OFF THE HOOF

Martin-Gatton College of Agriculture, Food and Environment

Cooperative Extension Service
University of Kentucky
Beef IRM Team

KENTUCKY BEEF CATTLE NEWSLETTER AUGUST 1, 2024

Each article is peer-reviewed by UK Beef IRM Team and edited by Dr. Les Anderson, Specialist, Department of Animal & Food Science, University of Kentucky

This month's newsletter includes:

Timely Tips

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

Spring-Calving Cow Herd

- Fescue pastures don't generally produce much this month. Some of us have had some rain but the heat has punished our pastures and cattle this summer. Most of you may have 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. If removing the bull is not practical for you then call your herd veterinarian and schedule a pregnancy diagnosis. Market your "late-bred" cows and keep those that conceived early in the breeding season.
- 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:
    - record book
    - ear tags for identification
    - calf puller

- castration equipment

General

- Perhaps the most tedious aspect of agriculture is keeping records, generating reports, and using data to make management decisions. Consider using one of the many electronic data collection and management systems available on the market. We recommend Stocket.us for a simple, inexpensive web/app platform.
- 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.

Managing Cool-Season Pastures for Enhanced Fall Growth

Dr. Chris D. Teutsch, University of Kentucky Research and Education Center at Princeton

It seems early to be thinking about stockpiling cool-season grasses for winter grazing, but how we manage pastures now can have a profound impact on fall growth. How closely and frequently we graze pastures this summer can either enhance or reduce our ability to stockpile grass this fall. The objective of this article is to provide some tips that will help to keep cool-season pastures healthy this summer.

Fertilize and lime according to soil test. If you have not already done it, take a soil sample and apply any needed phosphorous, potassium, and lime. Avoid summer applications of nitrogen to cool-season pastures. They are generally not economical since cool-season grasses are not actively growing during the summer months. In addition, they can inadvertently weaken cool-season grass stands by promoting the growth of summer weeds.

Do NOT graze cool-season pastures too closely. Grazing pastures closely during the summer months can weaken cool-season grass stands and promote the growth of warm-season grasses such as bermudagrass or crabgrass in these stands. There is nothing wrong with warm-season grasses, but we

want to minimize them in pastures that will be stockpiled for winter grazing. Maintaining 4 to 6 inches of residue in cool-season pastures can also moderate soil temperature and conserve soil moisture.

Rest cool-season pastures during the summer month. Resting pastures during the summer months allows them to acclimate to the hot and dry conditions often found in Kentucky. It allows plants to replenish and maintain stored carbohydrates (energy reserves) that can be mobilized in late summer and fall to full rapid growth during the stockpiling period.

Graze warm-season grasses during the summer months. During the summer months, warm-season grasses will produce about twice as much dry matter per unit of water used when compared to cool-season grasses. The beauty of warm-season grasses is that they allow you to get off of cool-season pastures when they are most susceptible to overgrazing.

There are several perennial warm-season grasses that can be used, but in western Kentucky the most productive, persistent, and tolerant to close and frequent grazing is bermudagrass. Johnsongrass is another warm-season perennial grass that can provide high quality summer grazing. I am going on record to make clear that I am NOT encouraging anyone to plant johnsongrass, but sometimes it is just there. Because johnsongrass is extremely palatable, it can be grazed out of pastures if not rotationally stocked.

Warm-season annual grasses like pearl millet, sorghum-sudangrass, sudangrass, and crabgrass can provide high quality summer grazing. The primary disadvantage with summer annual grasses is that they need to be reestablished every year, which costs money and provides the chance for stand failure. The exception to this is crabgrass that develops volunteer stands from seed in the soil. Although most people don't realize (or want to admit it) crabgrass has saved many cows during dry summers in western Kentucky.

Feed hay in sacrifice area. During the summer months, it is tempting to just open the gates up and let the cattle free range. However, a better plan is to confine animals to the weakest paddock that you have and feed hay. You will likely damage this paddock, but it will allow you to maintain strong and vigorous sod in the others. This sacrifice area can then be renovated in late fall.

When it comes to stockpiling cool-season grasses for winter grazing, what you do during the summer months really does matter! So, as we roll into the hottest and driest part of the grazing season, make sure and give your cool-season pastures a little tend loving care. It will pay big dividends this fall!

More information on stockpiling can be found at your local extension office or by visiting UK Forages Webpage or KYForages YouTube Channel.

Growing On-feed Inventory, Lower Placements, and No Sign of Heifer Retention

Dr. Kenny Burdine, University of Kentucky

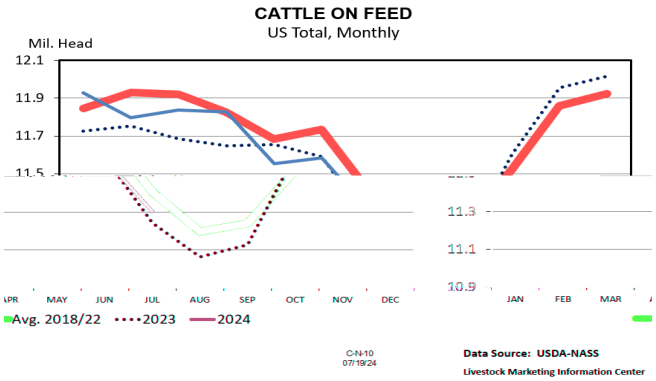
USDA's July Cattle on Feed report was released on Friday July 19th. These monthly reports estimate inventory in US feedlots with one-time capacity exceeding 1,000 head, which represent more than 80% of total on-feed inventory in the United States. The July report is also a quarterly report that includes

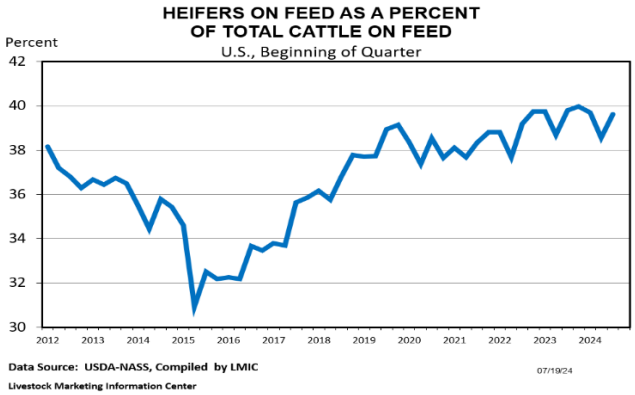
data on the steer-heifer mix in feedlots. This brief article will walk through last week's report and some of the implications of it.

Total on-feed inventory declined during the month of June with July 1 inventory estimated at just over 11.2 million head. This trend is normal as on-feed numbers tend to decline seasonally from winter to late summer. Compared to 2023, July 2024 inventory was about 0.5% higher. On the surface this seems odd given the recent declines in the size of calf crops, but I maintain that cheap feed and higher slaughter weights are largely the reason for this as cattle are being fed longer.

Feedlot placements have been the most interesting number to watch in recent months. For the month of June, placements were down almost 7% from last year. This contrasts with placements being 4% higher year-over-year for the month of May. These last two months illustrate why it is sometimes hard to look at things purely on a monthly basis. If I instead calculate feedlots placements for the first 6 months of 2024, as compared to the first 6 months of 2023, total placements have been down by 3.2%. This likely tells the feeder cattle supply story a bit better.

Since USDA will not be publishing a July Cattle Inventory report this year, the July steer-heifer mix on feed is especially important as it provides some perspective on heifer retention. Heifers accounted for 39.6% of on-feed inventory in July, which was higher than the previous estimate from April. If retention were occurring, one would expect the heifer percentage to be in the low-mid 30% range, so this continues to suggest that expansion is not on the near horizon.





Johne's Disease and Detection in Beef Cattle Frequently Asked Questions

Dr. Michelle Arnold, DVM, MPH UK Ruminant Extension Veterinarian

Johne's (pronounced *Yo-knees*) Disease is a slow, debilitating disease of adult cattle characterized by profuse, watery diarrhea and progressive weight loss or "wasting" (Figure 1), despite remaining bright and alert with a good appetite. It is caused by the bacterium *Mycobacterium avium* subsp. *paratuberculosis*, commonly referred to as the "MAP" bacteria. This disease begins when calves (not adult cattle) are infected by eating or drinking manure containing the MAP bacteria. This most often happens around the time of birth, although infection can occur up to 6 months of age but very rarely after. Once MAP enters a calf, the organism takes up residence within the cells lining the ileum (the last portion of the small intestine) where it multiplies, causing the intestinal lining to slowly thicken. Over time, the thickened intestine loses the ability to absorb nutrients, resulting in watery diarrhea. There is no blood or mucus in the feces and no straining to defecate. Affected cattle typically begin to display

clinical signs of diarrhea and progressive weight loss at 2-5 years of age or older. There is no treatment available for this condition and the animals that develop chronic diarrhea eventually die due to starvation and dehydration. The MAP organism is "shed" in the feces into the environment before the diarrhea starts and continues until the animal's death. Map bacteria are very hardy due to a protective cell wall that allows survival for long periods, sometimes years, in the environment where it can infect young calves.

Figure 1: Recently calved cow with classic signs of Johne's disease; dull hair coat, profuse watery diarrhea and weight loss. Photo from "Management and Control of Johne's Disease in Beef Sucker Herds" by Drs.Isabelle Truyers and Amy Jennings. In Practice July/August 2016/Volume 38, page 348.

How do calves get infected with MAP bacteria?

Johne's disease begins with MAP infection, most often when calves ingest MAP-contaminated feces from nursing dirty teats. In beef cattle, dirty teats are common when mud and manure are splashed on the udder in high traffic areas (for example, around hay rings and feeding areas), when calving cows in dirty sheds or barns, or when cattle are overcrowded or kept indoors in close confinement. MAP may also be transferred to calves in colostrum and milk from infected cattle, and from drinking manure-contaminated water, especially in shallow ponds. There can be some spread from an infected cow to her fetus during pregnancy, but this is not common. Transmission by bulls from semen has not been proven but infected bulls still contaminate the environment with their MAP-infected feces.

How did Johne's Disease get on my farm?

In almost all cases, the MAP bacteria arrived when an infected animal that looked perfectly normal was purchased and added to the herd. The bacteria can be hiding in replacement heifers, cows, breeding bulls, recipients used for embryo transfer, or even in an infected calf grafted on a cow. Since symptoms typically develop in mature cattle, it is easy to buy and sell infected, young, breeding age animals with no obvious symptoms yet they are already incubating the disease. Unfortunately, testing cattle for Johne's prior to purchase is not the easy answer. Because the disease progresses so slowly, the tests will generally not detect the disease in animals under 2 years of age and may not show a positive result until the animal is much older. In other words, a negative test result does not mean the animal is not infected; it may mean the disease is not yet detectable in the infected animal. As the infected animal matures, this "subclinical" animal (subclinical=before diarrhea and weight loss develop) can and often does shed millions of microscopic MAP bacteria in feces, contaminating the farm long before there is evidence of a problem. Colostrum sourced from other herds, especially from dairies, is another potential avenue for MAP entry to a farm.

Diagnosing a clinical case: Does this animal exhibiting weight loss and diarrhea have Johne's disease?

Options for testing individual sick cattle:

- Best test: If Johne's disease has never been diagnosed on the farm previously, it is best to begin with submission of a suspected case to a veterinary diagnostic laboratory. The affected animal should be humanely euthanized by a veterinarian then promptly taken to the lab for a necropsy

(like a human autopsy). Examination of the tissues at the cellular level (histopathology) using special stains can confirm the presence of the MAP organism.

- Best test in a live animal: PCR on a manure (fecal) sample can be used as a primary diagnostic test to confirm the clinical signs of diarrhea and wasting suggestive of Johne's disease. PCR is an "organism detection test" meaning it detects the genetic material of the MAP bacteria present in the feces. The PCR result is also a good indicator of the amount of MAP being shed in the feces (see Figure 2). Before PCR testing was developed, a fecal culture in which MAP bacteria was grown in the lab was required for diagnosis but it was quite slow. Johne's liquid culture had to be incubated 42 days while solid media culture was incubated 13 weeks before results were known.

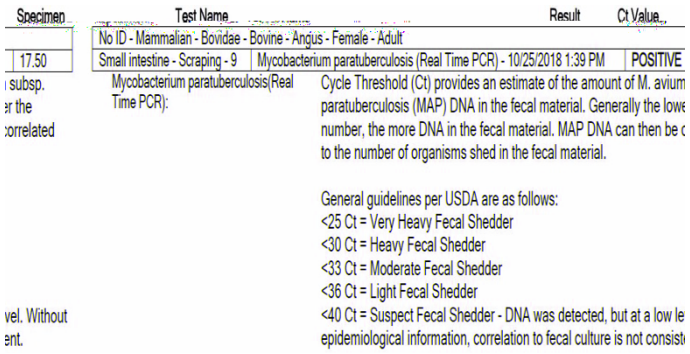


Figure 2: Sample result from a *Mycobacterium paratuberculosis* real time PCR test for detection of the MAP organism (UKVDL)

- The blood test (known as a "Serum ELISA") is an "antibody detection test". It is not the preferred test for confirmation of an individual clinical case and is much better utilized as a herd screening test. The test is not perfect; healthy, uninfected animals can test positive (a "false positive") so cattle with positive blood test results should be confirmed truly positive with a fecal PCR.

Why should I care if I have Johne's Disease in my herd?
Economically, Johne's disease can be costly in a beef operation. It is believed that for every clinical (sick) cow with Johne's in a herd, there may be 10-20 more who are infected but not yet showing signs. This is why Johne's is often called an "iceberg disease"; since it takes years to develop the symptoms of diarrhea and weight loss, just the tip of the problem is visible, but most of the problem is invisible because infected cattle look healthy but are spreading the MAP bacteria all over the farm. Obviously, death loss and premature culling will mean higher replacement costs to keep herd numbers stable. Perhaps less obvious is that MAP-infected cows showing no signs of disease are less fertile and produce less milk, resulting in lighter calves at weaning and more open cows at pregnancy check.

Seed stock operators (including farms that sell any breeding stock, registered or commercial) should enter a rigorous testing program to eradicate this disease once identified. Many are reluctant to test for Johne's Disease for fear that a positive diagnosis will ruin their reputation. However, a seed stock herd's reputation may be damaged much more severely by selling a MAP-infected animal to a customer and introducing an incurable disease into a buyer's herd. Not only a tarnished reputation but litigation could potentially result from transactions when the source herd is known to be MAP-infected.

Once a diagnosis of Johne's Disease is made, what are the next steps?
Once a diagnosis is made, the first step is to determine the goals for the operation. If selling seed stock, the goal should be to classify the herd as test-negative or work towards it as quickly as possible. Commercial operations may opt to reduce the disease prevalence gradually through testing and

management changes. After the goal is established, decisions on which animals to test and what test to use often come down to how much money the herd owners are willing to spend on testing and how fast they want to see progress. A recent study of test strategies for control of Johne's in cow/calf herds found the best method for reducing prevalence but with the lowest total testing costs was collecting individual fecal samples from all cattle over 2 years of age in the herd and submitting them to a veterinary diagnostic lab for either 1) individual fecal PCR testing every other year or 2) pooled PCR testing every year. Remember that herd testing is done on healthy animals so decisions should be made in advance on how positive results will be handled. If no changes will be instituted, then testing is a waste of time and money.

Where can I learn more about Johne's Disease?

The Johne's Information Center at the University of Wisconsin maintains an excellent website with good producer-level information at https://johnes.org. An easy-to-understand video about Johne's can be found at https://www.youtube.com/watch?v=u0Y0ew5yMo8 although it is dairy-oriented.