OFF THE HOOF

Martin-Gatton College of Agriculture, Food and Environment

Cooperative Extension Service
University of Kentucky
Beef IRM Team

KENTUCKY BEEF CATTLE NEWSLETTER MAY 1, 2024

Each article is peer-reviewed by UK Beef IRM Team and edited by Dr. Les Anderson, Specialist, Department of Animal & Food Science, University of Kentucky

This month's newsletter includes:

Timely Tips

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

Spring Calving Cow Herd

- Continue supplying a high magnesium mineral until daytime temperatures are consistently above 60 degrees F.
- Improve or maintain body condition (BCS 5) of cows before breeding season starts. If necessary, increase energy intake even on pasture.
- Bulls should have a breeding soundness evaluation (BSE) well before the breeding season (at least 30 days). Contact your local veterinarian to schedule a BSE for your herd sires. They should also receive their annual booster vaccinations and be dewormed. I often get questions regarding deworming and reduced fertility in bulls. Dr. Phil Prater at MSU and I examined this and found no effect of deworming on bull fertility.
- Schedule spring "turn-out "working in late-April or early-May, i.e. at the end of calving season and before the start of breeding season. Consult with your veterinarian about vaccines and health products for your herd.

  "Turn-out" working for the cow herd *may* include:

  - Prebreeding vaccinations
  - Deworming
  - Replacing lost identification tags
  - Sort cows into breeding groups, if using more than one bull
  - Insecticide eartags (best to wait until fly population builds up)

  "Turn-out" working of calves may include:
  - Vaccinate for IBR-PI3, Clostridial diseases and Pinkeye
  - Dehorn, if needed (can be done with electric dehorner and fly repellent during fly season)
  - Castrate and implant male feeder calves (if not done at birth)
  - Deworm

    - Insecticide eartags
- Consider breeding yearling replacement heifers one heat cycle (about 21 days) earlier than cows for "head-start" calving. Mate to known calving-ease bulls.
- Record identification of all cows and bulls in each breeding group.
- Begin breeding cows no later than mid-May, especially if they are on high endophyte fescue. Cows should be in good condition so that conception occurs prior to periods of extreme heat.
- Consider synchronizing estrus in all cows. Exposing late-calving cows and first-calf heifers to a progestin (MGA feed or CIDR device) for 7 days before bull turn out increases pregnancy rates and shortens the next calving season.
- Choose the best pastures for grazing during the breeding season. Select those with the best stand of clover and the lowest level of the fescue endophyte, if known. Keep these pastures vegetative by grazing or clipping. *High quality pastures are important for a successful breeding season.*
- If using **artificial insemination:**
    - Use an experienced inseminator.
    - Make positive identification of cows and semen used. This will permit accurate records on date bred, return to heat, calving date, and sire.
    - Good handling facilities and gentle working of the cows are essential.
    - Choose AI sires that will meet <u>your</u> goals and resist the temptation to get your cows bigger. Using sires with higher accuracy EPDs will reduce risk.
- Observe breeding pastures often to see if bulls are working. Records cows' heat dates and then check 18-21 days later, for return to heat.

<u>Fall Calving Cow Herd</u>

- Contact your veterinarian and pregnancy diagnose the cow herd. If a large animal veterinarian is not available in your area, consider taking blood samples for pregnancy diagnosis. Remove open cows at weaning time.
- Plan marketing program for calves. Consider various options, such as maintaining ownership and backgrounding in a grazing program, or precondition and sell in a CPH-45 feeder calf sale.
- Initiate fly control for the cows when fly populations build up.
- Calves may be weaned anytime now but you can take advantage of the spring grass by leaving them on the cow a while or weaning and grazing.

<u>Stockers</u>

- Keep calves on good pasture and rotate pastures rapidly during periods of lush growth. Manage to keep pastures vegetative for best performance.
- Provide mineral mix with an ionophore.
- Implant as needed.
- Control internal and external parasites.

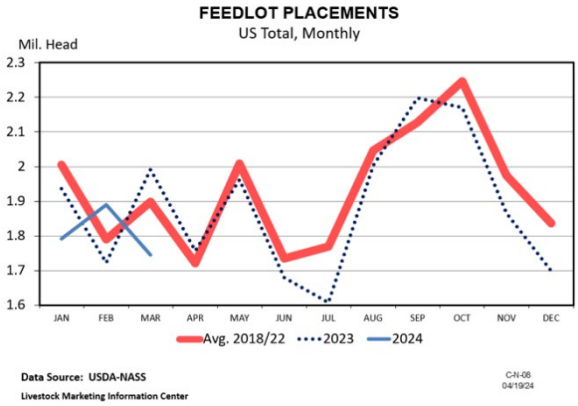
<u>General</u>

- Harvest hay. *Work around the weather and cut early before plants become too mature. Harvesting forage early is the key to nutritional quality.* Replenish your hay supply!
- Rotate pastures as needed to keep them vegetative.
- Clip pastures to prevent seedhead formation on fescue and to control weeds.
- Seed warm season grasses this month.

A Bullish April Cattle on Feed Report

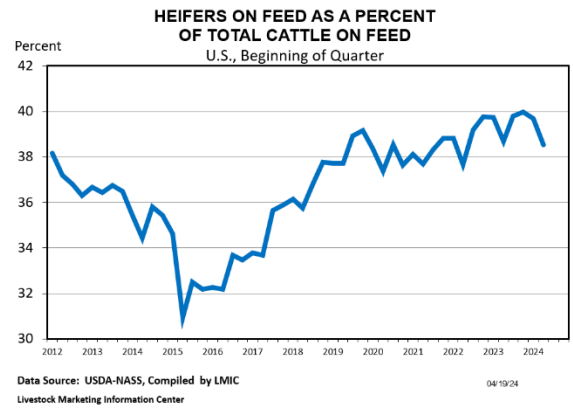
Dr. Kenny Burdine, University of Kentucky

Cattle on feed reports have not been especially kind to the cattle complex in recent months. Despite fewer cows and a smaller calf crop, on-feed inventories have been running above year-ago levels. Over the last several months, feeder cattle placements have been higher than most analysts would have expected. Weather and high prices likely encouraged some early placements in some regions going back to fall. At the same time, marketings have seemed to be relatively slow. I suspect this has been partly due to expensive feeder cattle and cheaper feed. This combination tends to encourage adding more weight to current feedlot inventory and rising harvest weights seem to be supporting this hypothesis.



This brings us to the April Cattle on Feed report, which came at the end of a week when cattle markets had gained back a portion of what had been lost since late March. The number that stood out the most was the estimate of March placements, which came in 246,000 head lower than March of 2023. I don't want to read too much into a single report, but this 12% decrease is significant and came in below all the pre-report estimates I had seen. Sometimes it is beneficial to take a bit longer view on something like this. If I look at the entire first quarter, placements were down 4% for 2024. This is a number that seems to make sense given feeder cattle supplies. It's also worth noting that the first quarter of 2024 included February 29th due to 2024 being a leap year.

The April report is also one of the quarterly reports where an estimate is made of the on-feed breakdown between steers and heifers. This can provide some indication of heifer retention for breeding purposes and will be especially important this year as we may not have the July Cattle Inventory report. As of April 1, heifers and heifer calves accounted for 38.5% of on-feed inventory. For comparison, heifers accounted for 40% of on-feed inventory in October of last year and 39.7% in January of this year. The fact that the share of heifers on feed is decreasing does bear watching in the coming months, but still does not point to significant heifer retention. If one goes back and examines the last expansionary period, the heifer percentage was below 35% for ten straight quarters – from the first quarter of 2015 to the second quarter of 2017.



Put simply, the most recent cattle on feed report was the most bullish that we have gotten in a good while. Even though total on feed numbers remain above 2023 levels, they were still below trade expectations. Sharply lower placements seemed to confirm that feeder cattle supplies are very tight. And there is still no evidence that large numbers of heifers are being held for replacement purposes. While the volatility in the cattle markets is likely to stay, the supply picture remains encouraging for feeder cattle markets.

Greening up the Beef Cow Herd

Dr. Jeff Lehmkuhler, Extension Professor, University of Kentucky

Spring is my favorite season as the flowers wake up and bloom and the grass takes off growing. This past week I noticed some bluegrass already flowering and given our warm spring, I suspect your forage in your hay fields will be ready to cut early. Have your hay equipment ready and keep an eye on the weather forecast to get that first cutting at early flower stage for fescue which could be in just a couple weeks here in mid-May. Making the first cutting at early flower stage for tall fescue is a point that provides good yield and quality. Additionally, removing the flower removes the plant hormone suppressing leave elongation and tillering while weather is cool and soil moisture is available to promote regrowth. Hay supplies are depleted and getting an extra cutting this year will help replenish the barn. Additionally, getting that first cut earlier will increase quality and reduce winter supplementation needs. We continue to see research groups investigating strategies to reduce the impact livestock have on greenhouse gas (GHG) emissions. Essential oils and extracts, tannins from plants, supplementation with fats and plant oil, increasing grain supplementation within forage systems as well as using ionophores are all potential inhibitors. These feed additives have a direct impact on the bacteria that produce methane. One hurdle with this approach is that the animals must consume these products frequently. However, recent studies at UK suggest there can be a carryover effect on methane production for some products.

As the beef industry is charged with reducing GHG emissions, one should take a step back and simply think about the inputs and outputs used in a life cycle assessment for the potential GHG emissions from beef systems. The main GHG gases include carbon dioxide (CO2), methane (CH4) and nitrous oxide (N2O). These gases can be derived from burning of fossil fuels in equipment (CO2), microbial digestion of feed (CH4), and chemical fertilizers (N2O). To better understand the impacts of various industries on GHG emissions, a life cycle assessment (LCA) is meant to provide a standardized approach to estimating the potential impact on global warming.

A life cycle assessment is a holistic approach to determining the overall impact on global warming via GHG emissions to produce a good or commodity. The analysis considers all stages of production of the item. There can be some subjectivity regarding what is and is not included in the assessment. For livestock systems, emissions are included from the application of herbicides and fertilizers, transportation of animals to market, the production of purchased feedstuffs, harvesting and processing of the animals, transportation of the end product, as well as direct inputs for producing the animals. The goal is to find opportunities to reduce GHG emissions.

Several researchers have conducted LCA for beef production systems. Repeatedly, the cow-calf sector of the industry is reported to be the largest contributing sector of GHG. This is due to the consumption of forage-based diets combined with a large proportion, 60-70%, of daily feed intake relegated to maintenance of the cow. In one study, LCAs were performed for 295 Canadian beef operations (Alemu et al., 2017). The operations were separated into high- and low-emitting with respect to CO2 equivalents. The authors identified key factors separating the low- and high-emitting operations. The following summarizes several of the factors observed for low-emitting operations: cull open cows, higher culling rates, higher birth weights, greater weaning weights, increase in total pounds marketed per cow, greater plane of nutrition, fewer annual forages and greater use of perennial forages, reduced use of N fertilizer and greater utilization of stockpiled manure. Each of these are further discussed in the

research article. Increasing pounds marketed per cow fits right in line with the Standardized Performance Analysis (SPA) data findings which indicated the key driver for herd profitability was pounds of calf weaned per cow exposed.

Focusing herd management to increase pounds of calf weaned per cow exposed has been a long-standing premise of our educational programs. Use of crossbreeding to increase fertility, controlling the breeding season, implementing preventative herd health protocols, and improving grazing management all have impacts on production efficiency and the ability to lessen the potential impact of GHG on global warming.

Spend some time reviewing your operation and see if there are opportunities to improve your production efficiency. Even if you don't have a scale, you can assess your weaning percentage and age separation between the first and last calf born in the calving season. The discussions on GHG emissions should not scare you. You can get a quick introduction from this article Going Green: Ten fundamentals of greenhouse gas emissions for beef systems at https://www2.ca.uky.edu/agcomm/pubs/ASC/ASC261/ASC261.pdf . Being knowledgeable on the subject will help you with finding opportunities as well as having discussions with those that may question beef production systems impacts on global warming.

Bovine Coccidiosis-Frequently Asked Questions

Dr. Michelle Arnold, DVM – Ruminant Extension Veterinarian (UKVDL)

What is "coccidiosis"?

Coccidiosis, also known as "cocci", is a disease of calves due primarily to two species of protozoan parasite, *Eimeria bovis* and *Eimeria zurnii*. In the clinical or observable form of the disease, calves have diarrhea, often bloody, that can lead to death from damage to the intestinal tract, specifically in the lower small intestine, cecum, and colon. "Subclinical" infection without noticeable diarrhea can still cause gut damage resulting in depressed appetite, decreased feed efficiency, and poor weight gain. How "sick" animals get depends on which species of *Eimeria* is involved, the level of exposure, and any associated stressors such as weaning, transport, poor nutrition or weather extremes occurring at the time of infection. Coccidiosis can be seen in calves as early as 3 weeks of age, but it is diagnosed most frequently at stressful times such as weaning or at entry to a backgrounding operation or feedlot. Cattle generally develop immunity to disease by 1 year of age, meaning they continue to harbor and shed coccidia without the ill effects. Healthy older animals can spread the organism to younger, vulnerable stock.

How is the organism transmitted?

All bovine *Eimeria* have a "fecal-oral transmission cycle", in which the infective form of the organism (the "oocyst") is passed in the feces of infected cattle and consumed by calves in contaminated feed or water. Coccidia are "host-specific"; the *Eimeria* species that infect cattle do not infect any other species of animal and vice-versa. Calves infected for the first time shed the greatest number of the infective "oocysts" and quickly contaminated their environment. The life cycle of *Eimeria* is completed in a calf within 2-4 weeks and millions of oocysts may be produced in that time. Once the oocysts leave the calf in the feces, the oocysts "sporulate" and can survive weeks to months outside in the right conditions of moderate temperature and high moisture. Buildup is most common in areas where animals congregate or

are crowded together, especially around watering and feeding facilities. However, direct exposure to sunlight and drying will kill the organism.

What does a calf with coccidiosis look like?

After a calf swallows sporulated oocysts, the organism begins a very complex reproductive cycle, both asexual and sexual, within the cells that line the calf's intestinal tract (see Figure 1 for a complete review of the life cycle). When the reproductive cycle is finished and the newly formed oocysts are mature, they break open the intestinal cells and are released into the gut and passed in the feces. The damage to the gut caused by this rupture of intestinal cells is what causes the disease symptoms. The most common sign associated with coccidiosis is diarrhea that often contains red blood, mucous and shreds of intestinal lining. Calves often strain and some calves may prolapse the rectum with excessive straining. Milder cases may have watery or soft stools, depressed appetite, rough hair coats and poor growth. The disease can range from self-limiting infection in which calves require no treatment, to severe infection and death. Some animals develop nervous signs including tremors, circling, and convulsions with normal periods between neurologic episodes. Mortality (death) in those with the nervous form is typically 80-90%. Calves that recover from severe diarrhea may have permanent scarring in the gut and never grow well. Coccidiosis should always be considered a "herd disease" rather than an individual calf problem because *Eimeria* spread quickly within a group after just a few life cycles of the parasite.

How is the disease diagnosed?

Observation of diarrhea in stressed calves, especially with red blood present, raises the suspicion of coccidiosis. Fecal samples may be collected and analyzed in the laboratory for *Eimeria* oocysts, with 500 or more oocysts per gram of feces considered important. However, since the organism reproduces by both sexual and asexual means, severe disease can result before oocysts are detected in large numbers in the feces. Therefore, it is recommended to collect fecal samples from multiple animals in a group when attempting to confirm the diagnosis. Of note, there are at least 13 species of *Eimeria* in cattle and many are considered "nonpathogenic" and will not cause illness, so species differentiation is required. The rare form of "nervous coccidiosis" is diagnosed most often at necropsy.

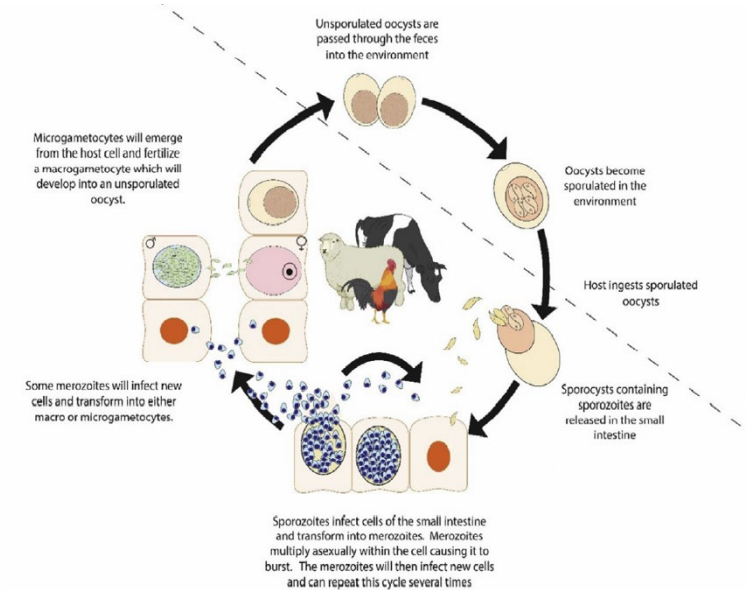


Figure 1: From "Coccidiosis in Large and Small Ruminants", Veterinary Clinics of North America, Food Animal Practice (2018), 34, p.202.

Is there a treatment available?

In cattle, once the oocysts are detected in the feces of a calf with bloody diarrhea, most of the intestinal damage is already done. However, treatment can still have a beneficial effect and can slow transmission to the rest of the herd. All calves in a group should be treated simultaneously and moved to a cleaner environment or new pasture once the disease is recognized. Amprolium (Corid®) is licensed in cattle for therapeutic treatment when given for 5 days at 10 mg/kg body weight and can be used for prevention at

a dose of 5 mg/kg of body weight for 21 days. Amprolium is a "thiamine analogue" and it is taken up by the coccidia in place of thiamine, thus interrupting several critical metabolic steps in its growth and reproduction. Corid® is available as an oral solution, a pelleted feed additive, or as a soluble powder. It is important to observe the correct dose and length of treatment because too much amprolium can result in polioencephalomalacia or "brainer" calves. Talk with your veterinarian for more information.

Sulfaquinoxaline administered as a 0.015% solution in water, is also approved as a treatment in cattle at 10-20 mg/kg body weight for 3-7 days. Sulfa drugs interfere with the synthesis of folic acid, an essential requirement for reproduction in the life cycle of coccidia.

Can coccidiosis be prevented?
Prevention is far better than treatment since production losses and permanent gut damage in a proportion of calves is nearly guaranteed once diarrhea is observed. Effective coccidiosis control does not require complete elimination of the organism. Instead, consumption of low numbers of oocysts is beneficial because it promotes development of immunity which will protect the animal when challenged with future infections. Minimizing stress and environmental contamination while optimizing nutrition will limit the progression of coccidiosis. However, where environmental control is not adequate (for example, a crowded dry lot) and when times of elevated stress are expected such as at weaning, effective drugs are available to help prevent coccidiosis. Two types of drugs, "coccidiostatic" and "coccidiocidal", are available. Coccidiostats inhibit the development of early life cycle stages and include amprolium (Corid®), decoquinate (Deccox®), and the sulfonamide antibiotic Sulfaquinoxaline. Coccidiocides kill the parasites at several stages of development and include the polyether ionophores known as monensin (Rumensin®) and lasalocid (Bovatec®), and the symmetric triazine class of drugs which are currently unapproved in the USA.

The most commonly used drugs to control coccidiosis are the ionophores, specifically lasalocid (Bovatec®) and monensin (Rumensin®), and the quinolone coccidiostat decoquinate (Deccox®). They are highly effective, easily administered in feed or minerals, and should be offered for at least 28 days. Lasalocid (Bovatec®) is approved for control of coccidiosis in cattle up to 800 pounds when fed at 0.45 mg/pound of body weight/head per day up to a maximum of 360 mg per head per day. Monensin (Rumensin®) is approved for prevention and control of coccidiosis in many classes of cattle, either mixed in feed at 0.14-0.42 mg monensin/pound of body weight/head per day up to a maximum of 200 mg per day or offered in free-choice products at 50-200 mg monensin per head per day. Decoquinate (Deccox®) is approved to be administered at 0.5 mg/kg of body weight per head daily for at least 28 days for prevention of coccidiosis during periods of exposure to coccidia or when cattle are considered at high risk. As mentioned previously, amprolium (Corid®) can be used for prevention at a dose of 5 mg/kg of body weight/head daily for 21 days.

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

Going Against the Grain to Work with Mother Nature

Dr. Katie VanValin, Assistant Extension Professor, University of Kentucky

Approximately 70% of the nation's cow herd calves between January 1st and June 30th each year, typically calving in February and March, a breeding season ranging from May through July, and

weaning calves in the fall. On the other hand, those with fall calving herds will calve in September and October, breed from December to February, and wean in the spring. While fall-calving herds are in the minority and may seem to "go against the grain," this system offers producers unique opportunities to work with mother nature, especially in the fescue belt.

Environmental conditions are often more favorable for fall calving, starting with calving. While heat can be an issue, especially for calves born early, the cold, wet, and muddy conditions often seen in February and March are a non-issue. Cool-season forages pick up again in the fall as the summer heat begins to subside, providing a forage base for the lactating cows. Tall fescue stockpiles well and can be a good option for helping to maintain the fall calving herd. One downfall to fall calving that I often hear talked about is the need to overwinter both the lactating cow and her calf. While this is true, and conserved forage plus energy supplementation is often required to meet the nutritional requirements of the lactating cow, these costs can be offset by marketing calves into what is typically a seasonally higher market in the spring.

One of the most significant environmental differences between spring and fall calving herds is observed during the breeding season. Heat stress occurs when the combination of temperature and humidity reaches a threshold that causes cattle to generate or take on more heat than they can dissipate. Heat stress is compounded by cattle experiencing fescue toxicosis because of the vasoconstrictive effect of the ergot alkaloids found in endophyte-infected tall fescue. Heat stress has profound impacts on reproduction in both the cow and the bull, including temporary infertility. As our climate continues to change, periods of heat stress may become more prevalent during the typical May-July breeding season for spring calving herds, and of course, this will be exacerbated in herds grazing endophyte-infected fescue during this time. Fall-calving herds can avoid complications from heat stress during a winter breeding season. Profitability in the cow-calf sector starts at breeding by getting cows bred on time. In the mid-south, we are more likely to encounter challenges from mother nature during the spring-summer breeding season than during fall-winter.

Weaning is another critical dichotomy between the spring and fall calving seasons. With spring calving herds weaning in the fall, producers looking to pre-condition or background their calves may have limited forage resources for both the cow herd and weaned calves. Fall-calving cows weaning in the spring are often weaned at a time when grass growth is plentiful, and it can often grow faster than our cow herd can graze it. Keeping with the theme of working with mother nature, one consideration with fall calving herds is to delay weaning until calves are a bit older. Running fall-born calves on grass can be a great way to take advantage of the relatively cheap cost of gain while adding value and pounds to the calf. Once calves have reached 5-6 months of age, the cow produces much less milk compared to peak lactation, as the calf, at this point, is getting most of its nutrients through grazing. Keeping the calf on the cow a bit longer in the spring can also help to prevent fall cows from becoming overly conditioned after weaning. By delaying weaning later into spring, fall calving producers can also avoid the cool, wet, and muddy conditions often seen in March. March in the mid-south seems to be one of the dreariest months of the year, and I have found myself saying on more than one occasion, "I don't like weaning in March for the same reasons I don't like calving in March."

Nearly ¾ of the nation's cow herd calves in the first part of the year, and there is a reason for that. As a nutritionist, I know fall calving has its challenges, and managing winter feeding is a big one. It is critically important that those fall-calving cows don't lose condition during the breeding season while

typically consuming stored forages. However, when considering the big picture or the overall system, fall calving can have much to offer cow-calf producers in the fescue belt. In the fall calving system, we can work with Mother Nature and avoid extreme heat and fescue toxicosis during the breeding season and cold, wet, and muddy conditions at both calving and weaning (if timed correctly). In return, fall-calving herds can market calves at a time of the year when markets are expected to reach their seasonal highs. Fall calving won't be for every operation, but it is something to consider when managing cows in the fescue belt. Sometimes it pays to go against the grain.