

OFF THE HOOF

KENTUCKY BEEF CATTLE NEWSLETTER MARCH 1, 2021



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Beef IRM Team

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Timely Tips

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

Spring-Calving Cows

- Observe spring-calving cows closely. Check cows at least twice daily and first-calf heifers more frequently than that. Be ready to assist those not making progress after 1 to 2 hours of hard labor or 90 minutes after the “water bag” is observed. Chilled calves should be dried and warmed as soon as possible.
- See that each calf gets colostrum within an hour of birth or administer colostrum (or a commercial colostrum replacement) with an esophageal feeder, if needed.
- Identify calves with ear tags and/or tattoos while calves are young and easy to handle and record birthdate and Dam ID. Commercial male calves should be castrated and implanted as soon as possible. Registered calves should be weighed in the first 24 hours.
- Separate cows that have calved and increase their feed. Energy supplementation to cows receiving hay is necessary to prepare them for rebreeding. For example, a 1250 lb cow giving 25 lb/day of milk would need about 25 lb of fescue hay and 5 lb of concentrate daily to maintain condition. If you need to go from a condition score of 4 to 5, you will need to add about 2 more lb of concentrate. Cows must be in good condition to conceive early in the upcoming breeding season.
- Watch for calf scours! If scours become a problem, move cows that have not calved to a clean pasture. Be prepared to give fluids to scouring calves that become dehydrated. Consult your veterinarian for advice and send fecal samples to diagnostic lab to determine which drug therapy will be most effective. Try to avoid feeding hay in excessively muddy areas to avoid contamination of the dams' udders.

- Continue grass tetany prevention. Be sure that the mineral mix contains high levels (~15%) of magnesium and that cows consume adequate amounts. You can feed the UK Beef IRM High Magnesium mineral.
- Plan to vaccinate calves for clostridial diseases (Blackleg, Malignant Edema) as soon as possible. You might choose to do this at the prebreeding working in late April or early May.
- Obtain yearling measurements on bulls and heifers this month (weight, height, pelvic area, scrotal circumference, ultrasound data, etc.) if needed for special sales. Heifers should be on target to be cycling by the start of the breeding season.
- Prepare bulls for the breeding season. Increase feed, if necessary, to have bulls in adequate condition for breeding. Obtain Breeding Soundness Evaluation (BSE) on bulls, even if they were checked last breeding season.
- Finalize plans for your spring breeding program. Purchase new bulls at least 30 days before the breeding. Order semen now, if using artificial insemination.

Fall-Calving Cows

- Bull(s) should be away from the cows now!
- Plan to pregnancy check cows soon. You can also blood test for pregnancy as early as 30 days after bull removal.
- Creep feed calves with grain, by-products or high-quality forage. Calves will not make satisfactory gains on the dam's milk alone after about 4 mos. of age – since there isn't much pasture in March, fall calves need supplemental nutrition. Consider creep grazing on wheat pasture, if available. Calves can also be early weaned. Be sure that feed bunks are low enough that calves can eat with the cows.
- Calves intended for feeders should be implanted.
- Consider adding weight and selling your fall calves as “heavy” feeder calves. Keep them gaining!

General

- Repair fences, equipment, and handling facilities.
- If you have a dry, sunny day, use chain-link harrow to spread manure in areas where cattle have overwintered. This may be done in conjunction with renovation.
- Renovation and fertilization of pastures should be completed.
- Start thistle control. They can be a severe problem in Kentucky pastures. Chemical control must be done early to be effective.
- Watch for lice and treat if needed.

Recent and Upcoming On-line Beef Education Opportunities

Beef IRM Team, University of Kentucky

Beef Minutes

Accurately comparing feed costs on a price per unit basis – VanValin
Changes to the UK Beef IRM Mineral – VanValin

Beef Bits Podcast

Episode 10. Kentucky Cattlemen’s Association with Dr. Lehmkuhler and Dave Maples, Executive Secretary of the Kentucky Cattlemen’s Association.

Reaching Out While Locked In

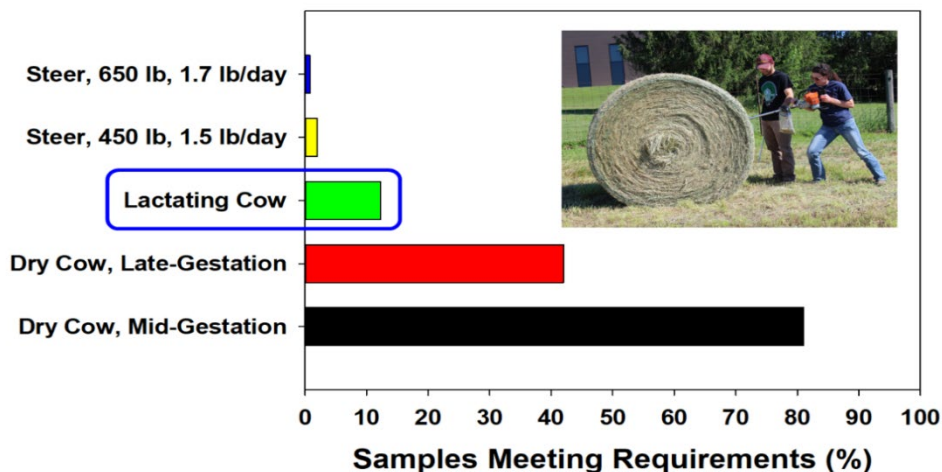
February 2. Preparing for Calving – Drs. Anderson and Bullock, UK
February 16. Weed Management for Pastures – Dr. J. D. Green
March 2. Targeted Feeding – Drs. Lehmkuhler and VanValin
March 16. Forage Management – Dr. Teutsch

To access this and other excellent beef educational content, visit our Facebook Page ([facebook.com/KyBeefIRM](https://www.facebook.com/KyBeefIRM)) and/or on the Department of Animal & Food Science YouTube page (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-meqic-e6f8f1?utm_campaign=u_share_ep&utm_medium=dlink&utm_source=u_share).

2021 Brings Chance to Improve Hay Quality!!!

Chris Teutsch, UK Research and Education Center at Princeton

Recently I presented a summary of ten years of hay testing results from the Kentucky Department of Agriculture’s forage testing program. This sample set included more than 14,000 hay samples. The full presentation can be viewed on the [KYForages YouTube Channel](#).



The results of this analysis showed that only 12% of the samples tested would meet the energy requirements of a lactating brood cow (Figure 1). This is an important finding for a cow-calf state like Kentucky since reproductive efficiency is so closely associated with body condition.

Figure 1. Proportion of hay samples tested at the Kentucky Department of Agriculture over a ten-year period (2007-17) that would meet the energy (total digestible nutrients) requirement of various classes of beef cattle. Only 12% of these samples would meet the energy requirements of a lactating brood cow!

Practical Considerations for Improving Hay Quality

Grazing is the most economical way to harvest forage and we should strive to extend our grazing season. Our ag economists tell us that about 300 days of grazing is the sweet spot in terms of profitability for most cow-calf operations in the state. This leaves us with 2 to 3 months that we need to feed hay. To optimize reproductive efficiency, it is essential that hay fed will maintain adequate condition on cows OR that poor quality hay is supplemented appropriately. Although hay season seems like a longtime away, it will be sooner than you think. So, 2021 brings us yet another chance to improve hay quality. Below you will find a list of practical considerations that will help you get this done.

- *Fertilize and lime according to soil test.* A balanced fertility program is essential for optimizing hay production. Phosphorus, potassium, and lime should be applied according to soil test results. Avoid using “complete” fertilizers such as 10-10-10. In hay production, these fertilizers commonly over apply phosphorus and under apply potash. More information on soil sampling can be found in [AGR-252, Soil Sampling Hayfields and Pastures](#).
- *Apply nitrogen early to promote rapid spring growth.* Applying 80 lb N/A in mid- to late March will promote early growth in hay meadows, resulting in higher first harvest yields.
- *Harvest at the boot stage.* The single most important factor impacting forage quality is stage of maturity at harvest. Hayfields should be mowed as soon as the grass reaches the boot-stage. By making the first cutting in a timely manner, we will have time to make a leafy second cutting just prior to the summer months.

Table 1. Impact of stage of maturity on the crude protein, dry matter intake, digestibility and average daily gain of stocker calves.

Stage of Maturity	Crude Protein	Dry Matter Intake	Digestibility	Average Daily Gain
	%	lb/day	%	lb/day
Late boot	13.8	13.0	68	1.39
Early bloom	10.2	11.7	66	0.97
Seed forming	7.6	8.6	56	0.42

Adapted from [AGR-62, Quality Hay Production](#) by G.D. Lacefield, J.C. Henning, M. Collins and L. Swetnam. UK Cooperative Extension Service, Lexington.

- *Mow early in day.* Some studies have shown that sugars tend to highest in late afternoon, making this the optimal time of day to cut. However, in high rainfall environment like Kentucky, maximizing curing time is the highest priority. Therefore, hay should be mowed in mid to late morning after the dew has dried off.
- *Use mower-conditioner.* Conditioning the stems allows for moisture to escape at a faster rate. This shortens curing time and improves your chances of avoiding rain. Conditioning is especially important on first cutting grasses, summer annual grasses, and legumes, all of which tend to have larger stems.

- *Set swath on mower-conditioner to the widest possible setting.* Maximizing the swath width decreases curing or wilting time by exposing a larger portion of the forage to direct sunlight.
- *Rake or ted at 40-50% moisture content.* Raking and tedding the forage while it is still pliable helps to reduce leaf loss and maintain forage quality. Once the moisture content is below 40%, leaf loss increases, especially in legumes such as alfalfa and clover.
- *Bale at 18-20% moisture.* Baling in this moisture range inhibits mold growth and reduces heating. Avoid baling hay that is excessively dry due to high levels of leaf loss and hay that is above 20% moisture due to heating and potential hay fires.



Figure 2. This hay was baled above the 18-20% moisture range and has reached an internal temperature of more than 150 degrees Fahrenheit. Heating damages protein making it unavailable to the animal. If stored in a tightly packed hay barn, this bale could start a hay fire.

- *Store under cover and off the ground.* Protecting hay from weathering helps to reduce dry matter losses and maintain forage quality. Much of the weathering damage is a result of the hay bale wicking moisture up from the ground. So, storing hay off the ground on a stone pad can greatly reduce deterioration.

- *Do not cut hay fields too close.* If not properly adjusted, disc mowers can cut very close to the soil surface and this can cause significant damage to cool-season grass stands. Do NOT mow perennial cool-season grass stands closer than 3-4 inches.
- *Apply nitrogen following the first cutting.* Following a timely first harvest, apply 60 lb N/A to stimulate regrowth. With adequate rainfall, a second harvest can be made approximately 30 days after the first harvest.
- *Allow hayfields to go into summer with some regrowth.* Make sure to allow cool-season hayfields to go into summer with at least 5-6 inches of regrowth. This will shade the crown of the plant, moderating its temperature, and reduce soil moisture losses.
- *Apply nitrogen in late summer.* As the temperatures moderate in late summer and early fall, apply 60 lb N/A to stimulate fall growth. This growth can be grazed or harvested as needed.
- *Allow plants time to replenish carbohydrates in the fall.* Make sure and time fall hay cuttings to allow stand to regrow and replenish their carbohydrates prior to winter dormancy.
- *Test hay and supplement accordingly.* Testing hay allows you to gauge how well your plan worked and provides you the information needed to develop a supplementation strategy that will keep condition on cows. For more information on hay testing see [AGR-257, Hay Sampling: Strategies for Getting a Good Sample](#).

I realize that you probably won't be able to implement all these recommendations, but I would like to challenge you to choose just 2 or 3 things from this list, write them down on the sheet at the end of this article, and hang it on your refrigerator door so that you will see them every day. If you are anything like me, without goals and reminders, it won't get done! Last tip for this month, make sure that one of your goals is to cut at the late boot for early head stage since this is the single most important factor impacting forage quality!

FORAGE MANAGEMENT TIPS

✓ Interseed legumes into pastures using a no-till drill.
✓ Continue hay feeding to allow pastures to rest and spring growth to begin.
✓ Seed cool-season grass and legumes by mid-March.
✓ Smooth and reseed hay feeding areas.
✓ Graze pastures that have been overseeded with clover to control competition.
✓ Provide free-choice high magnesium mineral to prevent grass tetany.
✓ Make plans to attend one of the Kentucky Fencing Schools in April.

GOALS for IMPROVING Hay Quality in 2021

I will implement the following practices to improve my hay quality in 2021 growing season.

- 1) _____

- 2) _____

- 3) _____

Don't let the green grass fool you

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

Perhaps it was the full season worth of winter weather we got in one-week last month, or the above average temperatures that followed, but either way we are rounding the bend and spring will be here before we know it. One of the things I love most about spring is that along with the warmer temperatures and longer days, inevitably comes greener pastures. However, the growth we see out in our pastures during the early spring can often be deceiving from a nutrient standpoint.

The problem that we can run into is that there simply is not enough forage available, and the forage that is high in moisture. When we turn cows out to early, they can exert more energy searching for the next mouthful than they are consuming, since most of every mouthful is water. This is especially critical for spring-calving cows. At this time, cows have either or will be transitioning from late gestation to lactation which represents the time when a cow's maintenance nutrient requirements are at their highest throughout the production cycle. This is not the time to let cows slip into an energy deficit and lose condition.

If cows lose condition during early lactation when their maintenance nutrient requirements are high, it is often difficult to recover that condition prior to breeding. It is a much better plan to ensure cows are in good body condition prior to calving and maintain adequate condition through breeding. Research has shown the reproductive performance is decreased when cows reach a BCS of 4, so it is critical to the performance and efficiency of the cow herd that cows maintain a BCS of 5-6.

For example, a cow in early lactation with a BCS of 4 consuming fresh cool-season forages would be able to consume enough forage to meet her maintenance requirements. If we tried to improve the BCS of this cow by $\frac{3}{4}$ of a BCS (approximately 75 lbs) now that fresh forage is only providing about 70% of her energy requirement. So, in this scenario even if available forage was not the limiting factor, supplementation would still be needed to improve body condition. It can also be helpful to manage older or thin cows separately from the rest of the herd, allowing them to receive the extra nutrition they require without overfeeding the rest of the herd.

Although it is tempting to turn cows out to grass early, remember that doing so may limit cow-performance. This can also cause undue stress on forages, ultimately hurting our stands, and creating

opportunity for opportunistic weeds to encroach. Evaluate the forages in your pasture and let grass growth dictate when cows are turned out as opposed to a date on the calendar.

The bottom line here is don't let spring fever set in early by turning cows out onto fresh grass that may not meet all the nutritional demands of the herd. Continue to evaluate BCS of the herd and allow this to guide nutrition and management decisions as mother nature transitions from winter to spring, and cows transition from gestation to lactation.

Grass Tetany/ Hypomagnesemia –Start Preventive Measures Now

Dr. Michelle Arnold, Ruminant Extension Veterinarian, University of Kentucky Veterinary Diagnostic Lab

A special thanks to Dr. Jeff Lehmkuhler for his contributions to this article.

What is “Grass Tetany” and when are cattle most likely to have it?

Grass tetany, also known as spring tetany, grass staggers, wheat pasture poisoning, winter tetany or lactation tetany, is a condition resulting from a low level of magnesium (Mg) in the blood. Maintenance of blood magnesium depends on the amount obtained from the daily diet since the magnesium present in teeth and bones and is not easily mobilized in times of need. Magnesium is required for proper nerve and muscle function so low levels in the blood result in “tetanic spasms” where muscles contract uncontrollably. The disorder in an adult cow begins with separation from the herd and going off feed. The ears are often erect and twitching and the cow is alert, hyperexcitable and may be aggressive. The symptoms quickly progress to muscle spasms, convulsions, difficulty breathing, and death. Often the affected animal is found dead with evidence of thrashing and struggle on the ground around her. Deficiencies occur most often in beef cows when they are nursing a calf and grazing young, green grass in early spring. Fast-growing spring pastures are high in potassium (K^+) and nitrogen (N^+) and low in magnesium (Mg^{++}) and sodium (Na^+) ions. Affected cattle often have low blood calcium concurrently. Fall calving cows may also experience grass tetany during the winter months.

Will Feeding Plain White Salt to Cows Prevent Grass Tetany?

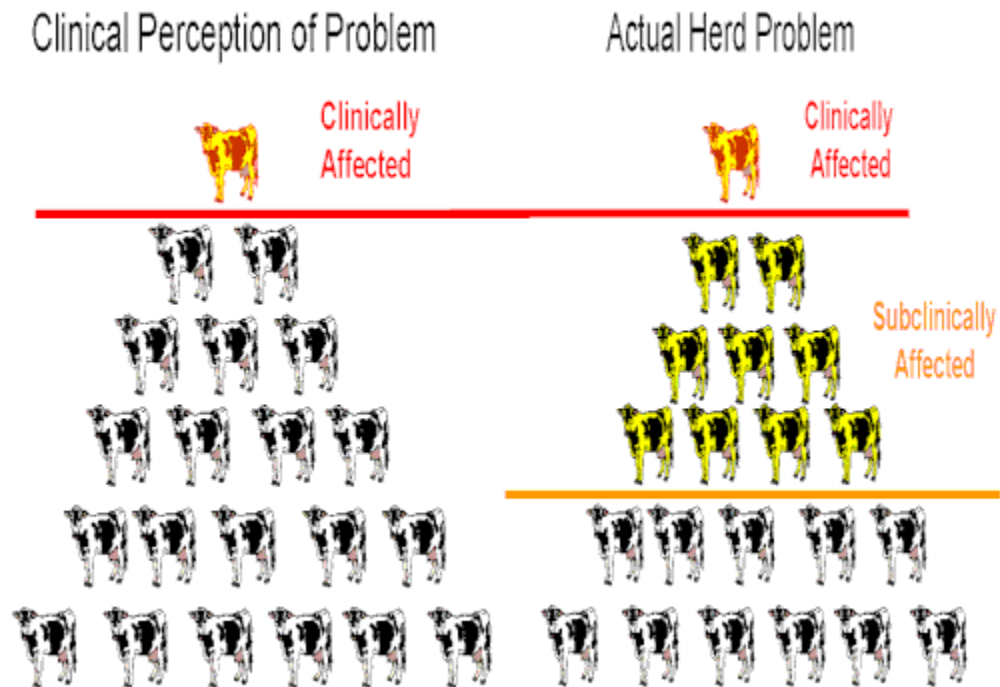
This claim is shared every spring and, indeed, there are producers who do not have grass tetany that only feed salt. How can that be? Simply put, for some producers, the minerals available in their soils and forages are enough to meet the nutritional needs of their cows. Regional soil types, soil fertility, diverse forage species and differing cattle requirements based on age and stage of lactation result in different mineral needs for grazing livestock on every farm. A blanket recommendation to just feed salt ignores these factors and oversimplifies a very complex situation. Trace minerals such as copper, selenium, and zinc are all essential nutrients vital for proper growth, production, and immune system function. Trace mineral deficiencies are very common and predispose animals to serious and sometimes fatal disease conditions. Commercial trace mineral mixes are formulated to meet the needs of cattle, including their daily need for salt. Because interactions occur between all the various metals, minerals, and other elements in the diet, optimal amounts of all elements are essential for proper nutrition.

Several complex factors are in play for magnesium to be absorbed through the rumen (stomach) wall and into the blood. Primarily there is a “pump” mechanism that actively moves the dissolved “soluble” form of Mg across the rumen wall to the bloodstream. If potassium in the rumen is high and sodium is low, this setup changes the electrical potential needed to drive the pump. Research has shown that the

negative effects of high potassium in early spring grass cannot be overcome by simply adding more sodium in the form of salt. In fact, too much salt will increase urination and cause magnesium to be lost in urine. Salt, as with any substance, can be dangerous and even fatal at high levels. Fortunately, a second, “passive transport” system for Mg exists which is not influenced by potassium. This transport system only works when soluble Mg in the rumen fluid is high and Mg will then flow into the bloodstream without having to be pumped. High magnesium mineral mixes prevent grass tetany by increasing the amount of dietary magnesium concentration in the rumen, allowing this passive movement of Mg to take place.

Does Grass Tetany Only Occur in the Spring?

No! “Winter tetany” in beef cattle is caused by consumption of a diet low in energy and an insufficient intake of magnesium, usually over winter. It may also be observed when feeding wheat or rye baleage since these forages are often high in potassium and nitrogen but low in magnesium. Affected cattle have borderline low blood magnesium concentration then clinical signs of grass tetany are triggered by a stressor such as a severe cold snap.



Hypomagnesemia is often referred to as an “iceberg” disease because only a few clinical cases occur but there are many unobserved or subclinical cases that may become problems after a stressful event such as a weather change.

How Can Grass Tetany Be Prevented? Prevention is based on providing magnesium in the diet during times when conditions are right for grass tetany. If the active transport pump is driving magnesium across the rumen wall, grass tetany problems should not develop. However, when factors prevent this pump from working (for example, high levels of K^+ in lush spring grass), the second or “backup” pathway depends on increasing levels of magnesium in the diet. **Supplementation with high magnesium mineral should begin at least 30 days prior to calving.** Cows require magnesium daily or 4 ounces per day of a 12% magnesium mineral mix, especially during the late winter and early spring if pregnant or lactating. The keys to using a free-choice trace mineral product are to ensure cattle have access to mineral 100% of the time, use a palatable, quality product and make sure they are consuming it

at the expected level. Remember a 50-pound bag of hi-mag mineral to be fed at 4 ounces per head per day will only last 4 days in a 50 cow herd. If the cows have calves that also eat mineral, a bag may only last 3 days. Mineral feeders should not be allowed to be empty because consistent intake is important for clinical disease prevention. Provide adequate access for cows and calves, for example 1 mineral feeder per 15 cow/calf pairs. Do not offer additional loose salt, salt blocks, or sources of salt at the same time! High magnesium mineral may be discontinued in late spring once the grass is more mature, the water content of the forage is decreased, and daily temperatures reach at or above 60°F.

Does the form of magnesium used in the mineral matter? Absolutely. The feed industry utilizes magnesium oxide (MgO) to supply magnesium but there is tremendous variation in quality and bioavailability. Magnesium oxide is bitter and unpalatable to beef cattle. Recently the UK Beef IRM mineral recommendations were updated to reflect current market conditions. The more palatable form of magnesium known as “prilled MagOx” has been removed from the Beef IRM mineral guidelines because it is unavailable at the present time. The granular or powder magnesium oxide has a greater surface area resulting in the potential for a decrease in palatability, therefore the magnesium oxide level was reduced to 12% from the previous recommendation of 14%. UK Beef Integrated Resource Management (IRM) mineral recommendations for free choice supplements for grazing beef cattle now include 15% salt and 12% magnesium in the complete mineral mix and all magnesium from magnesium oxide (no dolomitic limestone or magnesium mica). These complete mineral mixtures also supply the necessary sodium in the form of salt to aid in combatting high potassium intakes. Consumption should be monitored because cattle will not eat enough trace mineral if using poor quality products or if any additional free-choice salt is available. Only put out 1-2 weeks’ worth of mineral at a time. If feeding grain to cattle, MagOx can be added to grain to ensure magnesium consumption. For example, with approximately 60% Mg in MagOx and if feeding 2 lbs grain / cow, then adding 50 lbs MagOx / ton of feed will provide about 14 g Mg to the cow.

Are there management changes that reduce the risk of grass tetany? Yes. These include: 1) Soil test and apply fertilizer based on soil test results and use no more potassium than recommended since grasses are “luxury” consumers of potassium; 2) Legumes are high in magnesium and will help offset the problem although their growth is slow in late winter; 3) Offer hay to cattle on lush pasture during susceptible periods or limit grazing time to 2-3 hours per day to slow the rate of passage through the digestive tract and allow more time for magnesium absorption; 4) Graze the less susceptible or non-lactating animals (heifers, dry cows, stocker cattle) on the highest risk pastures. Be aware that the use of poultry litter as a feed supplement or fertilizer has frequently been associated with an increased incidence of grass tetany.

In summary, increasing magnesium intake by providing a free choice, high magnesium trace mineral mix and no alternative forms of salt, and meeting energy needs with good quality forage or supplemental feed are necessary to prevent development of grass tetany. Both are exceptionally important when moving from winter rations to young spring grass pasture, especially in early lactation cows. Grass tetany is considered a true veterinary emergency requiring prompt treatment with magnesium to prevent death. Response to therapy is not always good and depends largely on the length of time between onset of symptoms and treatment. Cattle that do recover take at least an hour which is the time it takes for magnesium levels to return to normal. Many of these cows will relapse and require more treatment within 12 hours. Administering oral magnesium gel once the animal has regained good swallowing reflexes, drenching with magnesium oxide or magnesium sulfate, or administering a Mg enema will

reduce the rate of relapse. If grass tetany has occurred within a herd, an effort should be made to immediately increase the intake of magnesium to other herd members to prevent further losses.

Cattle Inventory Revisions

Kenny Burdine, Livestock Marketing Specialist University of Kentucky, Josh Maples, Livestock Marketing Specialist Mississippi State University, and James Mitchell, Livestock Marketing Specialist University of Arkansas

Several things have been written about the 2021 cattle inventory report, which continued to show reduction in the size of the US beef cattle herd. However, the revisions made to the 2019 and 2020 inventories have really gotten more attention, and raised more questions, than the estimates for 2021. There is little question that cattle inventory has decreased over the last couple of years, but how much the cow herd has shrunk is a bit less clear, and these revisions certainly point to a more rapid decrease in inventories than previously thought.

USDA did make changes to several of the 2019 and 2020 estimates and it is important to understand that revisions are very common. Surveys are a major source of information for these inventory reports, but these numbers are adjusted as more information becomes available. Having said that, the revisions made in the January 2021 report were large, especially the revisions to the size of the 2019 and 2020 calf crops. They pulled the 2019 calf crop down by 1.3% and the 2020 calf crop down by 1.9%. In the case of 2020, this amounted to a reduction of more than 660,000 calves. A lot of analysts felt like feedlot placements really didn't support the higher previous calf crop estimate, so this downward revision was not a huge surprise.

However, a logical follow up question involves the estimated number of cows in production. Since the calf crop is not broken out by beef and dairy calves, one must look at combined beef and dairy cow inventory for comparison. But, holding everything else constant, one would expect the size of the cowherd and the size of the calf crop to move together. While the 2020 calf crop was revised downward by 1.9%, the number of cows that were estimated to have calved in 2020 was basically unchanged (it was actually increased by a very small amount).

The calf crop measure is an estimate of calves born within the year. A very simplistic way to look at this is to consider the ratio of cows on January 1 to the calf crop for that calendar year. Going back to 1960, this has averaged about 1.122, which means there are 1.122 cows for every calf in the calf crop. For the year 2020, the estimated ratio of cows on January 1 to the calf crop was 1.158. In fact, going back to 1960, a higher ratio occurred less than 10% of the time and we have to go back to the 1970's to find the last one. This doesn't mean it is unreasonable, but it does make us want to dig a bit deeper.

Ordinarily, something like this points to fertility challenges, meaning more open cows in 2020, and that likely was somewhat at play. But one would also expect a corresponding decrease in cow numbers the following year (2021), assuming the vast majority of those open cows were culled. But, the 0.6% decrease in beef cow numbers for January 1, 2021 doesn't really paint this picture. High cow to calf crop ratios like 2020 are typically associated with heavier liquidation years, like 2012 and 2013. Another hypothesis would be that anticipation of CFAP 3.0 payments may have kept a few more cows around this winter than would have been sold. This may seem like a stretch for what is likely to be a relatively

small payment per cow, but remember these decisions are made at the margin and a slight movement of that keep / cull needle can make a difference when extrapolated across the US.

Regardless, we see two primary points from the USDA revisions and this discussion. First, cattle inventory has been adjusted downward, which is a positive development from a supply perspective and comes at a very good time for the cattle sector. And secondly, the ratio of cows to calves for 2020, and the trend on beef cow numbers for 2021, suggests that more rapid liquidation is very possible in the current year which would be a positive supply development in the future.