the “progesterone block” is no longer present and the uterine muscles are becoming more sensitive to all factors that increase the rate and strength of contractions. At the beginning, the contractile forces primarily influence the relaxation of the cervix but uterine muscular activity is still rather quiet. Stage 1 is likely to go completely unnoticed, but there may be some behavioral differences such as isolation or discomfort. At the end of stage one, there may be some behavioral changes such as elevation of the tail, switching of the tail and increased mucous discharge. Before “pulling” a calf in stage 2, it is imperative that stage 1 (cervical dilation) is complete.

Stage 2: The second stage of parturition is defined as the delivery of the newborn. It begins with the entrance of the membranes and fetus into the pelvic canal and ends with the completed birth of the calf. So the second stage is the one in which we really are interested. This is where all the action is. Clinically, and from a practical aspect we would define the beginning of stage 2 as the appearance of membranes or water bag at the vulva. The traditional texts, fact sheets, magazines, and other publications that we read state that stage 2 in cattle lasts from 2 to 5 hours. Research from Oklahoma State University and the USDA experiment station at Miles City, Montana, would indicate that stage two is MUCH shorter. In these studies, assistance was given if stage two progressed more than two hours after the appearance of water bag at the vulva. The interesting thing about the data was that the heifers calving unassisted, did so in about one hour after the initiation of stage two, and mature cows calved within an average of 22 minutes of the initiation of stage two. Those that took longer needed assistance. These and other data would indicate that normal stage two of parturition would be redefined as approximately 60 minutes for heifers and 30 minutes for adult cows. In heifers, not only is the pelvic opening smaller, but also the soft tissue has never been expanded. Older cows have had deliveries before and birth should go quite rapidly unless there is some abnormality such as a very large calf, backwards calf, leg back or twins. If the cow or heifer is making good progress with each strain, allow her to continue on her own. Know your limitations. Seek professional veterinary help soon if you encounter a problem that cannot be solved easily in minutes.

Stage 3: The third stage of parturition is the shedding of the placenta or fetal membranes. In cattle this normally occurs in less than 8 to 12 hours. The membranes are considered retained if after 12 hours they have not been shed. Years ago it was considered necessary to remove the membranes by manually “unbuttoning” the attachments. Research has shown that manual removal can be detrimental to uterine health and future conception rates. Administration of antibiotics usually will guard against infection and the placenta will slough out in 4 to 7 days. Contact your veterinarian for the proper management of retained placenta.

EAT MORE BEEF

BULL BUYING DECISIONS IN THE GOOD TIMES

Genetic decisions have always been important, but the stakes have never been higher than they are now. We're witnessing a cattle market for calves, feeder, and live cattle unlike anything we've ever seen. That's the good news. At the same time the amount of capital at risk and the dollars at stake with every decision have never been higher. The average bull bought this year will very likely cost more dollars than at any other time in recent memory.

So how does that change the bull buying decisions of producers? Although the basics haven't changed, there are some factors that are worth some additional consideration.

Longevity

One way to reduce the cost per calf of higher-valued bulls is to increase their productive life. The following table is a simple example of how getting more years of service from bulls lowers the cost per calf. High-priced bulls that don't last are incredibly expensive. Buy bulls that have been developed to last and manage them so that they will hold up and not crash.

Genetic Merit

Looking at the chart above a producer would be easily tempted to lower their standards. Every operation has budget restraints, but buying the wrong bull for an operation just because he is cheaper will be more costly than spending "too much." The SDSU Calf Value Discovery project has consistently seen profit spreads between the high and low profit steers exceed \$500 per head.

Accuracy of Selection

As the cost of breeding assets increase, the costs of making mistakes go up as well. Any tool that helps producers more accurately identify the bulls that meet their goals will reduce that risk. Genomic-enhanced EPDs combine the power of DNA testing tools like the 50K test with traditional performance testing to improve genetic selection and increase the accuracy of EPDs.

Reproduction

In the simplest terms, the bull has one primary job; get cows bred. In today's market, it's nearly impossible for a cow to lose money, provided that she's pregnant and weans a calf. Breeding soundness exams, managing bull condition, and reducing their environment stress are musts. Having extra bull power as an insurance against injury may be worth considering as well.

BULL COST PER CALF

Years of Service	Purchase Price of Bull		
	\$5000	\$8000	\$10000
1	\$195	\$345	\$445
2	\$120	\$195	\$245
3	\$95	\$145	\$178
4	\$83	\$120	\$145

Assumes 20 calves per year, \$900 annual maintenance cost per bull, \$2000 salvage value.

NEW TYPE OF ANTIBIOTIC COULD HELP BATTLE RESISTANCE

Scientists have announced the discovery of a new class of antibiotic, developed through a novel approach from naturally occurring microbes, which shows promise for fighting disease without leading to development of resistant pathogens.

The new type of antibiotic, called teixobactin, kills a wide range of pathogens including methicillin-resistant *Staphylococcus aureus* (MRSA) according to news reports.

Most existing antibiotics are derived from natural sources such as various types of fungi. Scientists culture the microbes in laboratories to produce the antibiotic. However, the researchers on this project note, 99 percent of these naturally occurring microbes cannot be grown effectively in a laboratory environment, leaving a huge, untapped resource of potential antibiotic-producing organisms.

For this study, the researchers developed several methods to grow uncultured organisms by cultivation in situ or by using specific growth factors. They discovered teixobactin, through screening of those uncultured bacteria. According to the researchers, teixobactin inhibits cell wall synthesis by binding to a highly conserved motif of lipid II (precursor of peptidoglycan) and lipid III (precursor of cell wall teichoic acid). In their tests, they did not obtain any mutants of *Staphylococcus aureus* or *Mycobacterium tuberculosis* resistant to teixobactin. They add that the properties of this compound suggest a path towards developing antibiotics that are likely to avoid development of resistance.

The Little River County Extension office is happy to announce a new Family and Consumer Sciences Agent has been hired to replace Becky Reynolds who retired in January 2014. Please stop by the office to meet **Celeste Scarborough**. If you have questions about anything such as: diabetes, diet and exercise, food preparation, money management, family life, etc., she will be happy to help you.

Salisbury Steak

Meat Mixture

1 1/2 pounds lean ground beef
1/2 cup seasoned breadcrumbs
1 Tablespoon catsup
2 teaspoons dry mustard
4 dashes Worcestershire sauce
1 cup beef bouillon, crumbled
Salt and Pepper to taste
1 Tablespoon butter
1 Tablespoon olive oil

Gravy

1 whole onion, halved & thinly sliced or diced
2 cups beef broth, more if needed for thinning
1 Tablespoon catsup
1 teaspoon seasoning sauce, such as Kitchen Bouquet, optional
4 dashes Worcestershire
1 teaspoon cornstarch, optional
Salt and Pepper to taste

For the meat mixture: Combine the ground beef, breadcrumbs, catsup, dry mustard, Worcestershire sauce, bouillon and some salt and pepper. Knead until all combined. Form into 4 to 6 oval patties and then make lines across the patties to give them a "steak" look.

Fry the patties in a skillet with the butter and oil over medium-high heat on both sides until no longer pink in the middle. Remove from the skillet and pour off any excess grease.

For the gravy: Reduce the heat to medium and add the sliced (or diced) onions. Stir and cook until golden brown and somewhat soft, for several minutes. Add the beef stock, catsup, seasoning sauce, if using, and the Worcestershire. Then combine the cornstarch with a little beef broth and add to the sauce (if you want it thickened). Stir and cook to reduce.

Add a sprinkle of salt and pepper and more broth, if needed, for thinning the gravy. Then return the patties to the gravy. Spoon the gravy over the top and let them simmer and heat back up for a couple minutes.