

# OFF THE HOOF

***KENTUCKY BEEF NEWSLETTER, JANUARY 2019***



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**Beef IRM Team**

*Published Monthly by Dr. Les Anderson, Beef Extension Specialist, Department of Animal & Food Science, University of Kentucky*

## **Contents**

This month's newsletter includes:

Timely Tips – Anderson

Managing Limited Hay Supply - Lehmkuhler

The Winter of Mud: Consequences of the Wettest Year on Record – Arnold

Kentucky Beef Cattle Market Report – Burdine

## **Timely Tips**

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

### **Spring-Calving Cow Herd**

- Study the performance of last year's calf crop and plan for improvement. Plan your breeding program and consider a better herd sire(s). Select herd sires which will allow you to meet your goals and be willing to pay for superior animals.
- Consider vaccinating the cows to help prevent calf scours.
- Keep replacement heifer calves gaining to be cycling by the start of the spring breeding season.
- Start cows on the high magnesium mineral supplement soon. Consider protein supplementation if hay is less than 10% crude protein. If cows are thin, begin energy (grain) supplementation now.
- Get ready for calving season! See that all equipment and materials are ready, including obstetrical equipment, record forms or booklets, ear tags, scales for obtaining birthweights, etc. Prepare a calving area where assistance can be provided easily if needed. Purchase ear tags for calves and number them ahead of time if possible. Plan for enough labor to watch/assist during the calving period.
- Move early-calving heifers and cows to pastures that are relatively small and easily accessible to facilities in case calving assistance is needed. Keep them in good condition but don't overfeed them at this time. Increase their nutrient intake after they calve.

### **Fall Calving Cow Herd**

- Provide clean windbreaks and shelter for young calves.
- Breeding season continues. Keep fall calving cows on accumulated pasture as long as possible, then start feeding hay/grain. Don't let these cows lose body condition!
- Catch up on castrating, dehorning and implanting.

## **General**

- Feed hay in areas where mud is less of a problem. Consider preparing a feeding area with gravel over geotextile fabric or maybe a concrete feeding pad.
- Increase feed as the temperature drops, especially when the weather is extremely cold and damp. When temperature drops to 15°F, cattle need access to windbreaks
- Provide water at all times. Cattle need 5 to 11 gallons per head daily even in the coldest weather. Be aware of frozen pond hazards. Keep ice "broken" so that cattle won't walk out on the pond trying to get water. Automatic waterers, even the "frost-free" or "energy-free" waterers can freeze up in extremely cold weather. Watch closely.
- Consider renovating and improving pastures with legumes, especially if they have poor stands of grass or if they contain high levels of the fescue endophyte. Purchase seed and get equipment ready this month.

## **Managing Limited Hay Supplies**

*Dr. Jeff Lehmkuhler, Associate Extension Professor, University of Kentucky*

Steps:

- 1) Determine hay needs - Hay needed to overwinter a cow can be estimated relatively easily. If you know the mature weights of your cows, multiply the average weight by 3% and then by the expected number of days you will feed hay. For example, if cows at a body condition score 5 weigh 1,300 lbs, the daily hay needed would be  $1,300 \text{ lb} * 3\%/100 = 39 \text{ lbs}$ . Assume you began feeding hay November 15 and expect to feed until April 15, the hay needed equals daily intake in lbs X Number of months X 30 =  $39 \text{ lbs} * 5 \text{ months} * 30 = 5,850 \text{ lbs}$ . If bales provide 800 lbs of good forage (exclude rot/spoiled hay), the number of bales needed would be  $5,850 \text{ lb} / 800 \text{ lb/bale} = 7.3$  bales/cow for the feeding period. Always add 10-20% more due to feeding losses, spoilage and longer feeding periods. Inventory hay stores in the early winter as hay will be cheaper at the start of the winter as opposed to later when hay stocks are lower.
- 2) Match hay quality to animal needs - Use limited forage wisely by matching quality to stage of production. Growing and lactating animals have the highest nutritional needs. As you consider the annual production of a beef cow, nutritionally we tend to break them out to late gestation, early lactation, late lactation, and the dry, mid-gestation period. During late gestation, particularly the last 60-75 days before calving, the fetus is growing rapidly increasing nutrient needs of the cow. Additionally, mammary tissue development and colostrum formation require additional nutrients. As cows calve and freshen, nutritional requirements increase with milk production. Peak milk production occurs around eight weeks post-calving and corresponds with the highest nutritional needs during the production year. Nutritional needs may decrease after peak as milk production decreases. However, some research has shown that cows may sustain high levels of milk production out to 120 days post-calving. Thus, it is important to monitor cow body condition through lactation and make feeding adjustments as needed. This is important for fall calving beef cows as they may require additional supplementation to support higher levels of milk production. Feed the highest quality forage during lactation to minimize body condition loss and supplementation needs.

As cows are weaned and milk production ceases, nutritional needs are greatly reduced. Dry, non-lactating cows that have weaned 6-8 month old calves should be in the second trimester of gestation. The nutritional needs to support fetal development at this point is low and corresponds to the lowest nutritional requirements for the production year. Utilize lower quality forages at this point to conserve higher quality forages for other phases of production. See the table below for guidelines on forage quality needed at different stages of production for mature beef cows. These assume cows are in good body condition and no environmental stress (i.e. mud, wet haircoats, etc...).

<b>Stage of Production</b>	<b>% TDN</b>	<b>% CP</b>
<b>Dry, mid-gestation</b>	45-50%	7-8%
<b>Late gestation</b>	50-55%	8-9%
<b>Early lactation</b>	60-65%	10-12%

- 3) Less Time - Limited hay stores can be stretched if you have the ability to limit the amount of time cows have access to the hay. This can only be done for mature cows that are in the dry, mid-gestational stage of production and are 5-6 body condition scores. Young and thin cows need additional feed to grow and replenish body stores and should not be limit fed.

Purdue research demonstrated that limiting access to 8-12 hours did not have detrimental impacts on body weight or condition of mature cows. In this work, restricting access to hay to 8 hours reduced hay disappearance by approximately 15%. Restricting access time to hay, however, resulted in a linear decrease in body weight gain in young, second calf cows. Researchers at the University of Illinois reported findings from a similar study. Simmental cows in the last trimester were limit fed for approximately 90 days. Access time to hay in this study was ad libitum (free-choice), 9, 6 or 3 hours. Hay disappearance decreased from 34 lbs of dry matter for free-choice cows to approximately 18 lbs for cows having only 3 hours of hay access. Cow body weight gains decreased linearly as the time restriction increased. Body condition score changes followed similar trends to weight changes. In the second trial conducted hay access was restricted to only 6 or 9 hours. Again, hay disappearance decreased as access time was limited. Body weight and body condition score changes were not impacted by restricting hay access in this trial. These studies utilized above average quality grass/legume hay. The level or degree of restriction will be dependent on the quality of the forage. Low quality forage should not be restricted. Cows will need to consume as much ow quality forage as they can due to the low digestibility and low nutrient concentrations. If this management is used, the herd will need to be separated by age and production as lactating cows, late gestational and young or thin cows should not be restricted.

- 4) Reduce feeding losses - Managing hay feeding can also aid in stretching limited hay stocks. Research demonstrated increased losses when unrolling hay on the ground. Hay is trampled into the mud from being walked and laid upon. Defecation and urination on hay will prevent intake as well. Research from North Dakota has also demonstrated that feeding with a hay processor on the ground leads to increased hay losses compared to feeding in a hay ring. Leaf shatter and small forage particle loss leads to lowered utilization. If using a processor and one wants to minimize losses, place processed hay in a feeder or bunk rather than on the ground.

Hay rings should have sheeting around the bottom to minimize hay losses. Improved designs that keep bales elevated on the ground while allowing dropped hay to fall within the hay feeder also lower feeding losses. These feeders are more expensive up front but if hay is expensive, they can lower feeding costs. It is important these hay feeders are managed. If hay builds up inside the feeder and the cattle don't consume the hay due to rot or mold, move the hay ring. If the hay is not of low quality, allow animals to consume the hay that is lying on the ground within the ring before placing a new bale in the feeder. Allowing the hay to build up to the top of the ring/sheeting/tire in these newer designs will increase losses when a new bale is offered as hay will fall out over the edge of the ring or tire. Further, placing hay rings on a feeding pad can lower losses from hay that falls outside the ring on the ground. This hay may be consumed off the ground on a feeding pad while it would otherwise be trampled into the mud around the feeder.

- 5) Hay replacement - Replacing hay with other feedstuffs to supply the nutrients needed is feasible. A word of caution, when restricting hay the rumen will not be full. Stretch receptors on the rumen will lead to cows seeking to eat something even though nutritionally they won't need to eat. This can

lead to tree and fence damage or even cows getting out looking for something to eat. Giving access to low quality forage ad lib can curb this by giving cows something to eat and fill the rumen. Corn stover, wheat straw and other low quality forages can be used.

The typical fescue hay will contain 50-54% TDN and 7-9% protein on a dry matter basis. If one were to offer 1 lb of dried distillers grains, the protein supplied would be the equivalent of 3-4 lbs of hay while the energy from the distiller grains would replace 1.75 lb of hay. For dry, gestating cows soybean hulls can be used to replace average grass hay at a rate of 1.5 lbs of soyhulls per pound of hay. Cows should always be offered at least 8-10 lbs of long stemmed forage to maintain rumen health and lower the incidence of bloat. Other feedstuffs can be used to develop a low hay diet for beef cows. Be sure to work with a nutritionist to ensure the nutrient needs of the cows are met and to lower the risk of digestive disorders.

Other nutrients should not be overlooked. The rumen is approximately 80% moisture and a beef cow may need 10-20 gallons of water a day. If water availability is restricted, intakes will be depressed and milk or performance will be reduced. A high quality loose mineral should be provided at all times to ensure mineral and vitamins requirements are met. If supplement is offered, consider including an ionophore such as monensin or lasalocid to improve energy efficiency. Research has demonstrated the cows will maintain similar body condition when fed 200 mg/hd/d of monensin on 5-10% less feed.

Sound management will allow you to conserve hay without sacrificing animal productivity. Remember that the animals' nutritional needs should always come first. Work with your local county extension office or nutritionist to ensure the nutritional needs will be met. Here's to not losing a boot in the mud.

## **The Winter of Mud: Consequences of the Wettest Year on Record**

*Michelle Arnold, DVM (Ruminant Extension Veterinarian, UKVDL)*

Record rainfall in 2018 has had major impacts on cattle health in KY. Despite relatively mild temperatures this winter, submissions at the UKVDL and telephone conversations with veterinarians and producers confirm cattle are losing body condition and some are dying of malnutrition. The very prolonged cloudy, wet weather with regular bouts of rain has resulted in muddy conditions that require substantially more energy in feeds just to maintain body heat. In addition, the hay quality is exceptionally poor this year as much of it was cut very ripe (late stage of maturity), rained on while curing, and baled with enough moisture to support mold growth. Many cows presented to the laboratory for necropsy (an animal "autopsy") revealed a total absence of fat and few, if any, other problems. This indicates winter feeding programs on many farms this year are not adequate to support cattle, especially cows in late pregnancy or early lactation, or their newborn calves, even though bitter cold has not been a factor.

The body of the animal has several defenses against cold. The first is the hair coat which grows longer in winter and offers considerable help in conserving heat and repelling cold. Under winter conditions, if an animal's coat cover is wet and muddy, then energy requirements for maintenance can easily double, particularly if the animal is not protected from the wind. Energy from intake of hay that is adequate for maintenance in normal years is falling far short of the requirement this year. Cold conditions are not too difficult for cattle but when rain and wind are added, heat loss is multiplied several times by the effects of conduction and evaporation. Under these circumstances the "wind chill factor" referred to by the weatherman has real meaning to a cow. If producers are not supplementing cattle with adequate energy **AND** protein sources, hay of unknown nutritional quality often does not provide sufficient nutrition to meet

the animal's basic requirements. This will result in depletion of body fat stores, followed by breakdown of muscle protein, and finally death due to insufficient nutrition.

Typically, near the end of most winters, both veterinary diagnostic laboratories in KY receive older beef cows for necropsy. These cows often are broken-mouthed or toothless due to their advanced age, are heavily pregnant or in peak milk production and in poor body condition (BCS 2-3). However, this winter, 'malnutrition' cases include young cows and pre-weaning/weaning age calves, indicating serious nutritional deficiencies in the feedstuffs, especially the hay produced last summer. The producer may first notice a cow getting weak in the rear end. Later she is found down and is unable to stand. Death follows within a day or two after going down. Multiple animals may die within a short period of time.

At necropsy, the pathologist finds a thin animal with no body fat stores but the rumen is full of bulky, dry forage material (poor quality hay). Even the small seam of fat normally found on the surface of the heart is gone, indicating the last storage area in the body for fat has been used up. Despite having had access to free choice hay, these cattle have died from starvation. Although hay may look and smell good, unless a producer has had the hay tested for nutritional content, he or she does not know the true feed value of that harvested forage. It is often difficult for producers to bring themselves to the realization that cattle can actually starve to death while consuming all the hay they can eat – especially if crude protein levels are in the 3-4% range, and TDN is <40% – as is not uncommon in some late-cut, overmature, rained-on hay. Inadequate crude protein in the hay (below 7-8%) means there is not enough nitrogen for the rumen microflora ("bugs") to do their job of breaking down fiber and starch for energy. Digestion slows down and cattle eat less hay because there is no room for more in the rumen. Cattle are expected to eat roughly 2.5% of their body weight in dry matter but this may fall to 1.5% on poor quality hay. Many producers purchase "protein tubs" varying from 16-30% protein to make up for any potential protein deficiencies but fail to address the severe lack of energy in the diet. In the last 60 days of gestation, an adult cow (1200 pounds eating 2% of her body weight) requires feedstuffs testing at least 54-56% TDN (energy) and 8-9% available crude protein while an adult beef cow in the first 60 days of lactation requires 59-60% TDN and 9-10.5% available crude protein.

In addition to malnutrition in adult cattle, inadequate nutrition and weight loss severely affect the developing fetus in a pregnant cow. Maternal nutrition during the last trimester of pregnancy – particularly dietary protein level – has been well-documented to play an important role in calf survivability. A weak cow may experience dystocia (a slow, difficult birth) resulting in lack of oxygen to the calf during delivery, leading to dead or weak ("dummy") calves. Calves born to protein-deficient dams are less able to generate body heat and are slower to stand and nurse compared to calves whose dams received adequate dietary protein during the last 100 days of pregnancy. Colostrum quality and quantity from protein and energy-deficient dams is frequently not adequate for calf survival and performance. One study looking at diets during pregnancy found at weaning, 100% of the calves from the adequate energy dams were alive compared to 71% from the energy deficient dams. The major cause of death loss from birth to weaning was scours, with a death loss of 19% due to this factor.

Mineral supplementation this winter is another area of concern, as copper and selenium levels in liver samples analyzed from a large number of cases have been far below acceptable levels. Copper and selenium are vital nutrients for immune system function and the absence of these nutrients is a major factor in development of disease. Selenium deficiencies in adult cows will lead to later reproductive problems of delayed conception, cystic ovaries and retained placentas. Additionally, grass tetany/hypomagnesemia will occur in late February and March in lactating beef cattle consuming only poor quality hay if high magnesium mineral is not made available now.

The best advice for producers is to become expert judges of forage quality by testing hay. Testing is simple, inexpensive and results are easy to interpret. Contact your local cooperative extension service if you need assistance to get this accomplished. If cows are losing weight, consider supplemental feed to help them through the rest of winter until grass is growing and is past the “watery” stage. Contact your nutritionist to review your feeding program. Energy AND protein are both crucial; protein tubs will not be sufficient in most cases to fulfill energy requirements. Adequate nutrition is not just important today but also down the road. Milk production, the return to estrus and rebreeding, and overall herd immunity are also impacted over the long term. Continue to offer a trace mineral mix high in magnesium in order to prevent hypomagnesemia or “grass tetany” at least through the first of May.

It is important to understand that the winter of 2018-2019 has been exceptionally easy temperature-wise but difficult for cattle in Kentucky. Cows of all ages are losing weight now at levels typically seen in late winter. If this problem is not addressed, the expectation is for many stillborn and weak calves that do not survive to be born this spring. Feeding hay exclusively throughout the winter will not necessarily work this year but supplemental feed can fill the nutritional gap. Check out the UK Beef Cow Forage Supplement Tool at <http://forage-supplement-tool.ca.uky.edu/>. Enter the values from your hay test and stage of production of your cows (gestation or lactation) to find a supplement that will work for you. The UK Beef Cow Forage Supplement Tool was produced by Kevin Laurent, Jeff Lehmkuhler and Roy Burris in the University of Kentucky Department of Animal and Food Sciences and serves only as a tool to estimate forage intake and supplementation rates. Remember actual feed/forage intake and body condition should be monitored throughout the winter and cattle should also have access to a complete mineral supplement and clean drinking water at all times.

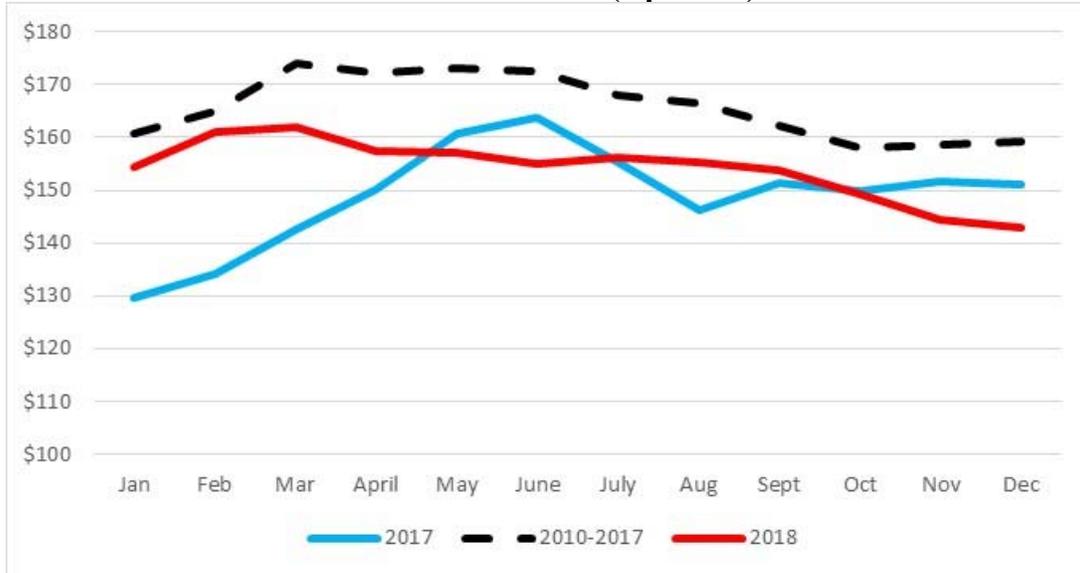
## **Kentucky Beef Cattle Market Update**

*Dr. Kenny Burdine, Livestock Marketing Specialist, University of Kentucky*

The first of the year is typically a good time to review cattle markets and think about the upcoming year. While there will always be debate about which is worse, drought or mud, there was little question about which was the greater issue in 2018. One doesn't have to drive around rural Kentucky very long to see multiple examples of challenges created by excessive rain. Pasture growth was good well into fall, but muddy conditions brought its own set of challenges. And, winter feeding certainly tends to put those challenges on showcase.

Despite showing a lot of resilience through summer, calf prices fell sharply in the fourth quarter of 2018. The state average price for a 550 lbs steer fell by roughly \$12 per cwt from August to December, settling in the low \$140's to end the year. This was approximately \$8 per cwt lower than December 2017. Figure 1 tells the story best. Calf prices in 2018 actually averaged above 2017 levels for the year, but were lower October through December when most calves were sold.

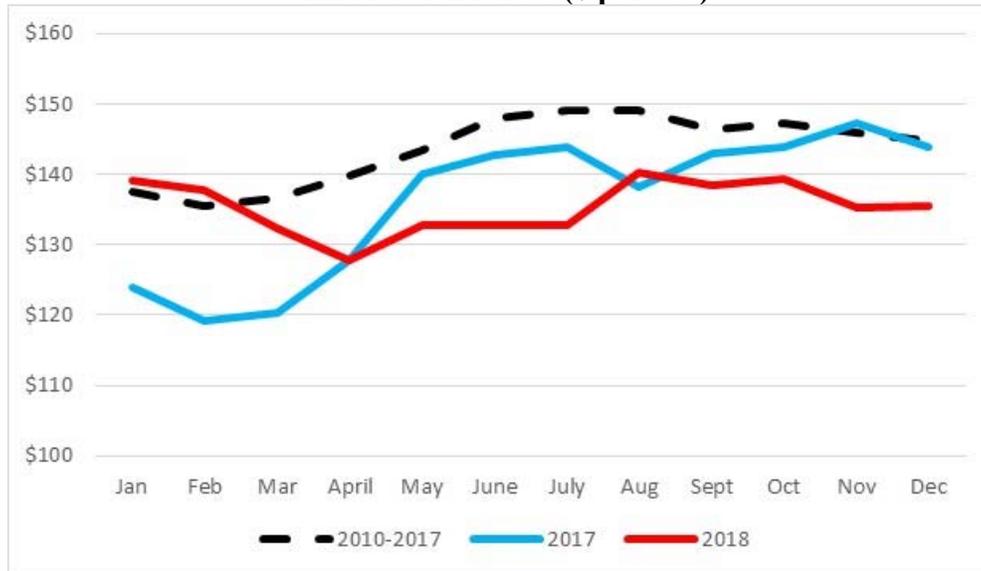
**Figure 1. 550# Medium & Large Frame #1-2 Steers  
KY Auction Prices (\$ per cwt)**



Source: USDA-AMS, Livestock Marketing Information Center, Author Calculations

I said several times this fall that I was surprised by the strength of heavy feeder cattle markets. Figure 2 depicts state average prices for 850 lb steers, but this chart doesn't do a very good job telling this story. Largely due to lot size differences, there is always a sizeable difference in state average prices and prices received for loads of steers. For example, when state average prices for 850 lb steers were in the upper \$130's late summer / early fall, groups of 850 lb steers were selling at prices well into the \$150's. Even for December, loads of these steers were still moving in the \$140's.

**Figure 2. 850# Medium & Large Frame #1-2 Steers  
KY Auction Prices (\$ per cwt)**



Source: USDA-AMS, Livestock Marketing Information Center, Author Calculations

While I hate to say it, I expect 2019 to bring more of the same. I fully expect calf prices to increase significantly by spring due to stocker demand, but the fundamentals don't point to any signs that would suggest a stronger overall market in 2019. Much is being made about cow slaughter in 2018 and it was up

substantially through the first 11 months. But, I think a lot of this was due to dairy cow slaughter. When I try to pull out the dairy cows, I estimate that we slaughtered about 250,000 to 275,000 more beef cows in 2018 than 2017. Given that the USDA estimated the beef cow herd was more than 500,000 head larger in 2018, I don't think we have culled enough cows to suggest decreasing beef cow inventory.

A slightly larger cowherd for 2019 means a slightly larger calf crop to work through markets. And, as we have talked before, production increases are still on the horizon with USDA forecasting 2019 production increases of 3.5%, 5.3%, and 1.4% for beef, pork, and broilers respectively. While surprises are always possible, there is simply no way that I can look at those supply factors and forecast higher cattle prices year-over-year for 2019.









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