

OFF THE HOOF

KENTUCKY BEEF CATTLE NEWSLETTER AUGUST 1, 2022



University of Kentucky
College of Agriculture,
Food and Environment
Cooperative Extension Service

Cooperative Extension Service
University of Kentucky

Beef IRM Team

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:

Somber Days Ahead - Anderson

Timely Tips – Anderson

Flooding Concerns and Cattle - What to Do when the Water Recedes – Lehmkuhler and Arnold

“Be sure and close the gate, son” – Managing our pastures during drought – Laurent

Be Prepared for More Open Cows – Anderson

Record Keeping for a Healthy Herd – Arnold

Stockpiling for Winter Grazing in Drought Years – Teutsch

Mid-year Cattle Report Continues to Show Decreasing Cattle Inventory – Burdine

Somber Days Ahead....

Dr. Les Anderson, Extension Professor, University of Kentucky

Kentucky sure has been hit hard these last few months. First a tornado, then a drought, and this week, catastrophic flooding in Eastern Kentucky. My colleagues and I were just commenting on how much we enjoy working in Eastern Kentucky. The people are just so appreciative of our help and will do anything in their power to help reach the goal of the project they are involved in. Personally, my beef Extension programs that were in Eastern Kentucky were the two best programs in my career: Eastern Kentucky Heifer Development Center and the UK EKY Farm Program. Many of these families suffered significant losses last week and Governor Beshear indicated that thousands of families in this region have lost everything. UK RCAR lost a new building, and 5 employees lost their homes, everything. Many organizations are collecting supplies for the region, and we encourage all to help do what they can. If you are willing and can donate, contact your local Extension Office and they can direct you to the most appropriate organizations. Thanks in advance for helping

Timely Tips

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

Spring-Calving Cow Herd

- Fescue pastures don't generally produce much this month. Some rain during this heat, may produce some forage going into the usually dry months. Keep rotating pastures to permit calves to continue gaining weight. Always keep minerals available.

- Bulls should have been removed from the cow herd by the end of the month. They should be pastured away from the cow herd with a good fence and allowed to regain lost weight and condition. It is a good time to evaluate physical condition, especially feet and legs. Bulls can be given medical attention and still have plenty of time to recover, e.g., corns, abscesses, split hooves, etc.
- Repair and improve corrals for fall working and weaning. Consider having an area to wean calves and retain ownership for postweaning feeding rather than selling “green”, lightweight calves. Plan to participate in CPH-45 feeder calf sales in your area.

Fall-Calving Cow Herd

- Dry cows should be moved to better pastures as calving time approaches. Cows should start calving next month. Yearling heifers may begin “headstart” calving later this month. Plan to move cows to stockpiled fescue for the breeding season, so it will soon be time to apply nitrogen fertilizer.
- Prepare for the fall-calving season (usually September). Get ready, be sure you have the following:
 - Download X10D from the App Store or Google Play store and go to x10d.org. View the videos in the “Getting Started” tab and get your herd entered into the system. This will allow you to use your phone to take daily records (like calving, feeding, etc) and generate reports to follow the progress of your herd.
 - ear tags for identification
 - calf puller
 - castration equipment

General

- Provide shade and water! Cattle will need shade during the hot part of the day. Check water supply frequently – as much as 20 gallons may be required by high producing cows in very hot weather.
- Select pastures for stockpiling. Remove cattle and apply nitrogen when moisture conditions are favorable. Stockpiled fescue can be especially beneficial for fall-calving cows after calving. Reproductive rates are highest in fall-calving cows grazing stockpiled fescue.
- Avoid working cattle when temperatures are extremely high – especially those grazing high-endophyte fescue. If cattle must be handled, do so in the early morning.
- Do not give up on fly control in late summer, especially if fly numbers are greater than about 50 flies per animal. You can use a different “type” of spray or pour-on to kill any resistant flies at the end of fly season.
- Keep a good mineral mix available at all times. The UK Beef IRM Basic Cow-Calf mineral is a good choice.
- Cattle may also be more prone to eat poisonous plants during periods of extreme temperature stress. They will stay in “wooded” areas and browse on plants that they would not normally consume. Consider putting a roll of hay in these areas and/or spraying plants like purple (perilla) mint that can be toxic.
- Take soil samples to determine pasture fertility needs. Fertilize as needed, this fall.

Flooding Concerns and Cattle - What to Do when the Water Recedes

Jeff Lehmkuhler and Michelle Arnold

After a flood, the tasks ahead may seem overwhelming. This checklist is provided for cattle farmers as a guide to take care of cattle's critical needs after floodwaters begin to recede.

- ✓ The first question to ask is “what has washed into the pasture”? Carefully walk the area after the water recedes in case debris washed in with potential toxins such as lead (batteries) or other foreign objects that cattle may try to ingest. Debris with nails or sharp edges exposed can cause trauma, especially to hooves. In some of your river bottoms that were tiled, watch for washouts that cattle could step into. Plastic can pose a choking hazard.
- ✓ Check fences – on many farms, fences will need repair. Consider consulting with your county extension office for details on fence construction. High tensile wire fences along waterways are advantageous over woven wire fences as less debris is trapped during high water.
- ✓ Check the water supply. A clean source of water (not muddy) and with run-off and flooding, water in ponds and creek could have almost anything in them, including nitrates. Big floods often break down catch basins for companies and industries and flow right into creeks. Floodwaters can breakdown / overwhelm wastewater plants leading to spills into the surface water. Testing the water is difficult because the water's rapid movement and volume will dynamically change its composition. Be aware of what businesses and ag enterprises are located upstream. If using springs or wells to water cattle, a good dose of chlorine bleach in the watering trough or holding tank (and directly in the well) is typically recommended. The county health department can give guidance on shocking wells with chlorine.
- ✓ Blackleg, a disease caused by the bacterium *Clostridium chauvoei* that results in rapid death in unvaccinated cattle, is a major concern after flooding. Clostridial spores get washed out of soil and on to grass pasture where cattle can ingest them. Avoid feeding any feeds left in the fields such as hay due to the risk of clostridials from the mud. Vaccinate calves against blackleg as soon as possible; maternal antibodies from colostrum against blackleg toxin are only protective for 2-3 months at best so vaccination is necessary to protect the older calf. Most blackleg vaccines require 2 doses, a primary and booster, to be completely protective. Alpha-7 has a 1-dose label, but calves must be at least 6 months old to be protected from a single dose.
- ✓ Another clostridial disease to be aware of is botulism caused by the bacterium *Clostridium botulinum*. Watch for dead fish and animals that could be a source of *C. botulinum*. Fish can be stranded and die and whatever the wildlife doesn't clean up can remain there in hay fields rotting. Other animals that may have drowned in high water that wash in the field should be disposed of properly to reduce the risk of *C. botulinum*.
- ✓ Don't start grazing low areas too soon. Allow the fields to drain to reduce the risk of soil compaction which will impact future drainage and forage production. Wait for rains to “clean” any standing forage that may be in the fields. Evaluate the fields as many will likely have excessive silt deposited on forage stands and may need some attention to remove sand/gravel, fix washouts, etc....

- ✓ Take photos – Be sure you contact your insurance company and ask about coverage you have. Ask about what is needed for the claim and walk with the adjuster pointing out damage. Take photos in the event things are missed.

The following excerpt was taken from “Coping with Catastrophic Ensiled Forage Losses” (AABP Proceedings 1999)

Flood Damaged Silages- Severe flooding occurred in northwestern Oregon in 1996, causing valley dairy farms to have bunker silos covered with floodwater. Dairymen were asking forage experts from industry, university, and extension if the affected silages would be safe to feed cattle. The consensus was that if silage density was good, then only the outer portions of the silage should be disposed and the inner mass would be safe to feed. Feedback from Oregon veterinarians indicated that listeriosis (circling disease) was diagnosed on dairy operations where managers elected not to dispose of spoiled silage. Laboratory analyses were performed to compare the fermentation quality of outer to center silage samples. The outer samples revealed high pH levels in excess of 6.0, a minimal presence of silage acids, and high yeast and mold cfu/gm counts. The center samples in contrast, maintained low pHs below 4.5, adequate silage acid concentrations, and normal aerobic microbial cfu/gm counts. The comparison verified that floodwater permeated the silage mass and washed-out silage acids. *Listeria* is a saprophytic bacterium that lives in plant/ soil environments and survives well at low temperatures and with pHs greater than 5.5. Cattle ingesting spoiled and *Listeria*-infected silage may develop symptoms of neurologic disease. The organism prefers aerobic conditions and survives well in a low dry matter environment. Quite likely, the existing *Listeria* spore population in the forage received additional spore loads of *Listeria* from the floodwaters. High population counts and ideal growing conditions created an ideal situation for the development of *Listeria*-infected silage.

“Be sure and close the gate, son” – Managing our pastures during drought

Kevin Laurent – Extension Specialist, Department of Animal and Food Sciences, University of KY

When I was a kid growing up in south Louisiana, we used to buy our square hay from a retired gentleman who lived several miles down the road. Mr. Ralph, as we called him, had a sizable herd of cows and always seemed to have a barn full of hay for sale. Anytime Daddy sent me there for hay, Mr. Ralph’s parting words in his deep voice was always “be sure and close the gate, son”. Words every farm kid has grown up hearing. “Close the gate”, “shut the gate”, “did you check the gate?” The rule I try and teach our 4-H judging kids during workouts is the old standard, “the last one through, shuts the gate.”

So why is it when grass gets short, whether its during dry spells or drought or in early spring when the grass is just greening up, that we “farm kids” have the tendency to open all the gates? I know it’s human nature to try and let the cows scratch for anything they can find, but that strategy is short term at best. What usually happens is we hammer our forage base into the ground which not only increases recovery time but also opens the canopy for weeds down the road. Another potential problem in drought years is cattle that are allowed to wander and scrounge for forage may get tempted to consume noxious weeds they usually avoid such as perilla mint.

Shutting the cattle into either a sacrifice area or, better yet, the worst paddock or pasture on the place is a much better strategy. Feeding hay in a more limited area will not only allow the remainder of the farm to rest and recover when rainfall occurs but may give you an opportunity to “fertilize” a poorer paddock or

pasture through hay feeding. Remember, 80% of what a cow eats comes out the other end, so hay feeding/bale grazing across a poor pasture during drought conditions could be a win/win in terms of nutrient recycling for a later renovation of the poor pasture and avoiding grazing damage on your good pastures.

This drought may present another opportunity to try a hay feeding strategy we demonstrated on the Circle F Farm in Gracey, KY way back in 2006-07. We called this strategy “strategic winter grazing” for lack of a better name. It could simply be called “feed your hay first” because that is the basis of the strategy. Our demonstration consisted of 41 spring calving cows and 71 acres of available pasture. A simple summary of this demonstration follows:

- Weaned the calves in mid-September, cow grazed stalks for 17 days then fed hay in a drylot for 70 days. Cows gained 135 lbs during the dry lot period and averaged 1345 lbs on December 15.
- Cows grazed stockpiled fescue pastures from December 16 to March 31 (106 days) and began grazing new spring grazing on April 1. No other supplements or hay was fed during this time.
- Cows calved out on stockpiled pasture and not around muddy hay rings.
- Body condition scores ranged from 5.2 (Dec 15) to 5.5 (March 5).
- Hay tested 10% protein and 51% TDN.
- Stockpile pasture averaged 14.6% protein and 62% TDN.
- 97% of cows calved before March 15, 2007.
- 94% of cows calved before March 1, 2008.

What’s interesting, is this demonstration was done the winter prior to the Easter freeze and the subsequent summer drought of 2007. Hay was very scarce that summer but fortunately Circle F Farms used only half of the amount of hay that they normally feed in a winter and was able to weather the summer drought more easily. I realize this strategy may not be for everyone and every year is obviously different in terms of weather and rainfall, however, it may be a strategy that is worth considering in total or in part to strategically feed lower maintenance dry cows along with resting our pastures for fall growth and subsequent winter grazing.

Last week I spent a considerable amount of time on the road in western KY and I saw quite a bit of hay feeding going on. In most cases however it looked much like early spring in terms of hay being fed next to the woods and cattle roaming in large fields. With some of our area starting to receive significant rainfall this week, we really need to get the early spring mindset of allowing our fields to recover before initiating grazing again. This could be simply done with temporary electric fencing or we could just listen to the Mr. Ralphs of our past and “be sure and close the gate, son”.

For more drought strategies, check with your local extension ANR agent or click on the website <https://drought.ca.uky.edu/>

Be Prepared for More Open Cows

Dr. Les Anderson, Extension Professor, University of Kentucky

Shew, it's been a rough summer. On top of high fuel costs, current inflation, and high input costs, beef producers have had to deal with drought and extreme heat. Heat stress is normal for cattle in Kentucky because most of our cattle graze endophyte-infected fescue but the early onset this summer may cause some serious issues with pregnancy rates and calving rates.

Heat stress has profound impacts on many biological processes that can lead to poor reproductive rates. Prior to estrus, heat stress reduces follicle growth, hormone production, and oocyte (the egg) competency. Combined, this reduces fertilization rates. Once fertilized, heat stress also reduces the growth of the newly formed embryo. This reduction in the growth of an embryo is likely the result of increased cell death and/or a smaller corpus luteum (CL) that produces less progesterone. This reduced growth rate and increased embryonic cell death leads to more embryos lost during the first week of gestation. Unfortunately, heat stress continues to impact embryonic growth through the first 21 days which also increases the loss of these early pregnancies.

Issues with heat stress continue throughout gestation. Exposure of early pregnancies (day 24-45) to heat stress reduces fetal growth and can result in the loss of up to 20% of these pregnancies. Heat stress reduces placental efficiency meaning the placenta has a reduced ability to deliver nutrients to the developing fetus. Toward the end of pregnancy, extreme heat stress can impact placental hormone production which can lead not only to premature calving but also to drastically reduced development of the mammary glands impacting lactation. So, heat stress impacts beef females from the beginning to the end of pregnancy. Ugh.

What does this mean for beef producers right now? First and foremost, have pregnancy diagnosed in your herd. Contact your herd veterinarian to set up a palpation or ultrasound. Pregnancy can also be diagnosed by taking a blood sample and either mailing the samples to a diagnostic lab or by using the new chute-side blood test kit from IDEXX (test is called Alertys and they are available from most veterinary supply companies). The blood tests are accurate but consultation with your herd veterinarian is always recommended.

Pregnancy rate can dip to as low as 50-60% when prolonged heat stress occurs during the breeding season. What options does a producer have if a breeding disaster occurs? If you have a split calving season or calve year-round, the decision to keep or cull open females is a little easier. Simply roll cows younger than 5 years old over to the next breeding season. The decision is harder if you only have cows calving in the spring. Currently, cull cow prices are high and many market analysts suggest that cull cow prices may remain high this fall. If the cost of replacement breeding stock remains reasonable, then the optimum decision would be to cull and replace for this year.

Most years, the decision to cull open cows isn't easy. Some would argue to cull all females that cannot conceive in her environment because her genetics did not match her environment or level of management. But genetics for reproduction are lowly heritable, so genetics are a very small contributor to reproductive failure. Also, if you only have a drought and excessive heat stress once every 5-10 years, should you penalize a cow whose genetics match the environment most of the time? To make the decision even more challenging, often cows that are culled are replaced with bred two-year olds, who

are inherently reproductively inefficient, will require additional feed inputs, and may take two years to reach optimum productivity. In the long run, what really costs more? Interesting problem to think about and certainly not one answer for all producers.

The markets, and where we are in the cattle marketing cycle, should impact the decision. Currently, cow numbers are extremely low in the US which normally results in higher calf prices. I got some incredible advice from an experienced beef producer a few years ago. Pap had run over 1,000 cows for decades and his strategy was when prices are high, own as many cows as you can and sell as many calves as you can. Extend the calving season if you need to because every calf sold was profitable. Pap didn't care to keep open females at all. However, when prices were low, Pap controlled the calving season tightly and culled cows that didn't conceive. Pap's philosophy was when times were lean be efficient and when times were good, be productive. Good advice. It appears we are in an excellent position in the cow cycle with low number and impending higher feeder calf prices. Might be time to keep as many as you can afford to prepare you to take advantage of the higher cattle prices on the horizon.

Record Keeping for a Healthy Herd

Dr. Michelle Arnold, UK Veterinary Diagnostic Laboratory

Keeping written farm records is like participating in a regular exercise program, easy to talk about but often hard to put into practice. Without good records, evaluating individual cow performance and the financial success of the beef cattle enterprise is a "guesstimation" (guess + estimation) at best. Even with handwritten records, taking that data and placing it in a system that allows for analysis is a step that is easily overlooked or forgotten. Computers have made this task easier, especially with the advent of programs designed for cow-calf producers. It is easy to see the value of knowing performance but what about health records? How important are records to maintaining a healthy herd?

Production records are invaluable to allow the beef producer not only to look at what is currently taking place within the cow herd but, more importantly, to look at how management changes impact the performance of the herd. Through analysis over the long-term, records can help to pinpoint weak areas in the management program and in identifying individual animals that fail to perform at profitable levels. With health data, it is possible to conduct a herd-specific risk assessment for a certain portion of the production cycle such as "calving season". This "assessment" begins with a "risk analysis" which is identifying the "hazards" in your operation that contribute to sickness and death loss. For example, hazards during the calving season may be dystocia (difficult births), weak calves, scours, and environmental hazards such as predators in the area, and weather-related events (cold, wet weather). Each of these hazards has an associated "cost" which usually translates to "lost income" and "likelihood" which is the chance this event will happen. The next step is "risk management" which consists of looking at ways to mitigate or reduce the contribution of a hazard and what it costs to make this change. In our calving season example, one way to reduce the hazard caused by wet and cold weather is to switch to a fall calving season. The final step involves keeping good records to remember what was done and analyzing the records to see if this action plan was successful. Although it is possible to recognize certain problems and roughly estimate their cost to your operation without specific data, it is hard to evaluate progress and effectiveness without records.

To implement an effective record keeping system, information must be collected and stored in a standardized fashion to be able to analyze it later. One of the pitfalls to any computerized record keeping

system is what is known as a “free text field” where the producer types in a piece of information in a provided space. For example, a calf may develop scours and the producer wants to record the calf ID, the disease, date it began, and any treatments administered. However, “scours” has multiple names and may be typed in as “diarrhea”, “loose stool”, or “enteric disease”. Later, when it is time to search the records for how many calves had scours, those calves with diarrhea but with disease names other than “scours” will be missed. Other problems such as misspelled words, too many pieces of information in the same field, and vague information make analysis of free text nearly impossible.

AIN Tags with 840 prefix



Figure 1-Examples of USDA official identification for cattle. All USDA Official animal identification number (AIN) tags, as pictured, are imprinted with a 15-digit number starting with 840 (840 is the official US country code), all have an official US ear tag shield, the words “unlawful to remove” and the manufacturer’s logo or trademark. Tags can be visual only (top left example) or may have RFID technology which allows them to be read visually or electronically. RFID tags must have all 15 digits printed on the button tag piece containing the transponder. Producers can purchase 840 tags from an authorized tag manufacturer or an accredited veterinarian who is qualified as a “Tag Manager”.

A useful system for evaluating health data will contain much of the same information used for analyzing performance. First and foremost, every cow and every calf must have individual identification (ID) that is readable, permanent and without duplication. Each calf ID must be matched with his or her dam ID. Ear tags are commonly used and ear tags with radio frequency identification (RFID) technology (see Figure 1) are growing in popularity because information such as weight can be automatically sent to the computer along with the electronic tag number with the use of a “reader”. Other useful information to record includes breed, sire, age of dam, calf’s birth date and sex, birth and weaning weights, weaning date, weight and/or body condition score of cows at weaning, and “contemporary group code” such as

“Spring calves” or “Fall calves”. Health concerns such as disease, date of onset, treatments given, outcome (recovery/death/sold), and veterinary visit or expenses should be recorded in a standardized format. Record any abortions or stillbirths, any difficulties with labor and delivery, and all calf death losses. It is important that all animals born, whether dead or alive, are recorded and taken into consideration when the herd is being analyzed and record that information on the specific cow’s lifetime history. In addition to individual data, producers should record dates of vaccinations and dewormers administered. Vaccine data should include the name of the vaccine, lot and serial number from the bottle, date of expiration, date administered and route of administration (either intramuscular or subcutaneous).

Record keeping systems have evolved to mobile platforms so data can be entered and managed directly from a program on a cell phone. The University of Kentucky now offers a mobile app known as “X10D” (pronounced “extend”). It has three components: Manage, Connect, Learn. Manage is the record-keeping section that allows users to collect and manage production data. The data can be shared with County Extension Agents and Specialists (when they need access) to provide consultation. The Learn section enables the County Extension Office to push educational content directly to the users in their county. Content can be created by Specialists and/or Agents and a link to the content will appear in users’ notifications each morning. County Offices can also send meeting announcements and notices to all their registered users. The last component is the Connect component. This allows users in a county to interact; ask questions, post items for sale or purchase, etc. Only registered users in one county will be in the Connect group. Visit the website: <https://x10d.org/> to get started.

Keeping records is not the most exciting task but one of the most important management practices for your farming operation. The ability to review information to find and correct problems is a powerful tool including when there are health issues in the herd. A risk assessment is only possible with accurate identification of “hazards”, a plan to correct them, and a method to measure the success of the management change.

Stockpiling for Winter Grazing in Drought Years

Chris Teutsch, UK Research and Education Center at Princeton

Stockpiling tall fescue is one the cheapest and best ways to provide winter grazing for livestock in the Commonwealth. In good years, tall fescue pastures top-dressed with 60-80 lb nitrogen/A in mid August can produce 1-2 ton/A hay equivalent. The question in drought years is does this recommendation work? No pasture will respond to nitrogen until it rains. In addition, pastures that have been overgrazed during a drought have the least potential for fall growth. Applications of nitrogen for stockpiling should target pastures where the “gates were closed” and overgrazing was prevented!

The next question is when and how much nitrogen to apply. Ideally nitrogen for stockpiling should be applied in mid-August at a rate of 60 to 80 lb/A. In a drought year there are several approaches to stockpiling. The first is to apply nitrogen in mid-August at normal rates and then pray for rain. The second is to delay applications until rain looks like a sure thing. This option requires more planning since nitrogen needs to be applied prior to the impending rain. As the application date becomes later, decrease the amount of nitrogen since the grass will have less time to grow before frost and cool temperatures set in.

Research conducted in Virginia has shown that not all nitrogen sources are created equal when it comes to stockpiling. Three years of data found that the most effective nitrogen sources for stockpiling in late summer were ammonium nitrate and ammonium sulfate. Using urea or urea ammonium nitrate (30% solution) resulted in significantly lower yields. If you are using these products, treat them with a urease inhibitor containing the active ingredient NBPT. This ingredient has been tested extensively and proven to prevent volatilization. Organic nitrogen sources such as broiler can be used for stockpiling but they tend to yield lower because not all the nitrogen is immediately available to the plant at application.

The last option is to stockpile with no nitrogen. In well managed grazing systems, a strong nitrogen cycle and higher levels of soil organic matter can be developed, making these pastures less responsive to nitrogen applications. I would suggest testing this approach before applying it across large acreages. To accomplish this, apply nitrogen as you would normally, but leave some no nitrogen strips out for comparison. This will give you an indication of the difference that the nitrogen application made in both yield and quality.

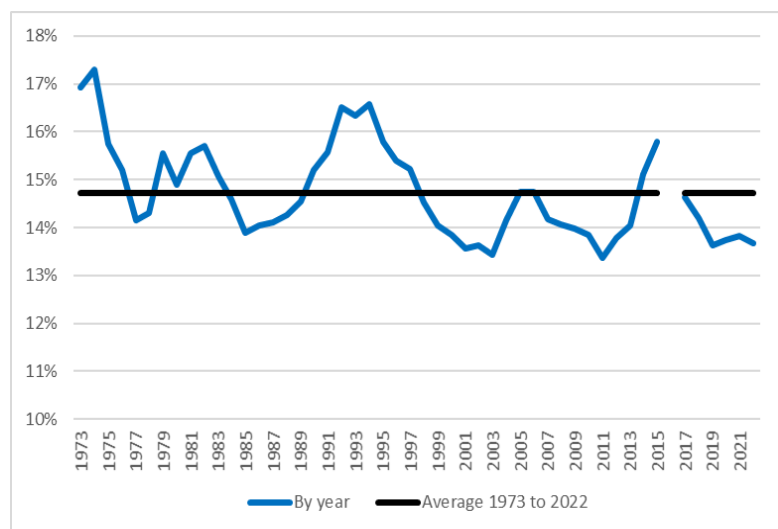
In drought years, winterfeed is often tight, so maximizing the utilization of stockpiled grass is essential. Strip grazing stockpiled fescue can increase grazing days by 30 to 40%. Starting at your water source, allocate only enough pasture for 2-3 days of grazing. This is easily accomplished by using a forward temporary electric fence. No back fence is required since plants are dormant. During wet periods feed hay in a sacrifice area to avoid wasting stockpiled grass and damaging pasture sod.

Mid-year Cattle Report Continues to Show Decreasing Cattle Inventory

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

In late July, USDA-NASS released their mid-year estimates of US cattle inventory. As expected, the report showed lower inventory across most all cattle types. All cattle and calves were estimated to be down by just under 2%, while beef cow inventory was estimated down by 2.4%. This is very consistent with beef cow slaughter volumes, which have been running 14% higher than 2021. In nominal terms,

Figure 1. Beef Heifer Retention as a Percent of Beef



Source: USDA-NASS and Author Calculations

252 thousand more beef cows have been harvested through the first week of July this year than last year. Much of this has been due to dry conditions in significant parts of cattle country, but high production costs and strong cull cow prices have also been factors.

Heifer retention estimates also paint a picture of a cowherd that is shrinking in size. I always like to review the heifer development number, which was estimated to be down by roughly 3.5%. Figure 1 expresses this number as a percent of beef cow inventory each year, which is actually my preferred way to think about it. The blue line tracks this for each mid-year report back to 1973,

while the black line is simply the average from all those years. There was no estimate in 2016, which is why the gap exists. In general, expansion occurs when heifer retention exceeds the long run average, while contraction occurs when heifer retention is below the long run average. Note that retention has been about 1% below the long run average for the last four years.

One number from the report that looks strange at first glance is the cattle on feed estimate, which was actually flat from last year. Since calf crops have been getting smaller since 2018, one would expect on-feed inventories to follow suit. However, consistent with decreases in heifer retention, more females are being placed on feed. Plus, dry weather in much of the country has pushed cattle into feedlots sooner than would have normally been expected. As we continue to see decreases in cattle inventory, these cattle on feed numbers are not sustainable and beef production levels will drop.

Since most cow-calf operations calve in the spring, most culling occurs in the fall, after spring-born calves are weaned. For that reason, the January inventory report tends to be a better measure of the size of the US cowherd. But, there is no doubt that 2022 is going to be another year of contraction for the US beef cow herd. The combination high culling levels and decreased heifer retention are likely to result in something like a 3% reduction in the size of the US cow herd by January 2023. Weather patterns, and prices for calves and cull cows this fall, will ultimately determine how many more cows leave the herd between now and the end of the year. A full summary of the July 1, 2022 inventory report can be seen in Table 1.

Table 1. USDA July 1, 2022 Cattle Inventory Estimates

	2021 (1,000 hd)	2022 (1,000 hd)		2022 as % of 2021
Total Cattle and Calves	100,800	98,800		98
Cows and Heifers That Have Calved	40,600	39,800		98
Beef Cows	31,100	30,350		98
Milk Cows	9,500	9,450		99
Heifers 500 Pounds and Over	15,900	15,600		98
For Beef Cow Replacement	4,300	4,150		97
For Milk Cow Replacement	3,800	3,750		99
Other Heifers	7,800	7,700		99
Steers 500 Pounds and Over	14,600	14,400		99
Bulls 500 Pounds and Over	2,000	2,000		100
Calves Under 500 Pounds	27,700	27,000		97
Calf Crop	35,085.4	34,600		99
Cattle on Feed	13,400	13,400		100

Source: USDA-NASS