OFF THE HOOF

Cooperative Extension Service
University of Kentucky
Beef IRM Team

KENTUCKY BEEF CATTLE NEWSLETTER MAY 1, 2025

Each article is peer-reviewed by UK Beef IRM Team and edited by Dr. Les Anderson, Beef Extension 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 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.

Fall-Calving Herd

- 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 population builds 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.

Stockers

- 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.

General

- 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.

Southeast Backgrounding Short Course is Back

Dr. Jeff Lehmkuhler, PhD, PAS, University of Kentucky

We are excited to be offering the Southeast Backgrounding Short Course once again on May 13th and 14th, 2025. This year marks only the third time the program has been held. You can join us at the C.Oran Little Research Center Beef Unit for a combined classroom and hands-on learning experience.

The two-day program covers a variety of topics such as managing health risk of newly received feeders, market outlook, feed bunk management, cattle health diagnostic tools, growth promoting implants, ruminant digestive tract, feed digestibility, TMR mixing, heifer development considerations, and other items.

The program is limited to 30 participants. Registration is only $30 which includes meals. Those interested can register on EventBrite by following the link below https://www.eventbrite.com/e/uky-backgrounding-shortcourse-tickets-1321765178229 or simply searching for UKY Backgrounding Short Course on EventBrite. For additional information call Dr. Jeff Lehmkuhler at 859-257-2853 or email jeff.lehmkuhler@uky.edu.

Are you controlling what you think you are controlling?

Dr. Jeff Lehmkuhler, PhD, PAS, University of Kentucky

Spring is my favorite time of the year as the flowers bloom, turkeys begin gobbling and the grass takes off. The grass has jumped quickly with the rain and warmer temperatures the last few days. I think we all can agree there is some joy in knowing when the last bale of hay is fed for the winter. However, with spring comes many management challenges beef operations must tackle. These include grass tetany, frothy bloat, dystocia, and tetanus to name a few. During this time frame is always when both internal and external parasites become more prevalent. Many beef operations will apply some level of management to control parasites that can rob nutrients from the cattle. This begs the question "Are you controlling what you think you are controlling?".

During the spring and fall of 2023, University of Kentucky Cooperative Extension Agriculture & Natural Resource county ANR Agents, Kentucky Beef Network facilitators as well as Dr. Arnold and I set out to assess the prevalence of internal parasites in Kentucky beef herds. Additionally, many of the anthelmintics or deworming products have been on the market for decades (1960's for levamisole and 1980's for ivermectin), so we wanted evaluate the efficacy of products being utilized by Kentucky beef herds. Working with the Kentucky Beef Network, Merck Animal Health provided financial support for the field study and evaluation of the fecal samples collected.

A total of 180 fecal collections were performed. Each fecal collection had a target of 20 fecal samples from animals within the same age class. Age classes included mature cows or growing calves / replacement heifers. Beef producers were allowed to use whatever products they wanted. Product as well as route of administration were recorded. Products were classified as either macrocyclic lactones (ivermectin, moxidectin, eprinomectin, doramectin), benzimidazoles (white pastes/levamisole), or combination of more than one product. Fecal samples were sent to a commercial laboratory for counting fecal eggs and classification based on visual appearance.

As one might expect, pour-on products were widely utilized. These products included most of the first generation or name brand and second generation or generic products. Combinations of products were mostly administered to feeder calves in backgrounding/stocker programs.

When looking at prevalence of internal parasites through the fecal egg count method, stomach worm eggs were present in 60% of mature and 78% of growing animal samples. Cooperia were observed in 22% of mature and 74% of growing animal fecal samples. These two parasites were the most commonly observed with other internal parasites noted but less frequently.

The World Association for the Advancement of Veterinary Parasitology set guidelines for studying anthelmintic resistance. Products used in cattle that result in less than 90% reduced in fecal egg counts are considered to have resistance. Further, USDA label claims for anthelmintics require a 90% or greater fecal egg count reduction (FECR).

The samples gathered were filtered leaving only groups containing at least 18 animals in the same age class and had an initial fecal egg count of 10 eggs/3-gram sample. This left 80 groups or only 44% of the total sampled in the analysis. Of these qualifying groups, macrocyclic lactone products on average provided a FECR of 74.5% in mature animals and 61.6% in growing or immature animals. Benzimidazoles and combinations of products resulted in greater than 90% FECR regardless of age.

We looked at the data another way to attempt to determine if internal parasites differed in their susceptibility. We found that in growing cattle administered a macrocyclic lactone product, the FECR was 78% still below the 90% threshold for total egg counts. The FECR was observed to be slightly higher at 86% for stomach worms but only 77% for cooperia. Some anthelmintics have shown to have lowered efficacy in other livestock species for cooperia. Additionally, when we looked at route of administration, pour-on macrocyclic lactones had a 63.9% FECR while injectables were only slightly better at 68%.

This field study provides a snapshot of the internal parasite prevalence in the state's beef herd. Additionally, the study provides some evidence that additional work on anthelmintic efficacy is warranted. Cattle owners are encouraged to work with their veterinarian to develop a protocol for monitoring internal parasites and effective treatment approaches.

Address Lameness Cases Sooner Rather Than Later

Dr. Michelle Arnold, Rminant Extension Veterinarian, University of Kentucky

There are many causes of lameness in beef cattle but nearly 90% of all lameness cases are due to something wrong in the foot. Since beef cattle producers generally make the initial diagnosis and treatment of lameness cases in their own cattle, it is important to establish assessment and treatment guidelines with your veterinarian so you will know when cases are failing to respond and in need of further examination. Although interdigital necrobacillosis (foot rot) is by far the most common hoof disorder in pastured beef cattle, it is not a condition to ignore and see if it gets better on its own. In fact, most disorders of the hoof, if not addressed quickly, can progress to a much more serious infection involving the bone, synovial structures, tendons and ligaments of the foot, collectively termed "deep digital sepsis". Treatment at that advanced stage is expensive, radical and rarely successful.

One of the challenging aspects of discussing beef cattle lameness is the vocabulary utilized in bovine hoof anatomy (see Figure 1). A bovine "foot" is composed of two toes or "digits" that are typically referred to as "claws". The claw is the constant interface between the animal and the environment. Each claw is covered by a rigid "hoof capsule".

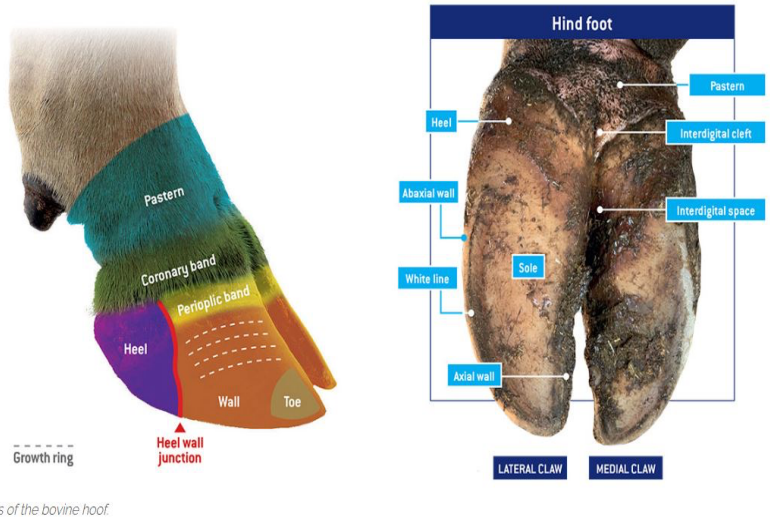

Figure 1: Parts of the Bovine Hoof. Accessed from https://www.wavegoodbyetopain.co.uk/foot-anatomy-and-

When viewing the hoof from the bottom, the "lateral claw" is the outside claw while the "medial claw" refers to the inside claw. The area in between the claws is the "interdigital space" and where the claws come together is termed the "interdigital cleft". The "hoof wall" is by far the strongest and most important structure for weight bearing and is equivalent to the human fingernail. The "axial" wall is located in the interdigital space while the "abaxial" wall is located on the outer side of the claw. The "coronary band", located at the hairline at the top of the hoof wall, is where the new horn grows from, and it takes about a year to reach the toe end. The "pastern" is the joint between the long cannon bone and the hoof. The "fetlock" is the joint above the pastern joint and is considered above the foot.

To begin the assessment of a newly discovered case of lameness, the first question to answer is whether the affected foot is swollen. Since the hoof capsule is rigid and unable to expand, swelling will be seen in the tissues immediately above the coronary band. Prior to assessment, moving the animal from deep grass or mud on to a solid surface and cleaning off any excessive dirt and debris will allow better visualization of the hoof. Start behind the animal, viewing the foot from the rear, and compare the distance between the dewclaws of the affected foot to that of the unaffected feet. The dewclaws will be spread further apart in a swollen foot than in a normal foot. The next question to answer is whether the swelling is symmetrical (as in cases of foot rot) or is one side more swollen than the other (as in cases of deep digital sepsis)? To do this, envision an imaginary line (see Figure 2) that begins in the interdigital space and bisects the foot up the middle of the leg (on the "axial midline"). The swelling from foot rot is typically symmetrical because the infection begins in the interdigital space. In contrast, deep sepsis causes most of the swelling on the side of the infected digit (claw). A second method to assess symmetry is to compare the widths of the heel bulbs on the affected foot. In cases of deep sepsis, the heel bulb will be much wider on the affected side while in foot rot cases, the heel bulbs will be similarly sized. To reiterate, the important take-home message is that deep digital sepsis must be addressed much more aggressively than foot rot and veterinary intervention is required as soon as possible to determine the best course of action. Antibiotics alone will not be enough to treat sepsis; amputation of the claw or surgical intervention to drain the infected area will be necessary to try to resolve the lameness.

Figure 2: The blue line represents the imaginary line from the interdigital space and up the axial midline. Note the swelling is equally distributed on each side of the line in this case of foot rot. (Accessed from Veterinary Clinics of North America: Food Animal Practice; Volume 33, Issue 2, July 2017)

Common causes of lameness in beef cattle that typically do not result in visible swelling of the foot include uncomplicated digital dermatitis (hairy heel warts), sole or toe ulcers, laminitis (founder), subsolar abscesses, or injuries higher up in the leg. The absence of swelling does not mean the animal does not need prompt attention. For example, untreated sole or toe ulcers can lead to abscess formation which requires more aggressive hoof trimming, antibiotics and longer healing time. Working with a veterinarian early in complicated lameness cases will facilitate arriving at the right diagnosis and the correct treatment for that disorder.

As mentioned previously, foot rot is the most common condition observed in pastured beef cattle. This is an infectious disease caused by bacteria invading the interdigital skin and subcutaneous tissues, often due to trauma to the soft skin between the claws. Warm, moist environmental conditions, especially when cattle congregate and defecate in shady wet areas, softens the interdigital skin. The initiating injury may be caused by walking on rough surfaces, sharp gravel, twigs, stubble, frozen or hardened mud that tear the softened skin. Mineral deficiencies of zinc, selenium and copper contribute as well. The disease begins with a sudden onset of lameness where the animal tip toes on the affected foot. The interdigital skin and soft tissues become red and swollen, causing the claws to spread apart. The swelling is symmetrical and extends from the top of the hoof to the dewclaws and sometimes higher. Later, the

swollen skin cracks open and dead/decaying tissue with a foul odor is present. Early treatment with appropriate injectable antibiotic therapy such as with Ceftiofur (Excede®, Excenel®), Florfenicol (Nuflor®, Resflor®), Oxytetracycline, Tulathromycin (Draxxin®, other generic), or Tylosin (Tylan®) will usually resolve this problem but delays in treatment or not following up on recovery after treatment may result in deep digital sepsis and a poor outcome. Do not forget the possibility of a foreign body that may be stuck deep within the interdigital space; improvement will only come after the foreign object is removed.

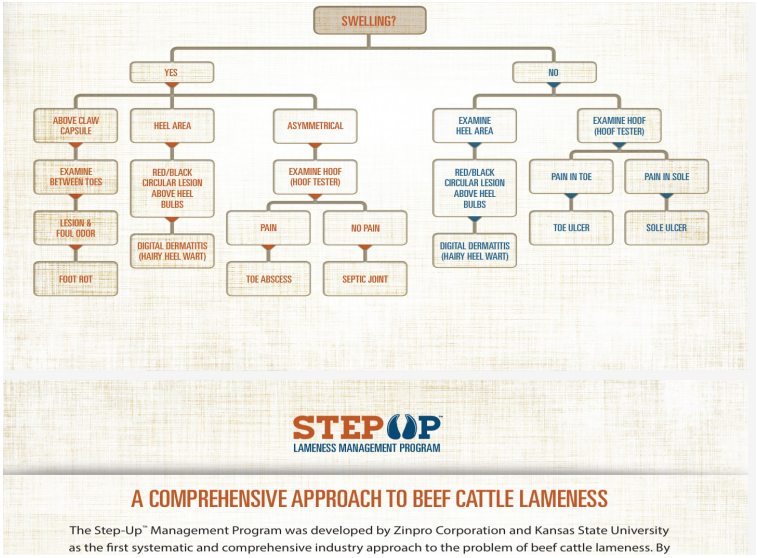

Figure 3: From "Identifying and Managing the Common Causes of

In summary, following some basic rules (see Box 1) when approaching a lameness case on the farm should help determine if it can be appropriately managed with antibiotics alone or if veterinary examination is required. In addition to these basic rules, the Zinpro Corporation and Kansas State University have developed a systematic approach to diagnosing beef cattle lameness called "The Step-Up™ Program" (see Figure 3). The total program includes the identification and treatment of lameness as well as information on good nutrition, proper facility design, and appropriate animal handling and husbandry practices to reduce the lameness incidence within the beef industry. Ultimately, improvement in animal welfare, appropriate use of antibiotics, and reduction in the costs associated with lameness will result from a little extra time spent assessing the problem before reaching for the bottle on the shelf.

Box 1: Thumb Rules (Dr. David Van Metre et al; AABP Proceedings, September 2005, Vol. 38)

1. Causes of lameness can often be categorized according to the presence or absence of visible swelling of the soft tissues of the foot.
2. Because interdigital necrobacillosis (foot rot) is centered in the interdigital skin, early cases are characterized by swelling that is symmetrical relative to the longitudinal (axial) midline of the foot.
3. Deep sepsis of the digit is characterized by swelling that is asymmetrical relative to the longitudinal (axial) midline of the foot. Deep sepsis should be addressed immediately by a veterinarian
4. On-farm lameness treatment protocols should include an expected deadline for resolution - once the deadline is reached, if the animal has not recovered, the veterinarian should be consulted.
5. Cattle that become lame from digital wounds (punctures, lacerations) should be scheduled for prompt veterinary examination because deep sepsis almost always results from this type of injury.