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Beef IRM Team

OFF THE HOOF

KENTUCKY BEEF CATTLE NEWSLETTER MAY 1, 2022

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

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.

Crabgrass for Summer Grazing…Have you lost your mind???

Chris Teutsch, UK Research and Education Center at Princeton

Crabgrass is a summer annual grass that often shows up in pastures, especially in thin stands that have been damaged by hay feeding or overgrazing. To flourish in a pasture, crabgrass needs a six-inch opening. This means if you have a strong and vigorous sod, crabgrass will be difficult to establish and maintain.

When cool-season pastures are grazed closely and often during the summer months, the composition of these stands tend to shift toward crabgrass. Unfortunately, these volunteer stand of crabgrass are often not managed to their full potential. The objective of this article is to give you a few pointers that will help you get the most out of volunteer crabgrass stands.

Not all crabgrass is created equal. We tend to lump all crabgrass into one category, but there are several species and even improved varieties. Some crabgrass species and even local ecotypes are more productive than others and respond better to improved management. If you want to ensure that you have the most productive crabgrass species, then consider overseeding your volunteer stands with an improved variety of crabgrass (Table 1). More data on crabgrass varieties can be found by clicking on the "Variety Trial" icon found on the UK Forages webpage.

Mix crabgrass with a carrier. Uncoated crabgrass seed can bridge in drills and seeders so the seed can be mixed a carrier, like pelleted limestone or even some red clover and annual lespedeza seed and broadcast onto closely grazed pastures in late winter or spring. The crabgrass seed will begin to germinate in early to mid-May as soil temperatures start to rise. Although crabgrass seed seems expensive, relatively low seeding rates are used. For overseeding pastures, 3-4 lb/A of uncoated seed or 4-6 lb/A of coated seed should be used.

Drag closely grazed pastures to stimulate crabgrass stands. Dragging closely grazed pastures helps to get volunteer seed from the previous season or seed that you have broadcast onto the pasture into contact with soil. Good soil to seed contact is essential for germination and emergence. Any tillage or dragging should be shallow since crabgrass is a very small seed and should be covered no deeper than ¼ inch.

Apply 60-80 lb N/A to volunteer stands. Research conducted in Virginia found that like other summer annual grasses, crabgrass responds well to nitrogen fertilization (Figure 1). Nitrogen fertilizer not only increased dry matter yield, but also the crude protein concentration in crabgrass forage (Figure 2).

Control broadleaf weeds. Once crabgrass seedlings have 3 to 4 collared leaves, then light applications of 2,4-D can be applied to control broadleaf weeds that have germinated. These may include spiny pigweed and cocklebur. Make sure and always following instructions on the herbicide label.

Allow crabgrass to reach a height of 6-8 inches before grazing. Allowing crabgrass to become well established before grazing will increase season long productivity.

Stop grazing at 3-4 inches. By leaving residual leaf area, the regrowth of crabgrass will be more rapid and overall productivity will be increased. Crabgrass pastures can be grazed again once they reach a height of 6-8 inches.

Apply 30-40 lb N/A in mid-summer. If you are getting plenty of rain, you might consider applying a small amount of nitrogen in mid-summer. This will increase late summer growth and improve crude protein levels.

Table 1. Crabgrass performance at UK Research and Education Center at Princeton in 2020. The complete report can be found on the UK Forages webpage.

Variety	Proprietor/ Distributor	Maturity[1] Jul 16	Plant Height (in) Jul 16	Yield (tons/acre)			
				Jul 16	Aug 6	Sep 9	Total
Commercial Varieties-Available for Farm Use							
Red River	Noble Foundation	41.5	22	2.04	0.74	2.15	4.92*
QuickNBig	Noble Foundation	41.5	20	2.01	1.06	1.81	4.87*
Impact	Barenbrug USA	41.5	20	1.77	1.02	2.19	4.84*
Mojo	Barenbrug USA	41.5	22	1.69	0.80	2.21	4.70*
Mean		41.5	21	1.86	0.90	2.08	4.83
CV,%		0	12	15.72	25.25	12.58	8.78
LSD,0.05		0	4	0.47	0.37	0.44	0.72

[1] Maturity rating scale: 37 = flag leaf emergence, 45 = boot swollen, 50 = beginning of inflorescence emergence, 58 = complete emergence of inflorescence, 62 = beginning of pollen shed. See Table 3 for complete scale.
*Not significantly different from the highest numerical value in the column, based on the 0.05 LSD.
Nitrogen application: 60 lb/acre of actual nitrogen on July 22 and August 13 (Total of 120 lb of N/acre).

Allow stands to go to seed at least once during the growing season. Crabgrass is a summer annual grass that behaves like a perennial through prolific reseeding. This means that it must come back from seed each year. Therefore, allowing it goes to seed ensures that there will be plenty of volunteer seed for next year.

Plant a winter annual in late summer or early fall. Crabgrass is productive from June until September. Planting a winter annual grass like annual ryegrass or a small grain can provide late fall or early spring grazing. As these winter annuals are grazed out, crabgrass will germinate and fill in.

OR

Thicken stands up in the fall by interseeding cool-season perennial grasses. If you want to get more cool-season perennial grasses in the pasture, interseeding the pastures in the fall is the best option. This avoids competition from crabgrass and other summer annuals grasses and broadleaves. This interseeding is best accomplished using a no-till drill.

I realize that crabgrass isn't for everyone, although most everyone has it in their pastures. It is just another resource that you might be able to use to make it through those hot and humid summer months!

Grass Tetany - A Complicated Disorder with An Easy Prevention

Dr. Jeff Lehmkuhler, Extension Professor University of Kentucky and Dr. Michelle Arnold, UK Veterinary Diagnostic Laboratory

Classic "grass tetany" is a rapidly progressing and potentially fatal disorder caused by low magnesium level in the blood, also known as "hypomagnesemia". It is usually seen in older, lactating beef cows when grazing young, succulent grass in early spring, particularly during cool and rainy weather. Other common names for this disorder, including spring tetany, grass staggers, wheat pasture poisoning, and lactation tetany, reflect the season of the year, symptoms seen, types of forage, or physiology of the animals most often involved.

Magnesium is an essential mineral as its presence is vital for many enzymes of major metabolic pathways, in normal nerve conduction and muscle contraction, and in bone mineral formation. Approximately 60-70% of total magnesium in the body is bound up in the bones. Grass tetany occurs when the magnesium (Mg) level in blood decreases rapidly, resulting in less than adequate Mg reaching the cerebrospinal fluid surrounding the brain and spinal cord. Without Mg present in spinal fluid, there is uncontrolled activation of the nerves supplying muscles throughout the body. This causes constant overstimulation and contraction of muscles, appearing first as nervousness then muscle stiffness and rigidity ("tetany"), that can progress to convulsions then death.

Maintenance of normal blood magnesium depends on daily absorption of enough Mg from the rumen to meet the amount required for milk production, soft tissue and bone growth, fetal development during pregnancy, and the small amount lost in feces. Any excess dietary Mg is excreted by the kidneys in the urine (see Figure 1). Hypomagnesemia results when magnesium absorption is less than the daily Mg lost. Cattle have no effective tissue Mg reservoir so a shortage cannot be compensated for by removal from bones or increasing Mg^{2+} ion absorption from other sites in the body. In addition, Mg is not under direct hormonal control to keep it in balance as with other major minerals. Although a simple lack of Mg intake in the diet can happen as in cases of starvation or if off feed, deficiencies are most often due to interference with Mg absorption in the rumen. Absorption basically depends on 1) the amount of soluble Mg^{2+} ions available ("in solution") in the rumen fluid and 2) the performance of the transport mechanisms that move Mg^{2+} ions across the rumen wall to the bloodstream.

Known factors negatively affecting Mg absorption include:

1. High potassium (K^+) in rumen fluid. High K^+ is consistently cited as the most important factor in development of hypomagnesemia. The movement of magnesium across the rumen wall depends on an active transport mechanism (or "pump") driven by an electrical potential created at the cell membrane. High potassium along with low sodium conditions alters the ion gradient required for active transport. If this active transport mechanism fails due to high K^+, there is a secondary pathway, but it requires a much higher rumen magnesium concentration (4X higher) to enable Mg^{2+} ions to override the pump and passively flow down a concentration gradient to the blood.

   High K^+ levels in rumen fluid (Figure 2) are expected in any of the following situations: 1) cattle graze pastures on soils naturally high in K^+ 2) cattle graze pastures fertilized with excessive

potash or when high nitrogen fertilizer is added when soil phosphorous is low; 3) when cows are deficient in sodium (salt) and 4) when the diet changes suddenly from hay/dry feed to lush pasture. Small grain forages, including wheat, oats and rye, ryegrass and cool season perennial pastures in spring are often high in potassium (K^+) and nitrogen (N^+) ions and low in magnesium (Mg^{2+}) and sodium (Na^+) ions; these forage factors collectively reduce absorption of dietary magnesium.

2. Sudden increase in rumen ammonia. Lush grass is often high in soluble nitrogen and rumen degradable protein which allows for an increase in rumen ammonia levels. A rapid change from low-nitrogen to a high-nitrogen diet and rapid increase of ruminal ammonium ions (NH_4^+) impairs ruminal Mg^{2+} absorption, although the effect is transient and lasts for just a few days.
3. Insoluble Form of Magnesium. Magnesium must be present in soluble form (ionized) to be absorbed through the rumen wall. Solubility declines as the rumen fluid pH rises above 6.5. Grazing beef cattle often have higher rumen pH due to buffers present in saliva and slower production of volatile fatty acids from forage fermentation compared to grain diets. In addition, Mg^{2+} ion binders within forages, such as unsaturated fatty acids, can form insoluble Mg^{2+} salts reducing availability for absorption in the rumen.
4. Lack of dietary energy (fermentable carbohydrates)- In rumen fluid, a lack of fermentable carbohydrates results in fewer short-chain fatty acids (SCFA), a higher rumen pH, and an increase in ammonia concentration which decreases Mg^{2+} ion absorption. This is an important factor in development of winter tetany, an underlying form of hypomagnesemia that most often occurs when feeding harvested forages high in K^+ but low in Mg^{2+}, calcium (Ca^{2+}), sodium (Na^+) and energy throughout the winter. Cattle will have borderline low Mg and Ca blood levels but do not show tetany symptoms until triggered by a stressor such as severe weather, a new feed or environment, or after shipping. The stress hormone adrenaline rapidly shifts Mg^{2+} ions to the inside of cells, making it unavailable to the spinal fluid of the animal. If blood calcium is concurrently low, Mg levels in the spinal fluid decline even more quickly.

The classic grass tetany cow is most often found dead with disturbed soil around her hooves due to paddling and seizures before death. The interval between first symptoms and death may be as few as 4-8 hours. However, if noticed in the beginning stage, the earliest signs are twitching of the ears, facial muscles, shoulder, and flank and a stiff gait. The affected cow separates from the herd and may show a variety of symptoms including excitement, teeth grinding, aggression, galloping, bellowing, staggering and may appear blind. As the fall in magnesium progresses, sustained muscle spasms eventually cause the cow to stagger and fall, legs outstretched, stiff and paddling. Convulsions and seizures follow with the head arched back and the legs paddling. The heart rate may reach 150 beats per minute (approximately twice the normal rate) and can often be heard without the use of a stethoscope. Respiratory rates of 60 breaths per minute (normal is 10-30 breaths per minute) and a rectal temperature as high as 105°F may result from the excessive muscle activity. Animals may get up and repeat these convulsive episodes several times before death. The diagnosis is made based on history, symptoms, and low magnesium concentration measured in the blood, urine or cerebrospinal fluid prior to death. After death, postmortem samples of spinal fluid that test below 1 mg/dL of magnesium or vitreous humor, fluid within the eye, below 1.34 mg/dL are reliable indicators of grass tetany if collected within 1-2 days after death.

Cattle exhibiting symptoms of grass tetany need immediate veterinary treatment; preferably 1.5-2.25 grams of magnesium intravenously for an adult cow. If unable to treat in the vein, a 10% magnesium

sulfate solution given SQ or as an enema is a useful alternative therapy until a veterinarian arrives. Response to therapy depends on the length of time between onset of symptoms and treatment. Cattle that do recover take at least an hour to return to normal. Many of these cows will relapse and require additional Mg treatment within 12 hours. Administering oral magnesium gel or drenching with magnesium oxide or magnesium sulfate once the animal has regained good swallowing reflexes will reduce the rate of relapse. A magnesium sulfate enema can be administered because the large intestine can absorb Mg rapidly. If grass tetany has occurred within a herd, an effort should be made to immediately increase the intake of magnesium to other members of the herd to prevent further losses.

Prevention of grass tetany is based on maintaining consistent intake of soluble magnesium to be absorbed in the rumen of susceptible cattle when conditions for grass tetany exist.

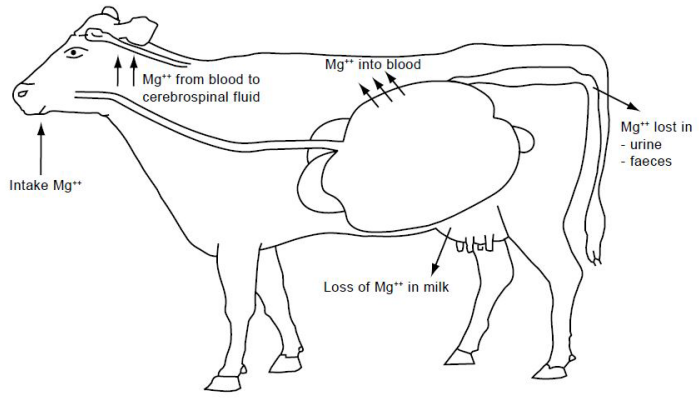
- Highly susceptible groups include lactating cows or cows in late pregnancy, especially 2-3 weeks prior to spring grass. These groups should be provided supplementary dietary sources of magnesium, commonly magnesium oxide. The average beef cow reaches peak lactation at 6-8 weeks post-partum which is her highest demand for magnesium.
    - UK Beef IRM mineral recommendations for free choice supplements for grazing beef cattle include 4 oz/head/day of a 12% magnesium trace mineral mix and all from magnesium oxide (no dolomitic limestone or magnesium mica). This will provide approximately 13 grams of magnesium which is approximately 50% of the daily requirement for lactating beef cows. These complete mineral mixtures also supply additional sodium in the form of salt to aid in combatting high potassium intakes that can interfere with the active transport of magnesium.
    - For cooked molasses products with a recommended intake of approximately 1 pound per day, the guaranteed analysis for Mg^{2+} should be approximately 4%. Read the label to ensure adequate Mg^{2+} levels; know recommended intake and monitor consumption.
    - Mineral consumption should be monitored because intake is generally inadequate if using poor quality mineral products since magnesium oxide is not palatable.
    - 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.
- Provide the required amount of salt in the diet. A deficiency of sodium triggers the release of the hormone aldosterone that conserves sodium in saliva and rumen fluid and replaces it with potassium. Adding the correct level of sodium to the diet is important but too much sodium increases urination and loss of magnesium in the urine. Research has shown that the negative effects of high potassium cannot be overcome by the addition of large quantities of salt.
- The ionophores monensin and lasalocid significantly increase Mg absorption. Both ionophores lower ruminal K^+ concentrations and help maintain Mg transport.
- If feeding grain is an option, mixing 5# Magnesium Oxide (MgOx) to 50# Dried Distillers Grains (DDG) and feeding the mix at 1#/head/day will provide 22 grams Mg daily. MgOx is often sold as a “laxative powder”.
- If the water source is a tank, soluble Mg^{2+} salts can be added, such as magnesium acetate, magnesium chloride and magnesium sulfate (Epsom salts) at a rate of 3 g/L water.
- Delay turn-out to spring grass until plants are 4 to 6 inches tall. Mg^{2+} is more available in mature plants.
- Graze the less susceptible animals (heifers, dry cows, stocker cattle) on the higher risk pastures since the threat of disease is lower in non-lactating cattle.

- Limit grazing to 2-3 hours per day and provide free-choice access to hay while cattle are grazing lush pastures. Dry forages can provide additional Mg^{2+} and $Ca^{2+}$and slow passage through the rumen, increasing the time available for absorption.

In the long term, prevention of disease is based on instituting management changes that decrease K^{+} and increase Mg^{2+} and Ca^{2+} in the forage.

- One approach is to incorporate more legumes into pasture mixes, as legumes have higher Mg^{2+} and Ca^{2+} than do immature grasses, resulting in a better balance across the pasture.
- Soil test and apply fertilizer based on soil test results and use no more potassium than recommended. When potassium is applied to forages in the early spring, plants take up more potassium than needed, called "luxury consumption". High soil potassium also inhibits Mg^{2+} uptake by forages. The resulting high potassium forage blocks the uptake of Mg^{2+} in the rumen.
- Use caution if applying broiler house litter for fertilizer as this has been associated with an increased risk of grass tetany due to the high K^{+} and N^{+} content.

Figure 1. Cow receiving an adequate supply of Mg in her diet.



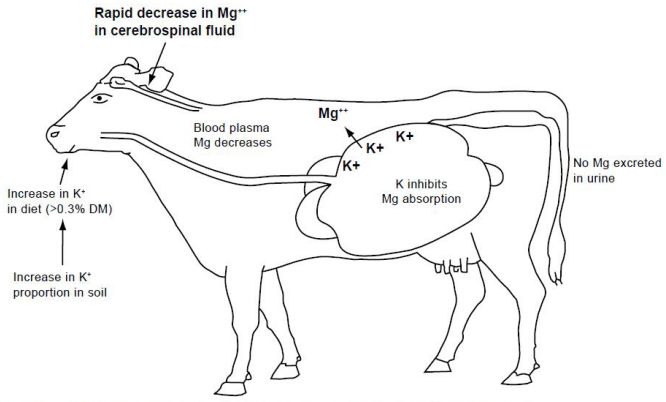


Figure 2. Cow with a temporary magnesium deficiency as a result of a high intake of K in her diet.

Figures 1 and 2 from: Primefact 785; Grass tetany in Cattle-Predicting its Likelihood. Mac Elliott, Livestock Officer. New South Wales Department of Primary Industries (www.dpi.nsw.gov.au). June 2008

10 Tips for Managing High Feed Prices.

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

We have all heard the phrase, "it's the little things". The saying applies to the beef industry as well. There is no single management practice, feed ration, or genetic trait that drives profitability. Profitability is really a summation of lots of little things coming together to create a profitable system. Whenever profitability is challenged whether from greater input prices like we are seeing now, or lower calf prices, I start to get questions about decreasing feed costs. This should come as no surprise, as feed costs are one of the biggest expenses facing beef cattle operations. Below is a list of some of those little things, that can really add up!

1) Preg checking: Our cows should be working for the operation. Thus, an open cow is one that is not pulling her weight on a cow-calf operation. Today producers have more options than ever before for preg checking their herds. New chute side blood tests can be completed right on the farm in about 10 minutes, there are also commercial labs that will run blood tests giving you results in just a couple of days, and of course there is always ultrasound which gives you a real time answer but does depend on scheduling and availability. Culling open cows not only decreases purchased feed costs but can also make our available forage resources go farther as well.

2) Buy in bulk: The ability to buy purchased feeds in bulk can allow producers to take advantage of bulk discounts offered by many feed retailers. Also having the ability to store feed on the farm can allow producers to purchase feed stuffs at the time that they are most economical as opposed to waiting until it is needed to be fed.

3) Get your hay tested: When talking with cow-calf producers about feed costs, one of the first things I ask them is, "Did you get your hay tested?". Getting hay tested allows us to make strategic decisions about hay feeding. Cattle's nutrient requirements fluctuate throughout the year, so making sure that hay with the highest energy and protein concentrations is fed to the cattle on our farm with the highest energy and protein requirements can go a long way in decreasing our supplemental feed costs. For example, hay test results from two different lots of hay are shown in the table 1.

Table 1. Hay test results from two separate lots of hay.

	Dry-matter, %	CP, %	NDF, %	TDN, %
Hay A	87.1	7.7	65.5	52.9
Hay B	86.7	13.1	55.1	60.1

Assuming that we are feeding 1250 lb cows with a body condition score of 5, table 2 shows the amount dried distillers grains that would be required to meet the energy and protein requirements of these cows in either mid-gestation, late gestation, or lactation.

Table 2. Amount of dried distillers grains needed to meet the protein and energy requirements based on stage of production

	Mid-gestation	Late-gestation	Lactation

Hay A	0	1	5.6
Hay B	0	0	0.7

Now, assuming that DDGS cost $280/T, table 3, shows the cost to supplement 30 cows per day.

Table 3. Cost to supplement 30 cows per day with DDGS.

	Mid-gestation	Late-gestation	Lactation
Hay A	0	4.20	23.52
Hay B	0	0	2.94

These calculations show the importance of feeding the right hay, to the right cow, at the right time. Feeding Hay A during mid-gestation and saving hay B to be fed during lactation can have a drastic impact on the cost of supplementing the cow herd while also maintaining adequate body condition score. This calculation was simple and does not take into consideration things like environmental factors or age that can impact the energy and protein requirements of the cow herd. In Kentucky many of our county extension offices of hay testing probes and may offer assistance with submitting hay samples to the lab. Work with your county agent, or use the University of Kentucky Beef Cow Supplementation tool online to help make management decisions based on your hay test results

4) Compare costs based on nutrients: When comparing feed stuffs, it is critical that comparisons are being made apples to apples. It is not enough to just look at cost per lb or ton. There are many factors that can impact the cost per lb or ton of a feed ingredient. One of the biggest things to remember is that feed stuffs can have vastly different moisture contents, so how much of the feedstuff is actually water? For example, in Kentucky, stillage is a widely available feedstuff and has a moisture content of about 90-94%, whereas dried distiller grains would only have a moisture content of about 10-12%. It's reasonable to expect the price per ton for those high moisture feeds. to be less than drier feeds, but is it a better deal? To answer that question, we must compare the price of feeds on a cost per lb of protein or energy basis.

For example, consider dried distiller grains at 90% dry-matter, and 28% crude protein for $280/T.

First calculate the lbs of CP in one ton of dried distiller grains (on a DM basis).

2000 lb * 0.90 = 1,800 lbs of DM in a Ton; 1,800 lb DM * 0.28 = 504 lbs of CP in ton.

Now calculate the cost per lb of nutrient. Divide the cost of the feed by the lbs of the nutrient in one ton.

$280 ($/Ton)/504 (lbs of CP/T) = 0.56/ lb CP.

Use this value when comparing feed stuffs to one another. Another important consideration is that sometimes we can't take full advantage of a feed stuff in a ration. For example whole cotton seeds are high in protein (~24%), but it is also very high in fat (~18%). Recently I was working on a ration for a producer, and whole cottonseed what less expensive than other protein sources when comparing them on the cost per lb of protein. However, because of the high fat content, inclusion of whole cottonseed in the diet must be limited. At the end of the day, the low inclusion level of whole cottonseed, prevented it

from being a truly more economical option in this situation. Working with a nutritionist can be beneficial when evaluating the economics of feed ingredients.

5) Improve record keeping: The best cattle managers are often the best record keepers, and that is not coincidence. We can't manage what we do not measure. Record keeping allows us to truly track feed costs, it can be a great way to subjectively identify those less efficient cows in the herd. You know the one, she's had a few calves and she gets rebred, but a closer look at records might show that her calving interval is more like 425 days vs. the goal of 365 days. For example, if we had two 7-year-old cows and one had an average calving interval of 370 days and the other 425 days, the cow with the shorter calving interval would have had 5 calves vs. only 4 calves for the cow with the longer calving interval.

Luckily, technology has allowed record keeping to be easier than ever! Many of these programs help producers track performance metrics, that can help to identify those less efficient or productive animals in the herd. The University of Kentucky has recently launched X10D, which is a new program that encompasses whole farm record keeping along with educational resources from University of Kentucky Cooperative Extension, and forums to connect with other producers. For more information about X10D, visit www.X10D.org, or ask your local county extension agent.

6) Cut the fluff: I'm talking about body condition score (BCS). Body condition score highly correlated to reproductive performance. Cows with a body condition score of less than 5, have a much lower chance of being bred. What about those heavy cows? Each BCS equal to about 75-100 lbs of live body weight. When cows' BCS increase their maintenance requirements increase, feed intake increases, and even their susceptibility to heat stress increases. Thus, the cost to maintain that cow at a BCS of 7 or 8 will be greater than if she were maintained at BCS 5 or 6. One solution for managing BCS of the cow herd is to sort cows by BCS. Keep those cows that are thinner or heavier separate from the rest of the herd. This allows us to feed those cattle either more or less energy and protein to increase or moderate their BCS.

7) Prevent feed waste: Feed wastage is just money wasted. Now, understand that we will always have some feed wastage but there are ways to limit this wastage and thus, limit the economic impact it has on the operation. Preventing feed wastage starts long before we start feeding. Storing hay under roof is one of the first things we can do to prevent wastage. For a 5 x 5 bale, 33% of the weight of that bale is found in the outermost 6". When bales are stored outside and on the ground, we can easily see weathering of that outer 6". Feed waste can also occur when feeding hay, using hay rings can help prevent some losses, but not all bale rings are created equal. Designs that have solid metal skirting around the bottom are better than those that are open.

8) Keep back only what you need: Developing heifers can be a pricey undertaking. Keeping back only the number that you need can help to decrease the overall cost of developing heifers on the operation. However, sometimes it can still be advantageous to purchase bred heifers. I think about this, especially in years where forage resources may not be as abundant. We have truly been blessed here in the mid-south over the last several years, with at times having too much rain. However, years like 2012 are still in recent memory. This is a scenario that might require a little pencil pushing, but I encourage you to consider the costs of developing heifers on your

operation vs. purchasing bred heifers. Also remember, that especially when input costs are high, keep back only what you need for your operation.

9) Extend the grazing season: Finding ways to extend the grazing season (efficiently), can be a great way to decrease your feed bill. One of the easiest ways to this is taking advantage of tall fescue's ability to stockpile. One common misconception when it comes to stockpiling fescue is that it requires nitrogen application. With today's nitrogen prices, that might sound like a deterrent. Although fescue responds well to nitrogen application, it will still stockpile (to a lesser degree) even without this step. Use strip grazing to efficiently utilize stockpiled tall fescue and extend the grazing season.

10) Don't cut the minerals: Minerals are a required nutrient, just like energy and protein. It can be easy to forget about minerals or cut back on mineral supplementation when feed costs increase. The problem with this is that many feedstuffs are deficient in at least one or more minerals. In Kentucky we are especially concerned with selenium and copper. These are the two most common deficiencies observed in cattle in the state. Supplements like white salt blocks and even trace mineralized salt blocks, simply do not have enough of these (and other) minerals to ensure that the animal's requirements are being met. Minerals are extremely important for optimal reproductive performance, and growth. Unfortunately, early mineral deficiencies can be difficult to diagnose. This is because at first symptoms of mineral deficiency are what we call sub-clinical. This means that we aren't losing cattle to mineral deficiencies and lab tests are not sensitive enough to detect these sub-clinical deficiencies. However, when herds have sub-clinical mineral deficiencies, we are undoubtedly leaving performance on the table. To avoid, sub-clinical mineral deficiencies provide a good quality complete mineral supplement to the herd 365 days of the year. The University of Kentucky Beef IRM mineral recommendations are developed to give producers across the entire state a good starting place for selecting a good quality mineral supplement. Dr. Lehmkuhler and I meet at least once a year to discuss the mineral recommendations and take into consideration the latest mineral research, as well as economic and supply chain considerations when revising these recommendations.

This is by no means an exhaustive list of strategies to manage feed costs, but it is a start and should give producers some things to evaluate on their own operation. Remember the small things and manage the things that we can control on our operations to help improve profitability. If you have any questions about these strategies, please reach out to your local county extension office.

Beef Cow Slaughter Pace Exceeding Last Year's High Levels

Dr. Kenny Burdine, Extension Professor, Livestock Marketing, University of Kentucky

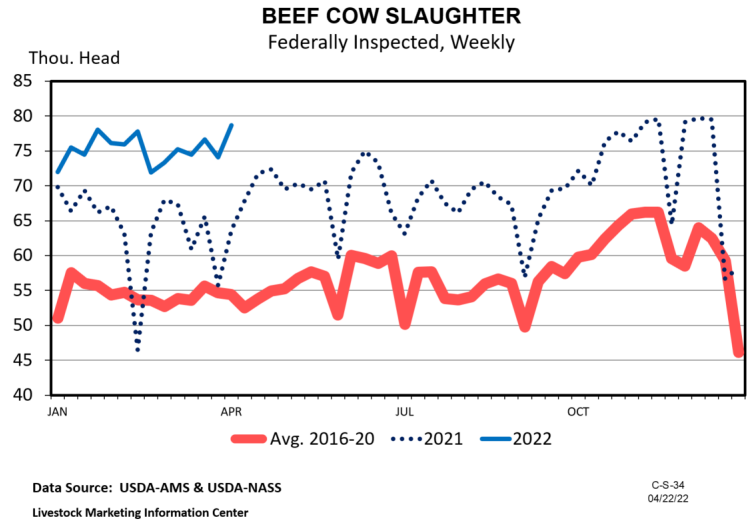
The size of the US beef cow herd was estimated to have decreased by 2.3% during 2021. Steep culling of the cowherd was a major reason why this was the case as beef cow slaughter was up by nearly 9% for the year. A frustrating calf market and drought in much of the US led to herd reductions as a lot of cows were sent to market. Year-over-year, the increase amounted to almost 300 thousand cows, which probably accounted for about 40% of the total reduction in beef cow inventory last year.

While calf prices have been higher in the first few months of 2022, a large portion of the US remains in significant drought. Most significantly for the cattle sector, drought moved into the Southern Plains

during the fall of 2021 and has seemed to intensify this spring. The first chart below shows beef cow slaughter for 2022 (blue line), which has been running well ahead of 2021 (dotted line). Year-to-date, beef cow slaughter has been over 18% higher than year-ago. This is slightly biased by an extremely low cow slaughter week in February 2021, which was the result of a significant ice storm. However, even taking that week out of the comparison, harvest levels are still more than 15% higher so far this year.

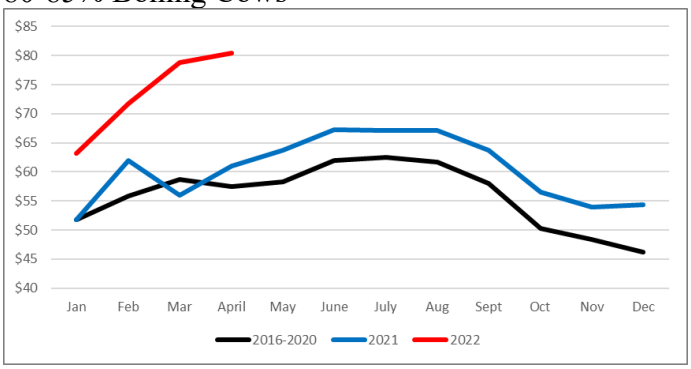
While drought conditions are likely the major driver behind current cow slaughter levels, price levels are adding fuel to the fire. The second chart below shows 80-85% boning cow prices in Kentucky, which have been running much higher than last year. For the month of April, slaughter cow prices were more up over 30% from 2021. On a 1,300 lb cow, this difference is about $250 per head.

Beef heifer retention was lower coming into 2022, which suggests continued contraction in beef cow numbers. Although it is still early in the year, beef cow slaughter through early April is pointing to another year of heavy culling. The combination of dry weather and strong cull cow prices are likely to keep cows moving and encourage producers to pull the trigger a little sooner on those cows as they approach the end of their productive lives. This is definitely something to watch as we move through the current year and it is hard to imagine that we won't be discussing another significant decrease in beef cow numbers at the start of 2023.



Kentucky Auction Prices

80-85% Boning Cows



Source: USDA-AMS, author calculations