

OFF THE HOOF

KENTUCKY BEEF CATTLE NEWSLETTER JUNE 1, 2022



University of Kentucky
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Beef IRM Team

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Timely Tips

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

Spring-Calving Cow Herd

- Cows should be on good pasture with clover and preferably low endophyte levels in fescue for the spring breeding season. Keep pastures vegetative by clipping or making hay. They should have abundant shade and water. Our goal is to have cows become pregnant before July when temperatures and heat stress can ruin the “spring” breeding season.
- Observe the cows and bulls as the breeding season continues. Watch bulls for injury or lameness and change bulls if a high percentage of cows are returning to heat. Record cow breeding dates to determine next year's calving dates and keep records of cows and bulls in each breeding group.
- Keep a good pasture mineral mix, which contains adequate levels of phosphorus, vitamin A, selenium, and copper, available at all times.
- Consider a special area for creep grazing calves, or practice “forward grazing” this summer, allowing calves to graze fresh pasture ahead of the cows. This can be accomplished by raising an electric wire or building a creep gate.

Fall-Calving Herd

- Pregnancy test cows if not done previously.
- Cull these cows at weaning time (or now)
 - Smooth-mouthed cows
 - Cows weaning light weight and/or poor-quality calves
 - Open cows
 - “Problem cows” with bad feet, teats, udders, etc.
- Select replacement heifers based on:

- temperament
- conformation
- weaning weight
- dam and sire records
- Select more than needed to allow for culling after a short breeding season

General

- Finish harvesting excess pasture as hay soon! It should be cut before it becomes too mature. Be sure and replenish your reserves. Try to put up more than you think you will need in case of a late summer drought.
- Pasture should supply adequate energy, protein and vitamins at this time. However, be prepared for drought situations. Don't overgraze pastures so that recovery time will be faster. Overgrazed pastures will recover very slowly during July/August.
- Keep pastures small for rotational grazing so that nutritive quality can be maintained. They should be small enough so cattle do not graze longer than a week. As the season progresses, you need several paddocks to give each properly stocked pasture about 4 weeks' rest.
- Maintain a clean water supply and check it routinely. Water is extremely important in hot weather.
- Control flies. Consider changing insecticides and/or methods of control this year, because insecticide resistant flies may have developed if you have used the same chemical year after year. Consider pour-on and sprays that allow you to put cattle in the corral or through the chute with little stress on them. It will make subsequent trips through the "chute" less stressful.
- Prevent/Control pinkeye
 - consider vaccinating,
 - control flies,
 - clip tall, mature grass,
 - treat problems quickly.
- Clip grazed-over pastures for weed control and so that seed heads do not irritate eyes. Pastures should be kept in a vegetative state for best quality.

What are we learning from PVAP-Precondition?

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

The Post Weaning Value-Added Program (PVAP)-Precondition was started in 2019 to encourage cow-calf producers to wean and precondition calves prior to marketing. This program targets producers who traditionally sell bawling, un-weaned calves and walks them through the management process of preconditioning calves. Participants are required to weigh the calves at weaning, record all feed and health expenses, sell in a featured preconditioned sale, and provide a copy of their sale check stub. Upon submission of these records, a one-page closeout is calculated that analyzes the estimated returns to the preconditioning enterprise. After completion of the program, participants receive an incentive payment of \$50/head, up to a maximum of \$1000. Producers may participate a second time in the program and are eligible for a \$500 maximum incentive payment. This program is funded by the Ag Development Fund as part of a grant to the KY Beef Network.

Summary data for the 33 closeouts from 27 producers who have participated in PVAP-Precondition since its inception are in the table below. Net added returns above preconditioning expenses ranged from \$24.64 to \$158.16 per head with an average return of \$84.44 per head on 777 calves. Average net returns from the top 14 closeouts averaged \$119.42 per head, while the 19 below average closeouts averaged \$58.67 per head. Average daily gain (ADG), total weight gain, and days fed were all higher for the above average group, and although feed price per ton was slightly higher, feed cost of gain (COG) was lower due to higher performance.

Above Average Returns vs Below Average Returns PVAP-Precondition 2019-22, Data from 33 closeouts												
	No. Hd.	Days Fed	Wn. Wt.	Wean Value	Feeding Program	Gain	Sale Wt.	Sale Value	ADG	Feed \$/ton	Feed COG	Net \$/Head
Above Average	298	74	514	\$140.86	10.7 lb 14.9%	191	704	\$140.53	2.58	\$236	\$0.62	\$119.42
Below Average	479	67	484	\$138.99	10.5 lb. 14.0%	141	626	\$135.68	2.12	\$228	\$0.68	\$58.67
Average	777	70	497	\$139.78	10.6 lb 14.4%	162	659	\$137.74	2.32	\$232	\$0.66	\$84.44

Yet another difference between the above and below average groups was the wean value/sale value price ratio or discount. Above average closeouts had a -\$0.33/cwt discount, whereas the below average group had a -\$3.31 cwt discount. This relationship of wean/sale value combined with the overall price being slightly higher, made the value of gain more favorable for the above average group.

So, what have we learned? Although market conditions can always derail the best laid plans, the best hedge against market swings from a feeding standpoint is weight gain. Anything we can do prior to and at weaning to promote feed intake and weight gain should pay dividends. Some of these strategies are as follows:

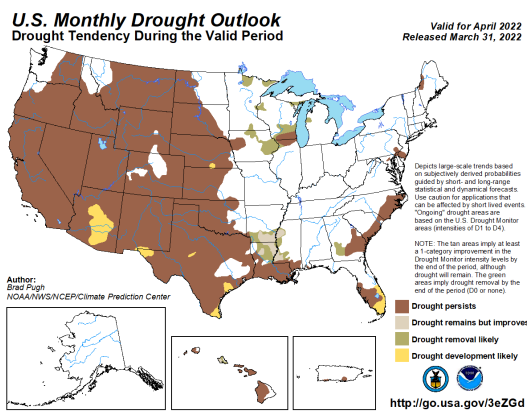
1. Castrate calves early in life, not at weaning. This will avoid weight gain depression which can last up to 3 weeks in late castrated calves.
2. Familiarize calves to dry feed prior to weaning. This can simply be pouring out feed on the ground in the pasture several times, a week or two before weaning.
3. Feed good quality soft, leafy square hay or unroll quality hay for calves the first week post weaning. Second cutting orchard grass is ideal for this transition period.
4. Feed at least 2% of bodyweight of a 14-16% protein concentrate. It usually takes a 500 lb. calf a week or so to get to 10 lbs of intake post weaning. Remember to increase this level of concentrate as the calf grows. That means a calf gaining 2.5 lbs. per day will need to receive about 12 lbs of concentrate 30-40 days into the preconditioning period.
5. Feed for at least 60 days. Most preconditioned programs require a 60-day weaning period and more days on feed takes advantage of the feed efficiency of young calves.
6. Lastly, work with your sale barn and make sure they have a program to feature weaned preconditioned calves. Don't just show up on regular sale day with small group of preconditioned calves and expect favorable results.

For more information on the PVAP-Precondition Program, contact your local county Extension agent or KBN facilitator.

Be Mindful of Heat Stress to Maintain Stocker Calf Gains

Dr. Jeff Lehmkuhler, University of Kentucky, Department of Animal & Food Sciences

As I am writing this, bluegrass has flowered, and I've seen fescue plants with flowers emerging. This spring has been a bit cool slowing grass growth, but warmer temperatures will certainly begin to kick grass growth into high gear within the next couple of weeks. Precipitation and soil moisture continues to be a struggle in the western half the United States as shown in the Monthly Drought Outlook figure from the National Drought Monitoring website. These continued drought conditions will continue to limit forage growth in these regions.



Forage availability is a key driver of stocker calf performance followed by forage quality. As we move through the spring months and begin to see temperatures increase, forage growth slows. Previous research demonstrates that the photosynthesis of plants is negatively impacted by increasing temperatures. Photosynthetic rates of tall fescue can be reduced when temperatures reach 86F/77F degrees Fahrenheit, day/night. Areas in Kentucky had eight days in May during 2021 that had daytime high temperatures of 86 or higher. Several days in June, July and August are normally going to be 86 F or warmer. These warmer temperatures slow forage growth of our perennial cool-

season forages. More importantly, research has demonstrated that soil surface temperatures can have a larger effect on photosynthesis than air temperature. Close grazing or mowing exposes more soil to direct sunlight increasing soil surface temperature. Dr. Teutsch's research with tall fescue at the Princeton Extension and Research Center demonstrated that clipping forage weekly to 1" versus 4.5" height weekly increased plant crown sensor daily maximum temperature by 10 degrees Fahrenheit. Close clipping led to an increase in warm-season annual forages such as crabgrass due to the temperature stress on the cool-season forage. Reducing stocking density or implementing a managed grazing system to better manage forage residual heights may help cool-season forages be more persistent.

Be mindful of feeder calves that are not shedding winter hair coats. Studies show that lower hair coat scores, better shedding, improve daily gains during the grazing season. Several factors may be involved with shedding of winter hair including fescue alkaloids, genetics, plane of nutrition, and others. Recently, researchers from the southeast reported breed differences in hair coat scores when grazing tall fescue with Charolais-sired calves having less hair than Hereford-sired calves. Calves that don't shed will be more susceptible to heat stress. Ensure stocker calves always have access to clean water. As temperatures increase water intake will increase creating more demand on your water system. Ensure the floats and valves are in working order, that tanks are clean and not fouled with fecal contamination. Spring- and pond-fed tanks may accumulate sediment and should be cleaned out routinely.

Shade should be available during periods of heat stress. University of Missouri research demonstrated that stocker steers grazing Kentucky 31 tall fescue gain 0.3 pounds per day more when they had access to shade compared to those that did not have shade. Other studies have shown added performance when cattle have shade access during periods of high temperatures. Shade can either be natural from trees or man-made using structures with shade cloth. Shade cloth should have a minimum of 50% of light exclusion.

As forage quality and availability declines in mid-summer combined with increased temperatures, cattle performance may dip. To combat this, supplementation can increase the plane of nutrition of stockers sustaining higher performance. Strategies will be dependent on feed prices, target levels of gain, marketing windows, and other factors. A higher protein supplement, 20-28% crude protein, targeted a low rate of supplementation near 0.5% of body weight can increase protein intake to combat declining protein in the forage. If there is a need to increase supplementation rates to achieve either higher rates of gain or stretch forage, a low starch, highly digestible fiber coproduct feedstuff that is 14-16% crude protein can be utilized. Using commodity blends containing corn at 50% or less with soyhulls, distillers grains, corn gluten feed and other quality coproducts can be offered to boost energy and protein intakes of grazing cattle. Research would suggest at higher feeding rates of supplements that have minimal impacts on ruminal microbes every pound of supplement fed will lower forage intake by about ½ pound. Point is that at 0.5% to 1.5% of body weight supplementation levels, forage substitution won't be 1:1 with the supplement fed.

Consider these management factors for maintaining stocker gains during the summer. Take a few minutes to evaluate your current management and see if there are opportunities to adjust management to maintain or increase gains during the heat of the summer. Be sure to maintain animal health, keep internal parasites in check, utilize implants if your market allows, consider feeding an ionophore to combat coccidiosis and improve energy utilization from forages. Best of luck this summer and the markets appear to have some optimism looking at the futures prices. Consult with your veterinarian, feed dealer and county Extension agent for additional information.

Expanding your Herd? Frequently Asked Questions about Johne's Disease and How to Keep it Off the Farm

What is Johne's Disease? Johne's (pronounced *Yo-knees*) Disease is a slow, progressive disease of adult cattle characterized by profuse, watery diarrhea and weight loss or "wasting" (Figure 1). It is caused by the bacterium *Mycobacterium avium* subsp. *paratuberculosis*, also known as "MAP". This disease begins when calves (not adult cattle) are infected with MAP-contaminated colostrum, milk, feed or water, most often around the time of birth. Once MAP enters a calf, the organism lives permanently within the cells of the large intestine where it multiplies and causes the intestinal lining to slowly thicken. Over years of time, the thickened intestine loses the ability to absorb nutrients, resulting in watery diarrhea and weight loss despite continuing to eat well. These symptoms do not show up in adult cattle until 2-5 years of age or even older. There is no treatment available, and the animal eventually dies due to starvation and dehydration.

Why should a commercial beef producer care if they have Johne's Disease in the herd?

Economically, Johne's disease can be costly in a beef operation. For every clinical (sick) cow with Johne's in a herd, there are potentially 10-20 more who are infected but not yet showing signs.



Figure 1: Cow with signs of Johne's disease; dull hair coat, profuse watery diarrhea and weight loss. Photo used with permission from Dr. Amy Jennings, The University of Edinburgh, Scotland.

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 evidence of disease are less fertile and produce less milk, resulting in lighter calves at weaning and more open cows at pregnancy check.

Why worry about buying Johne's Disease? No beef producer in his or her right mind would buy a cow or bull with diarrhea and weight loss to add to their own herd! Very true but the infection is present long before diarrhea and weight loss begins. In almost all cases, the MAP bacteria arrive on the farm when an infected but healthy-looking animal is purchased and added to the herd. These bacteria can be hiding in replacement heifers, cows, breeding bulls, recipients used for embryo transfer, or even in an infected calf purchased to graft on a cow. Although these cattle show no obvious symptoms, they may already be spreading the disease. In a typical case, an infected cow starts shedding the MAP bacteria in her manure after delivering her first calf but she doesn't develop

diarrhea until after her third calf, resulting in 2 years of "silent" disease spread. Infected cattle shed the MAP organism in increasing numbers as the disease progresses, contaminating the farm environment and the risk of spread within the herd.

How do calves get infected with MAP bacteria? Johne's infection occurs mainly by calves ingesting MAP-contaminated manure when nursing dirty teats. Most infections (75+%) occur around the time of birth up to 6 months of age and the remainder up to 1 year of age. In beef cattle operations, mud and manure are frequently splashed on the udder when calving cows in dirty sheds or barns, in high traffic areas (around hay rings, feeding areas) or when cattle are held in close confinement or overcrowded conditions. MAP is also passed in colostrum and milk of infected cattle. There is great opportunity for disease transmission in nursing beef calves since they remain with dams 6-7 months or more. Colostrum obtained from other herds, especially from dairies, is another potential source of MAP. There can be MAP transmission from an infected cow to her fetus during pregnancy but this rarely happens unless the dam has an advanced case and has already developed diarrhea. To date, transmission by bulls through infected semen has not been proven but infected bulls can contaminate the environment with their MAP-infected feces .

How do I find out if a cow or bull with diarrhea and weight loss has Johne's disease?

- Best test if animal is dead or near death: Submission of a dead animal to a veterinary diagnostic laboratory. The affected animal should be humanely euthanized then promptly taken to a veterinary diagnostic lab for a necropsy for definitive confirmation of Johne's.
- Best test in a live animal: If this is the first suspected case of Johne's disease in the herd, PCR on a fecal sample is the best test to confirm the disease. PCR is an "organism detection test" meaning it detects the DNA of the MAP bacteria in the feces. The PCR result is very accurate

and a good indicator of the amount of MAP being shed in the feces (see Figure 2). If the PCR is positive, the first question to consider is “was this infected animal born and raised in this herd?” If the answer is yes, there are likely to be other infected animals in the herd. If no, spread within the herd may be limited.

- The blood test (known as a “Serum ELISA”) is an “antibody detection test”. It is considered a good herd screening test for MAP antibodies and positive results can be confirmed with PCR. The fecal PCR will usually detect the disease earlier than the blood test.

Specimen	Test Name	Result	Ct Value
No ID - Mammalian - Bovidae - Bovine - Angus - Female - Adult			
Small intestine - Scraping - 9	Mycobacterium paratuberculosis (Real Time PCR) - 10/25/2018 1:39 PM	POSITIVE	17.50
Mycobacterium paratuberculosis(Real Time PCR):	<p>Cycle Threshold (Ct) provides an estimate of the amount of <i>M. avium</i> subsp. paratuberculosis (MAP) DNA in the fecal material. Generally the lower the number, the more DNA in the fecal material. MAP DNA can then be correlated to the number of organisms shed in the fecal material.</p> <p>General guidelines per USDA are as follows: <25 Ct = Very Heavy Fecal Shedder <30 Ct = Heavy Fecal Shedder <33 Ct = Moderate Fecal Shedder <36 Ct = Light Fecal Shedder <40 Ct = Suspect Fecal Shedder - DNA was detected, but at a low level. Without epidemiological information, correlation to fecal culture is not consistent.</p>		

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

Once a diagnosis of Johne’s Disease is made, what are the next steps? Once a diagnosis is made, the next steps depend on the type of beef operation involved. For registered herds selling seedstock, the goal should be to classify the herd as test-negative using fecal PCR to eradicate this disease once identified. Seedstock producers are often reluctant to test for Johne’s Disease for fear that a positive diagnosis will ruin their reputation. However, a seedstock herd’s reputation may be damaged much more severely by selling a MAP-infected animal to a customer when that animal is eventually diagnosed with Johne’s disease. Commercial operations, on the other hand, may opt to reduce the disease prevalence gradually through blood testing and herd management changes to clean up the environment, especially during calving.

After the goal is established, decisions on which animals to test and what test to use will depend on the answers to the following questions. What management changes will be made based on test results? Will positive animals be culled, or will test-positive and test-negative herds be established based on results? How much money will be allocated for testing? How quickly is progress needed towards goals? Remember that herd testing is performed on healthy animals over multiple years so decisions should be made in advance on how positive results will be handled. It takes at least 5 years of consistently following a written plan of action to control this disease. If no management changes will be instituted, then testing is a waste of time and money.

How does a producer avoid buying MAP-infected cattle? It is not always easy because infected animals will often test negative when young and may not show a positive test result until they reach 3-5 years old.

The safest option is to have a “closed” herd with no purchased animals. If this is not possible, the next best option is to buy from low-risk herds with Johne’s test results on the adult herd available within the last year. Since low-risk beef herds are uncommon, a good rule of thumb is to purchase animals from as

few different herds as possible and test all new animals prior to mixing with the home herd. Purchased animals should be tested at least 3 times (begin testing no younger than 2 years of age) before calling them “negative” or “low risk”. The number of cattle purchased is not as important as the number of herds these animals came from. Buying randomly sourced cattle from many different herds is a guarantee your herd will become MAP-infected at some point.

Where can someone learn more about Johne’s Disease? First and foremost, talk with your veterinarian about detection and prevention strategies tailored for your specific situation. The Johne’s Information Center at the University of Wisconsin maintains an excellent website full of information at <https://johnes.org>.

How Significant are Discounts on Lighter Muscled Calves?

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

Recently, I have discussed price differentials between bulls and steers, and for weaned calves versus those straight off the cow. In both cases, there are management implications for cow-calf producers. Most of the time, there is a price advantage when steers and for selling preconditioned calves. The producer must decide if that price benefit is sufficient to justify implementing the management practice. In this article, I want to discuss the impact that feeder cattle muscling has on market value. While this is not a year-to-year decision in the same way that castration and preconditioning are, calf muscling is something that producers need to keep in mind as they make long term genetic decisions for their cowherds.

Feeder cattle are generally graded based on two factors, (1) frame size and (2) muscling. Frame sizes are based on the expected weight of the animal when finished – large, medium, and small. Muscle grades are based on the thickness of the muscle, with a number 1 being the thickest / heaviest muscled. More detailed information about these grades can be found on the AMS website at <https://www.ams.usda.gov/grades-standards/feeder-cattle-grades-and-standards>.

While there are many ways to estimate the impact of muscling on calf prices, I am going to take a simple historical approach in this article. For market reporting purposes, cattle are often grouped by a combination of frame and muscle grades. For example, market reports typically share prices for Medium and Large Frame #1-2 calves and for Medium and Large Frame #2-3 calves. By comparing these price differences over time, one can get a feel for how much price discount is seen on calves that fall into the lighter muscling category.

The first figure below shows the 5-year average price, by month, for 550 lb steers in these two categories across Kentucky auction markets. The second figure is simply the difference between the two, which can be interpreted as the market discount for lighter muscled steers, as compared to heavier muscled steers. Over the course of the 5 years from January 2017 to December 2021, this discount has averaged \$14.83 per cwt, which is more than \$80 per head on a 550 lb steer. This is a significant difference in value that will be felt when lighter muscled calves are sold. It is also worth noting that this comparison is for a difference of roughly one muscling grade (#1-2 vs #2-3). Greater discounts would be seen in the market for extremely light muscled cattle.

Given the significant discount that is seen on lighter muscled calves, cow-calf producers need to keep this in mind as they manage their cowherds. Calves with dairy influence will often fall into lighter muscling categories and the same can sometimes happen with under-conditioned calves. However, if significant numbers of the calves they sell are taking discounts due to muscling, they should consider making genetic improvements. This may include improvement in the sires that are used, culling of cows that consistently produce lighter muscled calves, or some combination of both.

