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Beef IRM Team

OFF THE HOOF

KENTUCKY BEEF CATTLE NEWSLETTER DECEMBER 1, 2021

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

Contents

This month's newsletter includes:

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

Spring Calving Herd

- Be sure that weaned heifer calves are on a feeding program that will enable them be at about 65% of their mature weight before the start of the breeding season. Rations should be balanced to achieve gains sufficient to get heifers from their current weight to that "target" weight.
- Body condition is important, plan an adequate winter program for cows to be at least body condition score 5 (carrying enough flesh to cover the ribs) before the calving and breeding season. This will help them to breed early in the spring. Thin cows should be fed to regain body condition prior to winter. Don't let cows lose weight/condition. Supplementation will most likely be needed. Find low-cost supplemental feeds to meet the nutrient needs of cattle.
- Divide the herd into groups for winter feeding -
  - weaned heifer calves
  - first-calf heifers, second-calvers and thin mature cows
  - the remainder of the dry cows which are in good body condition
  - herd sires
- Begin feeding the lowest quality forage to dry cows which are in good condition during early winter and save the best hay for calving time or for weaned calves.
- Order and number ear tags for next year's calf crop this winter. It is also a good time to catch up on freeze branding and replacing lost ear tags.

Fall Calving Herd

- Get breeding supplies together, if using estrous synchronization and/or A.I.
- Have Breeding Soundness Evaluation (BSE) performed on bulls (even if you used them this spring).

- The fall breeding season starts. Breeding can best be accomplished on stockpiled fescue pasture; otherwise, cows with calves should be fed 25-30 pounds of good quality hay or its equivalent. Supplement with grain, if needed, and minimize hay waste. DON'T ALLOW THESE COWS TO LOSE BODY CONDITION PRIOR TO OR DURING THE BREEDING SEASON. It is easy to wait too long to start winter feeding. Don't do it unless you have stockpiled fescue.
- Nutrition level of cows during the first 30 days after conception is critical. Pay attention.
- Observe performance of bulls during breeding season. Watch cows for return to estrus, if you see several in heat, try to determine the cause and consider changing bulls.

General

- Complete soil testing pasture to check for fertility and pH.
- Consider putting down geotextile fabric and covering with gravel in feeding areas before you begin hay feeding to minimize waste of expensive hay. Or, perhaps, construct concrete feeding pads for winter feeding areas.
- Monitor body condition and increase feed, if needed, for all classes of cattle.

Recent and Upcoming On-line Beef Education Opportunities

Beef IRM Team, University of Kentucky

ROWLI	*USDA Research Update* *Timely Topics* – Beef Extension Crew
BeefBits Podcast	*Texas Winters* – Lehmkuhler and Dr. Jason Smith TAMU *Cozy Confinement* – Lehmkuhler and Dr. Morgan Hayes *Profit Hinges on Pregnancy* – Lehmkuhler and Anderson *The Whole Herd* – Lehmkuhler and Bullock

To access this and other excellent beef educational content, visit our Facebook Page (facebook.com/KyBeefIRM) and/or on the Department of Animal & Food Science YouTube page (https://www.youtube.com/channel/UCu4t18Zo2E_4_DBBELPjPMg). 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).

UK Beef Management Webinar Series

Dr. Darrh Bullock, Extension Professor, University of Kentucky

Please join us for our Beef Management Webinar Series that meets via Zoom in the evening of the second Tuesday of each month. Registration is necessary, however, if you previously signed up for the ROWLI webinar series we conducted over the past 18 months or have already signed up for this webinar series then you do not need to re-register, you will automatically receive the invitation the morning of each presentation. If you need to register, please send an email to dbullock@uky.edu with Beef Webinar in the subject line and your name and county in the message. You will receive the direct link with a password the morning of each meeting. This invitation will directly link you to the site and you will be

asked for the password which can be found just below the link. Each session will be recorded and posted for later viewing. All meeting times are 8:00pm ET/7:00pm CT. The following is the planned agenda to date:

November 9, 2021
USDA Forage-Animal Production Research Unit Update, Dr. Michael Flythe and Dr. Brittany Harlow

December 14, 2021
Shooting the Bull: Answering all your beef related questions! – Roundtable discussion with UK Beef Specialists

January 11, 2022
Milk: Benefit or Burden – Dr. Darrh Bullock and Dr. Jeff Lehmkuhler

February 8, 2022
AFS Beef Research Update
Titles and speakers to be announced.

March 8, 2022
Shooting the Bull: Answering all your beef related questions! – Roundtable discussion with UK Beef Specialists

Tips for Weathering High Fertilizer Prices

Chris Teutsch and John Grove, UK Research and Education Center at Princeton

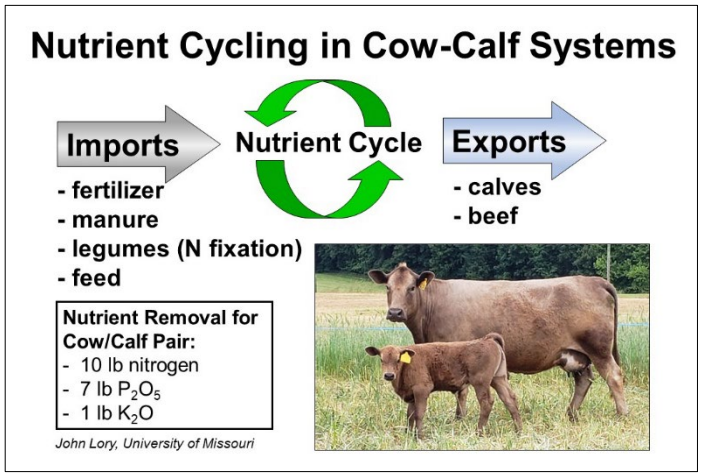


Figure 2. Few nutrients are removed from grazing systems. Nutrients enter grazing systems via feed, fertilizer, and nitrogen fixation in legumes and are recycled by grazing and deposition of dung and urine and decomposition of plant residue and senesced roots (*Illustration by Chris Teutsch, UKY*).

In the last year, the cost of fertilizer had increased more than 125%, 85%, and 115%, for urea (nitrogen), diammonium phosphate (phosphorus), and muriate of potash (potassium), respectively (Figure 1). The price of nitrogen could continue to increase due to the idling of N manufacturing capacity caused by weather issues and increased natural gas and shipping costs. Nitrogen prices could conceivably reach $1.00/lb N early next year. So, the question becomes what management strategies ruminant livestock producers could use to manage soil fertility as fertilizer markets continue to experience volatility.

Management Strategies: No "Silver Bullets"

We wish we had a miracle cure for high fertilizer prices, but we don't. And we would

caution you to closely scrutinize claims from retailers of products that are offering you something that sounds too good to be true. One competitive advantage that well managed grazing systems have is that nutrient removal is very low and with good grazing management strong nutrient cycles can be developed (Figure 2). Below you will find some strategies that can be implemented to help you get through the current period of high fertilizer prices.

Soil test pastures and hay fields. You are probably saying to yourself why in the world would I even bother soil testing when fertilizer prices are so high. It is impossible to manage something without data. A soil test allows you to target fertilizer applications to fields that have the potential to respond. If the P or K soil test level for a given nutrient is in the low range, then the probability of a yield response is high (Table 1). If the P or K soil test level is in the medium or high range, the probability of a yield response diminishes. So, our best advice at this time is that if your soil test value is a SOLID MEDIUM, do NOT apply that P or K fertilizer until prices moderate.

Figure 3. Soil testing is an important tool for managing soil fertility in pastures, especially when fertilizer prices are high (*Photo by Chris Teutsch, UKY*).

Monitor soil test levels in hayfields closely. Since hay removes much higher quantities of nutrients than grazing, it is important to closely track nutrient levels and apply P or K fertilizer when soil test values drop below the MEDIUM range. This will prevent nutrient mining and yield decline.

Apply lime according to soil test. Soil acidity or alkalinity can have a profound impact on soil nutrient availability to forage plants (Figure 3). Maintaining soil pH between 6.0 and 7.0 results in the greatest availability of macro- and secondary-nutrients such as nitrogen, phosphorus, potassium, magnesium, and sulfur. In contrast to fertilizer prices, lime costs have remained about the same. If your soil test indicates that you need lime, it will likely be the best buy you can make at the current time.

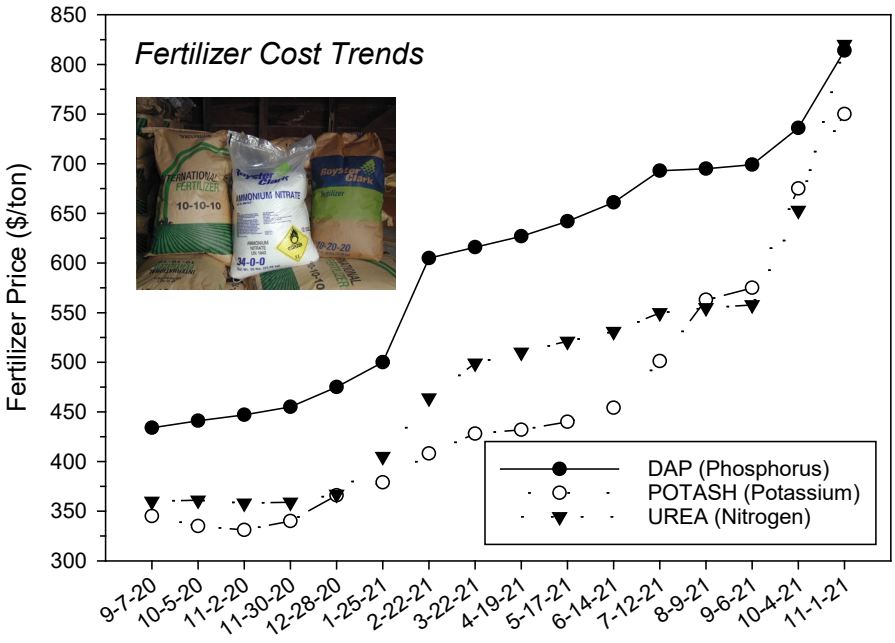


Figure 1. Fertilizer price trends for nitrogen (urea), phosphorus (DAP) and potassium (muriate of potash). In the last 12 months fertilizer prices have increased more than 50% (*Data from Russ Quinn at DTN*).

Capitalize on nutrients in hay. Every ton of hay contains approximately 50 lb N, 15 lb P_2O_5, and 50 lb K_2O. The current value of the nutrients in one ton of hay is approximately $50. How we manage hay feeding will determine the actual value of these nutrients. If we feed hay

in one paddock near the barn, then the value of these nutrients will be low because they will be concentrated in one small area. In contrast, if we move feeding points and feed the hay on pastures with lower soil test values, then the value of the nutrients in hay will be higher.

Table 1. Probability of forage yield response for soil test levels ranging from very low to very high (Edwin Ritchey and John Grove, personal communication, April 19, 2021).

UKY Soil Test Level	Probability of Yield Response†
Very High	0%
High	<25%
Medium +	25 to 50%
Medium	50%
Medium -	50 to 70%
Low	70-90%
Very Low	>90%

†These are estimates and will vary with soil type and environmental conditions.

Implement rotational stocking. This doesn't sound like much of a nutrient management strategy, does it? In large continuously stocked pastures, animals will consume nutrients in the form of forage and concentrate them around shade and water sources in the form of dung and urine. One way to improve nutrient distribution in pastures is to subdivide and implement rotational grazing. Confining livestock to smaller areas for short periods of time significantly improves dung and urine distribution.

Replace commercial nitrogen by overseeding clover into pastures. Legumes fix nitrogen from the air to a plant available form via symbiotic nitrogen fixation, improve forage quality and animal performance, and dilute the toxic effects of the endophyte found in tall fescue. Red and white clover are estimated to fix between 50 and 120 lb N per acre per year. This fixed nitrogen is indirectly shared with legumes through grazing and the associated deposition of dung and urine, through death and decomposition of above and below ground plant parts, and the senescence of root nodules.

Frost seed clover in February. The simplest and most cost-effective way to introduce clover into pastures is by broadcasting 6-8 lb of red clover/A and 1-2 lb of ladino clover/A onto closely gra [Grab your reader's attention with a great quote from the document or use this space to emphasize a key point. To place this text box anywhere on the page, just drag it.]

zed pastures in February and allowing the freezing and thawing cycles to incorporate the seed. Allow animals to remain on these pastures until the new clover seedlings have become tall enough to be grazed off. At his point, remove animals and allow the seedling to reach a height of 8-10". At this point, these pastures can be incorporated back into the rotation.

Determining nitrogen fertilizer needs. There are no good soil tests for N, so use university rate recommendations. Most rate recommendations are a 'range', so consider an application rate at the lower end of the range when fertilizer N prices are high. Consider your personal experience with N response in your pastures and hayfields. Well managed pastures that have a strong legume component and are rotational stocked can have strong nitrogen cycle. This will tend to make them less responsive to nitrogen fertilizer. Remember, more N drives more grass growth, BUT it is only a good investment if the additional forage will be utilized!

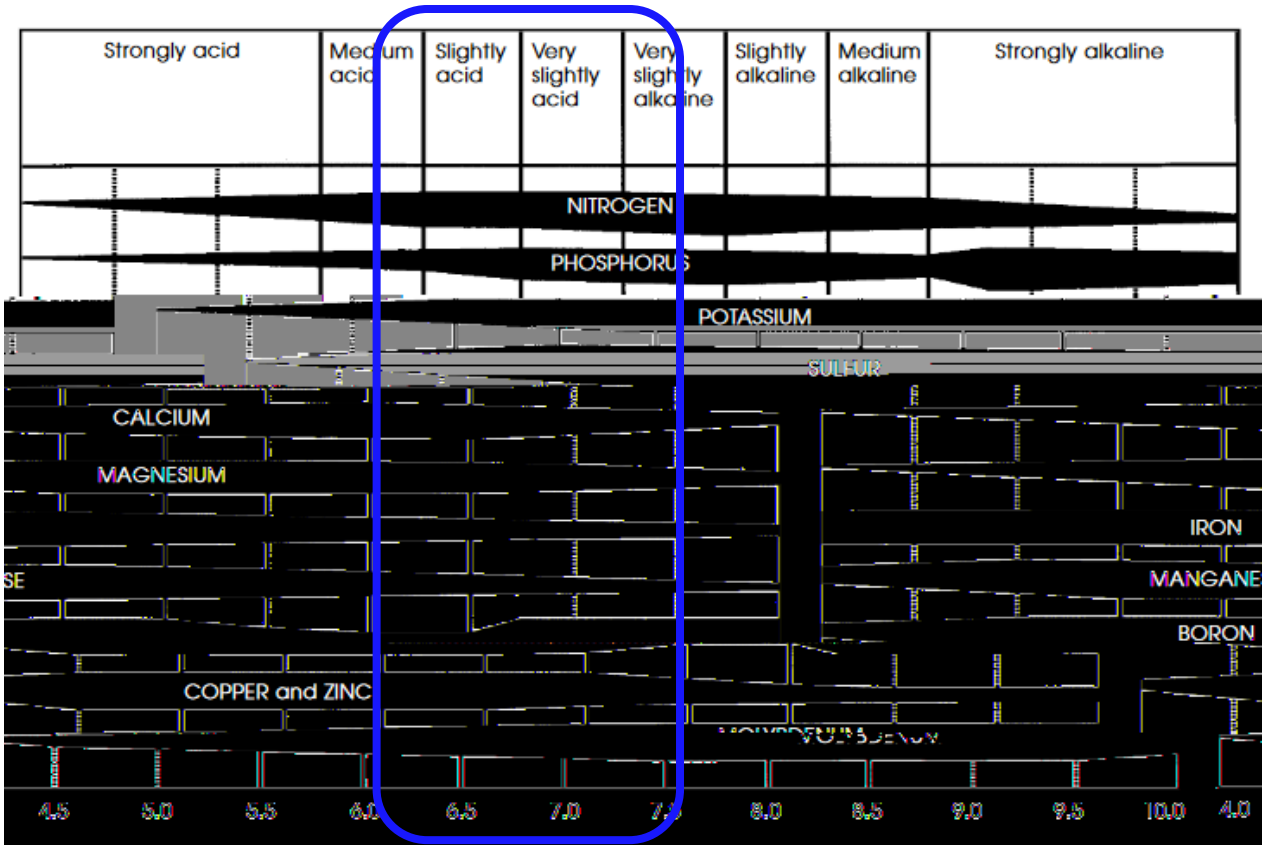


Figure 4. Impact of soil pH on availability of nutrients to plants. The wider the band, the more plant available a given nutrient is. Maintaining soil pH between 6.0 and 7.0 optimizes the availability of essential plant nutrients (*Figure from the NSW Department of Primary Industries)*.

Take Home Points

Although there is no "silver bullet" for high fertilizer prices, some key management strategies will help you weather these high prices in the short-term and develop grazing systems that are less dependent on commercial fertilizer inputs in the long-term.

1. Soil test pastures to provide baseline data for short- and long-term fertilizer management.
2. Do NOT apply P and K fertilizer to pastures testing MEDIUM until fertilizer prices moderate.
3. Apply needed lime to pastures according to soil test to make nutrients in the soil more available to forage plants.
4. Closely monitor soil test levels in hayfields to prevent nutrient mining and yield decline.
5. Feed hay on pastures with low soil test values.
6. Move hay feeding points around the pasture to improve nutrient distribution.
7. Implement rotational stocking to improve dung and urine distribution in pastures.
8. Frost seed clover into pastures to improve forage quality, help with tall fescue toxicosis, and fix atmospheric nitrogen into a plant available form.
9. Apply fertilizer nitrogen at the lower end of the recommended rate range, knowing that you will use resulting grass growth.

Judicious Use of Antibiotics-What's Next for a Beef Producer?

Dr. Michelle Arnold, UK Veterinary Diagnostic Laboratory

The Food and Drug Administration (FDA) is continuing to implement strategies to promote the *judicious or appropriate use of antibiotics considered important in human medicine when they are used in food-producing animals. FDA's goal is to curb the development of antibiotic-resistant bacteria and in turn reduce the risk of human infections that are difficult to treat due to ineffective antibiotics. On June 11th of 2021, FDA finalized a Guidance for Industry (GFI) #263, which outlines the process for animal drug manufacturers to change all remaining antibiotic formulations used in animal health care from over-the-counter (OTC) to prescription status. Manufacturers will have two years from the date of issue to make this label change to their products. Basically, this means products commonly used by beef producers such as injectable penicillin and oxytetracycline (for example, LA-300) will no longer be available without a prescription as of June 2023.

The new GFI #263 is an extension of an earlier guidance published in 2013 designated GFI #213. As of January 2017, GFI #213 effectively moved all OTC antibiotics used in feed to Veterinary Feed Directive (VFD) status and those used in drinking water to prescription (Rx) status as well as eliminated production uses such as growth promotion. Of the 292 drugs affected by this government directive #213, 93 products used in drinking water were converted to prescription status; 115 products used in feed were converted from OTC to veterinary feed directive status; and 84 were removed from the market. Production indications were withdrawn from 31 product labels. With full implementation of GFI #213, approximately 96% of medically important antimicrobials used in animals are now under veterinary oversight. Once the recommendations in the new GFI #263 are fully implemented, all dosage forms of medically important antimicrobials approved for use in animals will only be available from, or under the supervision of, a licensed veterinarian, and only when necessary for the treatment, control or prevention of specific diseases. Producers will have to consult their veterinarian to obtain all antibiotics in any form (injectable, bolus, topical, intramammary) or for a prescription to purchase them from a distributor.

FDA's new strategy with GFI #263 is primarily focused on "medically important antimicrobial drugs" that are available without a prescription and can be given without a veterinarian's involvement. This includes, but is not limited to, beta-lactams (Penicillin G, Cephapirin), aminoglycosides (Gentamicin), lincosamides (Lincomycin), macrolides (Tylosin, Erythromycin), sulfonamides (Sulfadimethoxine, Sulfamethazine, Sulfachlorpyridazine) and tetracyclines (Oxytetracycline, Chlortetracycline).
FDA first developed its list of antimicrobial drugs (antibiotics) considered "medically important" in Guidance #152, *Evaluating the Safety of Antimicrobial New Animal Drugs with Regard to Their Microbiological Effects on Bacteria of Human Health Concern*, published in October 2003. This list is available in Appendix A of GFI #152 and can be accessed at the following link: https://www.fda.gov/media/69949/download . Medical "importance" of a drug is based on its efficacy in human medicine and other factors including the usefulness of the drug in food-borne infections, the types of infections treated, the availability of alternative therapies, the uniqueness of the mechanism of action, and the ease with which resistance develops and is transferred between organisms. There are several growth promotion products in the cattle industry that are not listed in Appendix A. Bacitracin, bambermycins (Gainpro®), laidlomycin (Cattlyst®), and ionophores (such as monensin and lasalocid) are not affected by this GFI.

The FDA has made available a webpage entitled "GFI #263: Frequently Asked Questions (FAQs) for Farmers and Ranchers" available at https://www.fda.gov/animal-veterinary/judicious-use-antimicrobials/gfi-263-frequently-asked-questions-farmers-and-ranchers . One specific question of interest addressed on this website is "Will a veterinarian be required to physically examine each animal before writing a prescription?" The following answer is provided by FDA:
"Although specific requirements vary by state, veterinarians are generally not required to examine each individual animal for which a prescription is issued, as long as the veterinarian has established a valid veterinarian-client-patient relationship (VCPR) with the farmer or rancher that owns or cares for the animal(s) in need of treatment.

Establishing a VCPR generally requires, among other things, that the veterinarian has become familiar with the management of the animals on a given farm or ranch by examining the animals and/or visiting the facility where the animals are managed. [See Box 1 for KY VCPR Requirements]

Box 1
321.185 Veterinarian-client-patient relationship (VCPR)
(1) In order for a veterinarian to practice veterinary medicine, a relationship among the veterinarian, the client, and the patient shall be established and maintained.
"Veterinarian-client-patient relationship" means that:
(a) The veterinarian has assumed the responsibility for making judgments regarding the health of the animal and the need for veterinary treatment, and the client, whether owner or other caretaker, has agreed to follow the instructions of the veterinarian;
(b) There is sufficient knowledge of the animal by the veterinarian to initiate at least a general or preliminary diagnosis of the medical condition of the animal. This means that the veterinarian has recently seen and is personally acquainted with the keeping and care of the animal by virtue of an examination of the animal or by medically appropriate and timely visits to the premises where the animal is kept; and
(c) The practicing veterinarian is readily available or shall provide medical service for follow-up in case of adverse reactions or failure of the regimen of therapy. A new regimen of therapy shall be contingent only upon cooperation of the client and availability of the subject animal.

Farmers and ranchers may want to consult with their veterinarian to have a plan in place prior to the transition period, including a plan for getting access to appropriate antimicrobial products to address animal health issues when a veterinary visit is not feasible or not considered necessary by the veterinarian."

During the two-year timeframe for implementation that began on June 11, 2021, FDA plans to work with affected stakeholders and state partners to answer questions about the voluntary transition process and provide assistance, hear feedback and answer questions about the guidance where possible. There are legitimate concerns regarding the increased cost of this legislation to beef producers and the lack of food animal veterinarians in many parts of the country. Similarly, veterinarians are concerned about the increased regulatory burden this move to prescription status will impose. The guidance document and a link for submission of comments can be found at https://www.fda.gov/regulatory-information/search-fda-guidance-documents/cvm-gfi-263-recommendations-sponsors-medically-important-antimicrobial-drugs-approved-use-animals. The FDA is reaching out to stakeholders for input and public comments. Comments on the proposal are due online via www.regulations.gov by December 24, 2021.

Comments may also be submitted by mail to:
Dockets Management Staff
HFA-305
Food and Drug Administration
5630 Fishers Lane, Room 1061
Rockville, MD 20852
Comments should reference docket number FDA-2019-D-3614.

*What is "Judicious Use"? "Judicious use", according to FDA, is using a drug appropriately and only when necessary. The development of resistance to medically important drugs, and the resulting loss of their effectiveness, poses a serious public health threat. Misuse and overuse of antimicrobial drugs creates selective pressure that allows resistant bacteria (the "bad bugs") to increase in number faster than susceptible bacteria and is hypothesized to transfer through the food chain to humans, potentially increasing the opportunity for individuals to become infected by resistant bacteria. This scenario may result in treatment failure or a prolonged course of disease in a human patient because the antibiotics routinely used for that condition were not effective (for example: methicillin-resistant *Staph. aureus* or MRSA). Because antibiotic overuse contributes to the formation of drug resistant organisms, these important drugs must be used carefully in both animal and human medicine to slow the development of resistance.

Beef Cow Slaughter in the Southeast

Dr. Josh Maples, Assistant Extension Professor, Mississippi State University

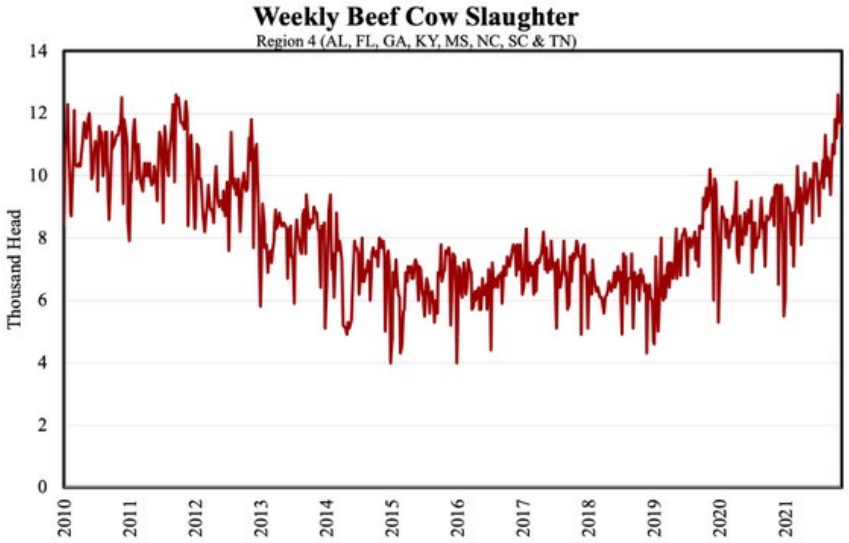
Beef cow slaughter has been higher than year-ago levels for most weeks in 2021. Year to date, national beef cow slaughter is up 10 percent over the same period of 2020. That 10 percent increase translates to an additional 6,000 head weekly average. Higher feed costs and drought have contributed to this increase in beef cows culled nationally which is worthy of an article on its own. However, in this article we look specifically at beef cow slaughter in the southeast region.

Beef cow slaughter is up sharply in recent weeks over 2020 levels in the southeast reporting region (region 4, chart below) which includes AL, FL, GA, KY, MS, NC, SC & TN. This region accounts for about 15 percent of national beef cow slaughter. To avoid the most significant pandemic disruptions in spring 2020, I use data from July to November in 2020 and 2021. For that 20 week period, beef cow slaughter in region 4 is 25 percent higher in 2021 than it was during the same period of 2020. That is equivalent to an additional 2,000 head each week on average.

There has been some additional cow processing capacity brought online in the southeast during 2021 which helps explain the weekly increase in slaughter. But a key question is where are the cows coming from? Are producers in the southeast culling cows deeper than previously expected? We don't know exactly where the cows are coming from based on the data available, but weekly auction receipts shed some light on the questions.

I pulled weekly slaughter cattle auction receipts for three of the eight states in region 4 – GA, KY, and MS (I don't have the same data for the other five states in the same format). For these three states,

auction receipts for slaughter cattle (reported as both cows and bulls) are up 3 percent since July compared to the same period of 2020. That 3 percent increase equals an additional 128 head weekly average across those three states. The data are messy, so it is important not to put too much weight on any one piece. However, the weekly auction receipts from these states don't suggest a large enough increase in the number of cows being culled in the southeast to support the big increase in beef cow slaughter in the region. Arkansas is not in region 4, but the number of slaughter cattle auction receipts is down 1 percent compared to the same period in 2020.



It seems likely that a good portion of the increase in beef cow slaughter in the southeast region are cows coming from other regions. Backhauling cows is likely a key contributor since many calves or feeder cattle are trucked from the southeast to other regions. We will get a better estimate of the number of beef cows in each state when the annual cattle inventory report is released in January. The beef cow herd in the southeast probably has shrunk over the past year. Producers in the region have faced higher input costs and multiple years of tight margins. But the beef cow slaughter numbers in the region likely overstate the level of cow culling in the region.