

# OFF THE HOOF



University of Kentucky  
College of Agriculture,  
Food and Environment  
Cooperative Extension Service

Cooperative Extension Service  
University of Kentucky

Beef IRM Team

***KENTUCKY BEEF CATTLE NEWSLETTER JANUARY 14, 2021***

*Published Monthly by UK Beef IRM Team and edited by Dr. Les Anderson, Beef Extension Specialist, Department of Animal & Food Science, University of Kentucky*

## Contents

This month's newsletter includes:

Timely Tips– Anderson

Recent and Upcoming On-Line Beef Education Opportunities – IRM Team

ROWLI Resumes in February – Bullock

Looking Back at the Big Picture: 2021 Mid-South Stocker Conference – Lehmkuhler

Bluegrass State Ranks #1 – Lehmkuhler

Cryptosporidiosis - Frequently Asked Questions – Arnold

Meeting Protein Requirements When Protein is Expensive – VanValin

Don't Quit Now! – Anderson

Rising Feed Costs Being Felt – Lehmkuhler

## Timely Tips

*Dr. Les Anderson, Beef Extension Professor, University of Kentucky*

### **Spring-Calving Cow Herd**

- Study the performance of last year's calf crop and plan for improvement. Plan your breeding program and consider a better herd sire(s). Select herd sires which will allow you to meet your goals and be willing to pay for superior animals.
- Consider vaccinating the cows to help prevent calf scours.
- Keep replacement heifer calves gaining to increase the probability of puberty occurring before the start of the spring breeding season.
- Start cows on the high magnesium mineral supplement soon. Consider protein supplementation if hay is less than 10% crude protein. If cows are thin, begin energy (grain) supplementation now. Cows must reach a body condition score of 5 before calving to maximize their opportunity for reproductive success. Supplementation now allows adequate time for cows to calving in adequate body condition score.
- Get ready for calving season! See that all equipment and materials are ready, including obstetrical equipment, record forms or booklets, ear tags, scales for obtaining birthweights, etc. Prepare a calving area where assistance can be provided easily if needed. Purchase ear tags for calves and number them ahead of time if possible. Plan for enough labor to watch/assist during the calving period.
- Move early-calving heifers and cows to pastures that are relatively small and easily accessible to facilities in case calving assistance is needed. Keep them in good condition but don't

overfeed them at this time. Increase their nutrient intake after they calve.

### **Fall Calving Cow Herd**

- Provide clean windbreaks and shelter for young calves.
- Breeding season continues. Keep fall calving cows on accumulated pasture as long as possible, then start feeding hay/grain. Don't let these cows lose body condition!
- Catch up on castrating, dehorning and implanting.

### **General**

- Feed hay in areas where mud is less of a problem. Consider preparing a feeding area with gravel over geotextile fabric or maybe a concrete feeding pad.
- Increase feed as the temperature drops, especially when the weather is extremely cold and damp. When temperature drops to 15°F, cattle need access to windbreaks.
- Provide water at all times. Cattle need 5 to 11 gallons per head daily even in the coldest weather. Be aware of frozen pond hazards. Keep ice "broken" so that cattle won't walk out on the pond trying to get water. Automatic waterers, even the "frost-free" or "energy-free" waterers can freeze up in extremely cold weather. Watch closely.
- Consider renovating and improving pastures with legumes, especially if they have poor stands of grass or if they contain high levels of the fescue endophyte. Purchase seed and get equipment ready this month.

## **Recent and Upcoming On-line Beef Education Opportunities**

*Beef IRM Team, University of Kentucky*

*Beef Minutes*                      Incorporating Corn Silage into a Beef Cattle Operation – VanValin

*Beef Bits Podcast*                Episode 8. Friendly Forage Competition with Dr. Lehmkuhler, Lyndall Harned, ANR Agent Boyd County, and Brian Jeffers, ANR Agent Johnson County

To access this and other excellent beef educational content, visit our Facebook Page (facebook.com/KyBeefIRM) and/or on the Department of Animal & Food Science YouTube page ([https://www.youtube.com/channel/UCu4t18Zo2E\\_4\\_DBBELPjPMg](https://www.youtube.com/channel/UCu4t18Zo2E_4_DBBELPjPMg)). Subscribe to the AFS YouTube page and click the notifications bell to receive a notification whenever we publish new beef education content. Beef Bits can also be accessed on the podcast website ([https://www.podbean.com/media/share/pb-megic-e6f8f1?utm\\_campaign=u\\_share\\_ep&utm\\_medium=dlink&utm\\_source=u\\_share](https://www.podbean.com/media/share/pb-megic-e6f8f1?utm_campaign=u_share_ep&utm_medium=dlink&utm_source=u_share)).

## **Reaching Out While Locked In Resumes in February**

*Darrh Bullock, Extension Professor, University of Kentucky*

The UK Beef Webinar Series *Reaching Out While Locked In* will resume in February and continue through May of 2021. The sessions will be the first and third Tuesday of each month and will start at 8:00pm Eastern/7:00pm Central. We do not have all of the titles and speakers

locked down yet, but we are planning sessions on preparing for the calving season, targeted feeding, reproductive management, weed management, forage management, economic outlook and a special Shooting the Bull session with the Beef Extension Team to address your questions and discuss current challenges and opportunities. More information will follow in January, but we wanted to give you the opportunity to hold the dates. As always, if you know of anyone that would benefit from these educational programs have them send their name and county to [dbullock@uky.edu](mailto:dbullock@uky.edu) with the subject Beef Webinar or you can send me their information along with their email address.

Also, included at the end of this newsletter is a list of links for all the past sessions that we were able to get posted on YouTube; if you missed any, this should keep you busy through January! Feel free to send this information to anyone that you think may be interested.

We look forward to seeing you all in the new year and wish you all the best over the holiday season. Stay safe and enjoy your families whether close or from a distance.

## **Looking Back at the Big Picture - 2021 Mid-South Stocker Conference** *Jeff Lehmkuhler, PhD, PAS, Associate Extension Professor, University of Kentucky*

The Mid-South Stocker conference planning committee has opted to host the 2021 Mid-South Stocker Conference virtually. This year's theme is "Looking at the Big Picture – How the Parts Fit Together in your System". The program will take place on February 23 and begin at 12:30 pm EST/11:30 CST. Due to the program being held online, the event has been shortened and will convene at 2:30 pm EST/1:30 CST.

The Mid-South Stocker Conference, though shortened in length, continues to provide some excellent insight for background and stocker operation managers. Dr. John Groves, DVM with Livestock Veterinary Service in Eldon, Missouri, will share a system approach to maintaining health in high-risk calves. This discussion will be of great interest to many of our backgrounders in the region. Virtual tours of Kentucky and Tennessee operations will continue to be a part of this year's conference as they provide a great learning opportunity. Lastly, given the uncertainty in the markets, Dr. Chris Prevatt, Livestock Economist from the University of Florida, will join us again. He will share information on implementing economic risk management tools for feeder cattle. The program is focused on providing fundamental management information. The planning committee is waiving registration costs this year making the program free for those interested.

To register for the online event visit <https://midsouthstockerconference.utk.edu/> and follow the links to register. Industry sponsors are welcome as well and sponsorship details can be found at the above website.

We look forward to hosting you this year virtually for the Mid-South Stocker Conference on February 23, 2021. Be sure to register and mark your calendars.

## **Bluegrass State Ranks No. 1**

*Jeff Lehmkuhler, PhD, PAS, Associate Extension Professor, University of Kentucky*

There is so much information out there these days. Admittedly, I don't dedicate the time to read as I should to keep up on things. But this morning, I had a couple minutes and scanned an article printed on LawnStarter, a site dedicated to lawn and tree care. The title is what caught my eye, "2021's Best and Worst States to Start a Farm or Ranch".

Guess what? Kentucky ranked at the top of the list as the best place to start a farm or ranch! We all knew this, but I find it encouraging news following everything happening in our world. The Bluegrass state edged out Oklahoma, North Dakota, Texas and Montana which were in the top 5. Based on the article, Kentucky gained top honors by placing in the top 20 in the 44 metrics used to rank the states. This included things such as area of farmland, average farm size, number of farms, share of family-owned farms, number of USDA-approved slaughter plants, road/water/air quality, percentage of possible sunshine, average temperatures, taxes, and many others.

In summary, I hope this brings a sense of pride to our beef farmers in the state as you all knew already this was a great state to manage cattle in. To those considering entering the cattle industry, perhaps this will help you realize that sometimes there is no place like home. For those interested in reading the full article here is the link

<https://www.lawnstarter.com/blog/studies/best-states-to-start-a-farm> . Cattle managers, take a minute to appreciate what you have and what you do, I sure appreciate all you do to produce a top quality protein source.

## **Cryptosporidiosis - Frequently Asked Questions**

*Dr. Michelle Arnold, UK Veterinary Diagnostic Laboratory*

### ***What is "cryptosporidiosis"?***

Cryptosporidiosis, also known as "crypto", is a disease primarily seen in calves due to a protozoan parasite, *Cryptosporidium parvum* or *C. parvum* for short. In its "clinical" or visible form, calves have profuse, watery diarrhea that can lead to dehydration and death. It generally affects calves from newborns up to 6 weeks of age but older animals may be asymptomatic shedders. There are no effective treatments or vaccines available in the US. Cryptosporidiosis is "zoonotic", meaning humans may acquire *C. parvum* from infected calves and have watery diarrhea lasting up to 3 weeks in healthy people with strong immune systems but can be life-threatening in immunocompromised individuals.

### ***How is the organism transmitted?***

*Cryptosporidium* "oocysts" are thick-walled structures, similar to parasite "eggs", that are passed in the feces of infected calves. These oocysts are spread between calves by the "fecal-oral route", either directly through contact with feces from infected calves (for example, on manure-covered teats), or indirectly by ingestion of feces-contaminated feed or water. Very few oocysts are required to cause infection; in one study in calves less than 24 hours old, only 17 oocysts were needed to cause diarrhea. Following ingestion (swallowing) of oocysts by the calf, the organism

begins a very complex reproductive cycle within the cells that line the calf's intestinal tract (see Figure 1 for a complete review of the life cycle). The conditions inside the gastrointestinal tract of low pH and body temperature trigger the oocyst to "excyst" (hatch) and four sporozoites are released (Figure 1A). *C. parvum* sporozoites invade the cells that line the small intestine (Figure 1B), and undergo asexual (Figure 1D) then sexual (Figure 1F-I) reproduction phases to develop new oocysts. The newly formed oocysts are of two different types: thin-walled oocysts (Figure 1K) that stay inside the gut and keep infecting new cells, or thick-walled oocysts (Figure 1J) which are passed in feces and are immediately infective for other calves. The ability to produce thin-walled oocysts which stay in the calf and continue to infect cells in the small intestine is one of the reasons why the *Cryptosporidium* parasite is so successful. This self-infection means that the parasite can rapidly produce oocysts in a relatively short time. The thick-walled oocysts are released in the feces and can survive for months in cool, moist climates and are resistant to most disinfectants. A neonatal calf can shed 30 billion oocysts over 1-2 weeks but it only takes 10-30 oocysts to cause a new infection in a calf. Livestock (cattle and sheep) and wildlife (deer) can share the same genotype of *C. parvum* so transmission can occur between livestock and wildlife.

### ***What does a calf with cryptosporidiosis look like?***

A calf with cryptosporidiosis will have diarrhea that varies from small amounts up to profuse, watery diarrhea which is typically yellow or pale and sometimes contains mucus. Affected calves have little to no appetite, are lethargic, develop dehydration and sometimes death, especially when other bacteria or viruses are present. Severity of the illness depends on the number of oocysts ingested (infective dose), the immune status of the calf (colostrum absorption), nutritional status of calf, virulence of parasite and occurrence of co-infections with other bacteria and/or viruses. The diarrhea is due to destruction of the small intestinal lining, causing impaired milk digestion and nutrient absorption. The diarrhea begins 3-4 days after ingestion of oocysts and lasts 1-2 weeks. Infected calves have reduced intestinal absorption until recovery which is, on average, at day 21 post-infection. Oocyst shedding (passing oocysts in the feces) starts as early as 4 days after infection depending on initial dose. Peak shedding is at 2 weeks of age if infected near time of birth. Naturally infected calves can shed large numbers (over a billion) oocysts each day which are immediately transmissible to susceptible calves and may remain viable for 18 months in the environment under the right conditions. There is a direct impact on growth rate during infection and those calves with severe cases as newborns will have reduced weight gain for at least 6 months. A recent study found on average, a calf with severe disease weighed 75 pounds less at 6 months of age compared to a calf with no clinical signs of cryptosporidiosis.

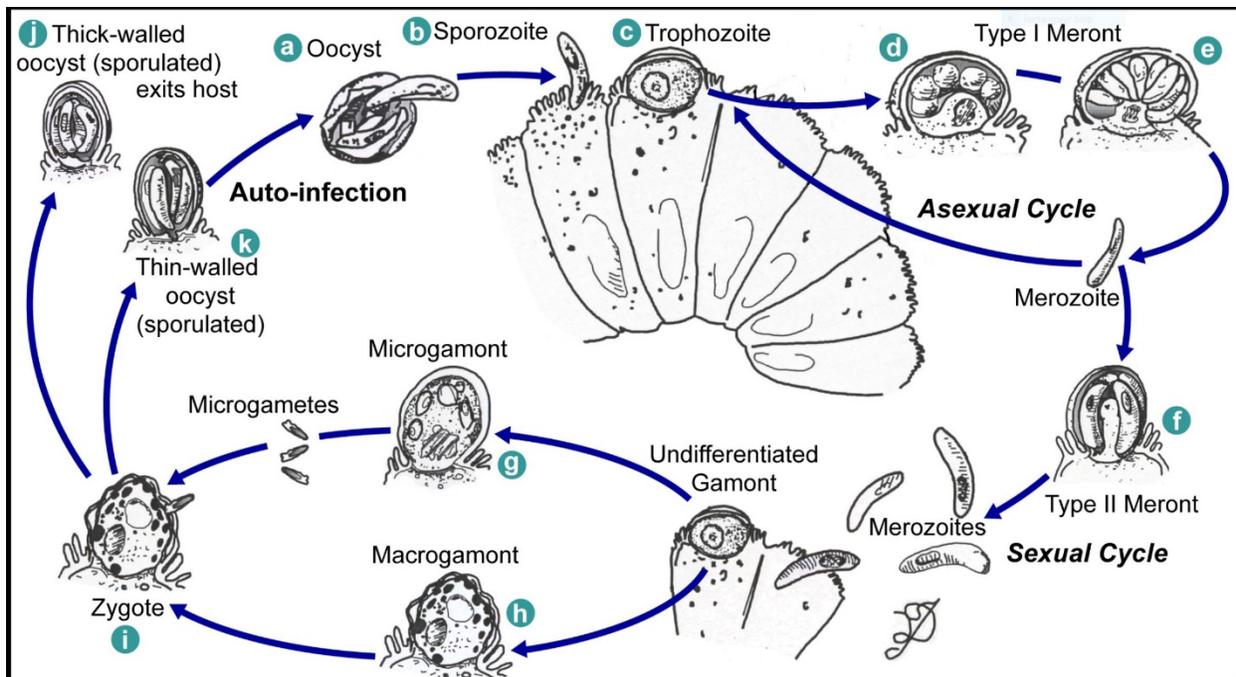


Figure 1: Life cycle of *Cryptosporidium* species. From <https://www.cdc.gov/dpdx/cryptosporidiosis/index.html> Following ingestion by a suitable host, excystation (a) occurs. The sporozoites are released and parasitize the epithelial cells (b, c) of the gastrointestinal tract. In these cells, usually within the brush border, the parasites undergo asexual multiplication (schizogony or merogony) (d, e, f) and then sexual multiplication (gametogony) producing microgamonts (male) (g) and macrogamonts (female) (h). Upon fertilization of the macrogamonts by the microgametes (i) that rupture from the microgamont, oocysts develop and sporulate in the infected host. Zygotes give rise to two different types of oocysts (thick-walled and thin-walled). Thick-walled oocysts are excreted from the host into the environment (j), whereas thin-walled oocysts are involved in the internal autoinfective cycle and are not recovered from stools (k). Oocysts are infectious upon excretion, thus enabling direct and immediate fecal-oral transmission.

### How is the disease diagnosed?

No type of diarrhea is considered “characteristic” of cryptosporidiosis in calves. Diagnosis is based on finding oocysts in the feces from infected calves that begins 4 days post-infection with peak intensity of oocyst shedding at 2 weeks and steadily declines as the calf ages. The oocysts are extremely small, making it a challenge to find them by traditional flotation methods and a microscope. A modified acid-fast staining method is widely used to help detect *C. parvum* in feces but it requires at least 500,000 oocysts per gram of feces to confirm by microscope. There are rapid antigen (ELISA) test kits available commercially for accurate detection in fecal samples. Polymerase Chain Reaction (PCR) assays are frequently used in diagnostic labs and provide the only method to distinguish between the four common species found in cattle (*C. parvum*, *C. bovis*, *C. ryanae* and *C. andersoni*). Of those four species of *Cryptosporidium* in cattle, only *C. parvum* has been found to cause disease in young calves. The UK Veterinary Diagnostic Laboratory has a PCR test to diagnose the cause of calf diarrhea. A small sample of scours (in a leakproof container) from a calf that has not been treated for diarrhea with antibiotics is needed to run the test. This PCR assay tests for bovine coronavirus, rotavirus, *E. coli* K99, *Salmonella* and *Cryptosporidium parvum*.

### ***Is there a treatment available?***

The disease is normally self-limiting in neonatal calves as long as 1) sufficient colostrum was absorbed in the first few hours of life, 2) the calves are kept warm and dry and given supportive treatment if required, and 3) there are NO co-infections with other causes of calf diarrhea (Rotavirus, coronavirus, *E. coli* K99 or *Salmonella* spp.). Calves with diarrhea need fluids and electrolytes (oral and sometimes SQ or IV) to correct dehydration and metabolic acidosis. It is critical to continue feeding milk to scouring calves to minimize loss of body weight and provide needed energy. No products are licensed in the US for treatment or prevention of cryptosporidiosis in livestock. Outside the US, there are two licensed drugs for prevention and treatment in calves, halofuginone lactate (Halocur®) and paromomycin. Halocur® is administered for 7 consecutive days and must be started within 48 hours of birth for prevention or must be started within 24 hours of onset of diarrhea for treatment purposes. This medication does not totally prevent or cure the disease but reduces oocyst shedding and duration of diarrhea. Paromomycin, an aminoglycoside antibiotic, has anti-protozoal properties and shows promise in controlling cryptosporidiosis in neonatal calves, lambs and goats. Several other treatments have been tested in livestock but none have worked consistently to reduce clinical signs. Of the natural/alternative treatments studied, garlic offered a promising effect on prevention and treatment through immune system stimulation and strengthening of body defense mechanisms. Currently no vaccines are available although studies are being conducted in pregnant cows vaccinated with recombinant *C. parvum* to produce antibodies against *C. parvum* that can be passed in colostrum. Results are promising in the laboratory but have not been tested in field conditions. Specific protection may be transmitted by vaccinated dams in their colostrum against viruses (Rotavirus, Coronavirus) and certain strains of *E. coli*. Although there is no vaccine against cryptosporidiosis, after an infection, the recovered animals are immune.

### ***Can cryptosporidiosis be prevented?***

Cryptosporidiosis is one of the most challenging diseases to control due to the environmentally stable oocysts, the low dose needed for infection, the high level of oocyst shedding by infected calves and the resistance of oocysts to many disinfectants. This disease often occurs year after year on an infected farm. No vaccines are available and treatment is basically limited to rehydration therapy in the US. Sanitary measures and good management practices are the weapons used to minimize environmental buildup and to optimize the neonatal environment. Reduce environmental contamination through frequent removal of feces and contaminated bedding from calving areas; steam cleaning and disinfection of surfaces with hydrogen peroxide-based disinfectants followed by thorough drying can significantly reduce buildup. Oocysts are susceptible to extremes of temperature from -4° F to 140° F (-20° to 60° C) and drying. In beef cattle, infections are most often seen when cattle are housed or calved out in a barn and cases increase quickly during calving season. Calves born at the beginning of calving season may be infected from oocysts in the environment and show mild or no symptoms. However, calving pens can build up oocysts and other pathogens quickly over the duration of the calving season. Calves born later in the calving season are exposed to higher numbers of pathogens (bacteria, viruses and *C. parvum* oocysts) increasing the likelihood of diarrhea. A study to determine the most important factors on a farm that increase the risk of cryptosporidiosis include

housing calves in a barn, having a larger herd size (>200 head), use of hay bedding, and precipitation (100-150 mm) increased risk of shedding *C. parvum*. Preventing calf scours must include a good scours vaccine program in the cow herd. If a rotavirus, coronavirus, or bacteria (*E. coli* K99, *Clostridium perfringens* Type C, *Salmonella* spp.) infects a calf in addition to the parasite *Cryptosporidium parvum*, mortality (death loss) can be very high especially in newborns. Controlling rotavirus, coronavirus and *E. coli* with vaccines can significantly reduce sickness and death losses due to calf scours.

### ***Is cryptosporidiosis common in humans?***

Most human cases of cryptosporidiosis are caused by either *C. parvum* or the human adapted species *C. hominis*. Virtually all infections in calves 8 weeks of age and younger are caused by *C. parvum* and it is recognized as the major zoonotic species (animal to human transmission). It is most often transmitted through contaminated water supplies because the hardy oocyst is resistant to most disinfectants and their small size makes it difficult to eliminate with filtration from drinking water. Infection in immunocompetent people causes self-limiting diarrhea for up to 3 weeks but can be life-threatening in immunocompromised individuals. The disease is commonly contracted by veterinary students, or may be acquired at petting zoos and farm visits by the public.

As always, your veterinarian is the best resource for diagnosis of all medical conditions, treatment, and prevention recommendations.

### **Meeting Protein Requirements When Protein is Expensive** ***Katie VanValin, Assistant Extension Professor, University of Kentucky***

One of the things that we know for certain is what goes up must come down, and in the agriculture industry the opposite is also true. For a whole host of reasons, we see fluctuations in all our commodity prices. In the beef industry, we can sometimes use this to our advantage to cheaply feed cattle, while other times we are forced to get out the pencil and paper (or excel spreadsheet) and look at our options to try and decrease feed costs. As of last week (January 7<sup>th</sup>, 2021) the national average value of distillers dried grains was 122.99% relative to corn, compared to the 5-year average of 109%. Soybean meal prices are being pushed even higher, based on national averages distillers grains were at \$8.04 per unit of protein with soybean meal coming in at \$9.22 per unit of protein as of last week.

In addition to times when price alone can make an ingredient impractical, there are also times when supply becomes limited and ingredients may simply not be available. We saw this last spring at the beginning of the COVID-19 pandemic when ethanol plants slowed production or closed all together. The question ultimately becomes, what options do we have for meeting protein requirements, when protein is expensive?

In the case of forage-based diets the first thing we need to do in order to assess protein supplementation is to get a forage test! Without a forage test we are simply taking a stab in the dark at what protein is being supplied in the forage, and what needs to be supplemented. This can lead to under or over supplying protein, both of which can have negative economic impacts. For

example, if we had distillers grains priced at \$235/T and were feeding 3 lbs per day to 30 head over a 90 day period it would cost approximately \$950 dollars. If we had a forage test that showed, we only needed to be supplementing 2 lbs per head per day the cost would have been approximately \$635 dollars. In Kentucky forage testing can cost anywhere from \$10-25 dollars, and in this example, we saved approximately \$315 dollars by completing a forage test and using the information. In situations where we are under feeding protein, money might be saved on the feed bill, but what you are giving up is performance which can be a bit more difficult to track. Once cows become thin ( $BCS \leq 4$ ), we see negative effects on reproductive performance. In growing cattle under supplying protein can lead to decreased ADG, which means we are leaving pounds on the table (or at the feedbunk in this case).

When comparing commodities, it is helpful to look at them on a price per unit basis whether that unit is protein or energy. This comparison should be made on a dry matter basis in order to truly make a fair comparison since differences in moisture across feed stuffs can dilute concentrations of other nutrients. While a lot of producers have come to rely on purchasing individual feedstuffs, another potential alternative is purchasing a protein supplement from a feed company. These products may contain plant sources of protein, or a combination of both plant and non-protein nitrogen (NPN) ingredients. It is important to note that these products may contain supplemental minerals and that should be factored into the cost of the product.

For cattle on diets high in rapidly fermentable carbohydrates such as starch coming from corn or other cereal grains, NPN can be an economical way to increase protein in the diet, while decreasing the inclusion of crude protein contributing feed stuffs such as distillers grains and soybean meal. The most common source of NPN is urea, which analyzes at 287.8% CP, making it by far the cheapest source of CP on a per unit basis. However, caution must be taken to ensure the safety of cattle when feeding urea, as this ingredient can be toxic when inclusions or intakes are too high. General guidelines to consider is that no more than 1/3 of the total diet CP should be derived from NPN, and the diet should include no more than 1.5% urea on a DM basis. Always work with a nutritionist when formulating diets that contain urea, as this ingredient is not appropriate for all diets and classes of cattle. Also work with a trusted feed-mill to ensure urea is mixed properly to ensure safety!

As with a lot of things in beef production, there is not one single solution to decreasing the price of protein supplementation. However, sitting down and looking at your current costs and evaluating potential alternatives that are available to you may lead to savings, or at least ensure that performance is not being sacrificed.

## **Don't Quit Now!**

*Les Anderson and Jeff Lehmkuhler, Beef Extension Specialists, University of Kentucky*

Many things in life make sense on the surface. Mark Twain once said "It ain't what you don't know that gets you in trouble. It's what you know for sure that just ain't so". A great example is using water to put out a fire. On the surface this makes sense but if it's a grease fire using water is a huge mistake. Beef cattle production has several examples of this but reducing feed to late gestation cows is one of the most common.

On the surface, reducing feed to late gestation cows makes some sense; less feed, potentially smaller calf, fewer calving problems, and a smaller feed bill. Fewer calving problems means more calves, more potential revenue, and, on the surface, this strategy is logical. But, like many things in life, the logical “just ain’t so”.

Fortunately, a great deal of research is available to help us understand the issues with nutrient intake of cows during the last trimester of pregnancy. As a pregnant cow moves from the second to the third trimester, her energy and protein requirements increase. Much of this increase is due to supporting the pregnancy and supporting the growth and development of the calf. However, we forget that during the last few weeks prior to calving the mammary tissues are growing and colostrum is being formed requiring energy and protein. “Uddering up” is one of those signs we watch for as cows near parturition, but we pay no attention that it took some groceries to support that udder development.

Dr. Arnold discussed some of the health-related issues of under-feeding late gestation cows last month in *Off the Hoof*. Here is a paragraph from her article. “New research has identified the role of “fetal programming of the immune system” during pregnancy as a major factor affecting calf vitality after birth. In fact, the latest research has proven there is **no safe time during gestation to “short” a cow of her nutrient needs (including trace minerals) that will not impact the health of her unborn calf**. A nutritionally deprived cow will produce poor quality and quantity of colostrum, have less energy to deliver her calf quickly, and she can lose a substantial amount of weight during her lactation so she will be slow to rebreed. Calves born to energy deficient dams will have less of the brown fat needed for energy to stand and nurse and more will die.”

Researchers have compared under-feeding and over-feeding with on-target feeding and observed the following in under-fed cows:

- Have smaller calves
- Have less energy stored in their bodies
- Have lower antibody concentrations in their colostrum and less nutrient dense milk
- Higher rates of dystocia (calving problems)
- Higher calf death loss
- Take longer to resume estrous cycles
- Have lower pregnancy rates in the following breeding season

To clinch the nail on feeding late gestation cows, Dr. Steve Loerch and coworkers at The Ohio State University went to the extreme and examined the impact of type of feed on calving and reproductive performance. They fed cows either a normal forage-based ration or a ground corn-based diet with both diets balanced to meet the cow’s nutrients needs. Cows fed strictly corn-based diet had larger calves by 5-6 pounds, but the dystocia rate was not impacted. Pregnancy rate and calf weaning weight tended to be higher in the cows fed the corn-based diets. These data illustrate that even feeding extreme diets, dystocia rate and calving problems are not impacted by late-gestation feeding.

Even if you are not intentionally restricting nutrient intake, you may be unintentionally. We know that a higher plane of nutrition can slightly increase birth weight, but we also know that

feed intake drops prior to calving in cows. Combine this reduced intake prior to calving with feeding a hay that just meets maintenance needs of a dry, mid-gestational cow all the way through to calving, and you have unintentionally got her nutrient balance out of whack. Nutrient balance issues lead to losing body weight, more dead calves, and lower reproductive rates.

Forty+ years of data very clearly indicate that the logic of reducing feed to cows before calving is not a sound management plan. Calving performance, calf death rates, calf health, calf weaning weights are all negatively impacted by underfeeding cows before they calve. Saving that feed on late gestation cows is like throwing water on a grease fire.....it just doesn't work.

## **Rising Feed Costs Being Felt**

*Jeff Lehmkuhler, PhD, PAS, Associate Extension Professor, University of Kentucky*

Looking back on 2020, the year had its share of pull your hair out and scream moments. Just as we were nearing the end, another slap in the face came as grain commodities began to run up on the trade market. This is a good thing for our crop growers who struggled in 2020. My brothers-in-law reminded me of this at Christmas how much corn they had already sold earlier in the year for less and how they were now wishing they had held on to it. For those that haven't looked, the March corn futures in mid-December were in the \$4.20's range and this week were trading in the \$5.30's. It was over the same course of time that the nearby futures for beans went from trading in the mid \$11's to over \$14. As most of our feedstuffs in the region are either grain or coproducts of the grain processing industry, these increases in grain commodities have increased feed inputs significantly.

Dr. Burdine continues to share with you market information and you need to stay on top of what's happening. We can handle increases in grains commodities if cattle prices follow the same pattern. The February fed cattle futures started following that trend in December but have since come right back to mid-December prices near \$112. What happens to those feeder cattle futures when grain inputs go up and fed cattle drop? You guessed it; the January feeder calf contract is trading \$4 lower than it was in mid-December. However, some say things will turn around soon making mid-2021 a bit better than it seems to be starting off.

Let's just quickly think about these feed costs. Run your budgets and see what the rise in feed and steady-to-lower calf prices does to your breakeven. The optimism in the markets seems to suggest that using some of that excess hay to background calves may be something to consider as the Aug/Sept futures are much stronger than March. Work out your value of gain and see whether this fits into your operation. Consider risk management options on feeders.

Test your forages to find out what you may need to supplement the cow herd and how to best use that excess forage in the grower programs. Those in the bourbon producing areas may find this year the time to look at using stillage or syrup to supplement cows and growing calves. In most cases, this feed will be a better value compared to the higher priced commodities if you can get it delivered and figure out a way to feed with troughs.

Cost per lb TDN is ranked	Lowest		Highest					
	% DM	%TDN, 90%	% TDN, DM	Cost, unit	unit wt	lb DM	lb TDN	Cost/lb TDN
Fescue hay	88	48	53.3	\$ 40.00	750	660	352	\$ 0.11
Corn	87	81	90.0	\$ 215.00	2000	1740	1566	\$ 0.14
Soyhulls	90	72	80.0	\$ 210.00	2000	1800	1440	\$ 0.15
Corn Gluten Feed	90	72	80.0	\$ 180.00	2000	1800	1440	\$ 0.13
Distillers Grains	90	83	92.2	\$ 250.00	2000	1800	1660	\$ 0.15
Syrup	20	90	100.0	\$ 425.00	48000	9600	9600	\$ 0.04

In many cases with cows, we are short energy or calories. Shop around for the best value. As an example, look at the table included. Considering the differences in prices and calculating the cost per pound of TDN will allow you to make an informed decision on the best value. That said, most coproduct feeds are going to be priced based on the grain commodities. It is finding that bargain which can be a challenge and for those in the bourbon producing areas it very well may be stillage or syrup.

Lastly, apply technology to help with efficiency. If you are going to be supplementing cows and calves with a grain mix, consider using an ionophore to get a bit more energy from the feeding program. Those backgrounding calves, unless you are guaranteed a premium for not doing so, implant the steers and market heifers as it continues to be a solid return on investment. And tipping my hat to Dr. Higgins, keep the cattle out of the mud to avoid throwing dollars on the ground from lost performance and reduced efficiency.

Greener grass is coming. We hope to continue to see you on our virtual meetings and until we see each other in person, stay healthy. Reach out to your Extension agent for additional information and resources.