

OFF THE HOOF

Kentucky Beef Newsletter February 2017

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

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Timely Tips

Dr. Roy Burris, Beef Extension Professor, University of Kentucky

Spring-calving Herd

Get ready for calving season this month!

- Replacement heifers should be gaining adequately to reach target breeding weights by May 1. Be sure that their feeding program is adequate for early breeding.
- Overall condition of the cow herd should be evaluated. Cows losing weight now are more likely to have weak or dead calves. These cows will likely be a poor source of colostrum milk for the newborn calf. Feed cows, if necessary to keep them in good body condition.
- Have calving equipment, supplies and labor ready for the spring calving season. Some supplies which may be needed are: eartags and applicator (put numbers on eartags now), tattoo pliers and ink, record book, scales for calf weights, iodine for calves' navels and colostrum supplement. Calving equipment (puller and chains, etc.) and facilities should be ready and clean.
- Heifers should begin head-start calving in early February. Move them to a clean, accessible pasture, away from cow herd and near facilities so that calving assistance can be given. Cows may start calving later this month. Signs of calving are relaxation of pelvic ligaments, enlargement and swelling of the vulva, and enlargement of the udder. Expect calving difficulty if (1) calf's head and two feet are not visible, (2) only the calf's tail is visible, and (3) the cow has been in labor for 1½ hours. Be sure calf is being presented normally before using calf puller. Recognize situations that are beyond your capability and seek professional help as early as possible. Calves that aren't breathing should receive assistance. Try sticking a straw in nostril to stimulate a reflex or try alternate pressure and release on rib cage. Commercial respirators are also available. Calves should consume colostrum within 30 minutes of birth to achieve good immunity.
- Record birthdate, cow I.D., and birthweight immediately (use your Beef IRM calendar). Identify calf with eartag and/or tattoo. Registered calves should be weighed in the first 24 hours. Male calves in commercial

herds should be castrated and implanted as soon as possible.

- Sub-zero weather can mean death for newborn calves. During extremely cold spells, bring the cow(s) into a sheltered area as calving approaches to protect the calf. Be prepared to warm-up and feed newborn, chilled calves. Calving in mud can also cause problems.
- Separate cows that calve away from dry cows and increase their feed. Increase feed after calving to 25-27 pounds of high quality hay. Concentrate (3-4 lb. for mature cows and about 8 lb. for first-calf heifers) may be needed if you are feeding lower quality hay. Supplementation may have a beneficial effect on date and rate of conception. The most important time to feed a beef cow is after calving. Thin cows don't come into heat very soon after calving. We must have cows in good condition, if we plan to breed them early in the season for best pregnancy rates, especially on high-endophyte fescue pastures.
- Watch for scours in newborn calves. Consult your veterinarian for diagnosis, cause, and treatment. Avoid muddy feeding areas so that cows' udders won't become contaminated and spread scours. Don't confine cows to muddy lots.
- Start looking for herd sire replacements, if needed.

Fall-calving Herd

- Consider creep feed or creep grazing (wheat, etc.) to supply extra nutrition to fall-born calves which may have to depend solely on their dam's milk supply for growth. They are not getting much except their dam's milk now (i.e. there is nothing to graze). February/March is the worst time of the year for fall-born calves.
- Breeding season should end this month – maybe Valentine's Day. Remove bulls and confine them so that they regain condition.
- Provide windbreaks or clean shelter for calves.

General

- Provide water at all times. Watch for frozen pond hazards. If cattle are watering in a pond, be sure to keep ice "chopped" to keep cattle from walking on the ice and, possibly, breaking through. Keep automatic waterers working.
- Increase feed as temperature drops. When temperature falls below 15 degrees, cattle need access to windbreaks. For each 10 degree drop below 15 degrees, add three pounds of hay, two pounds of corn, or six pounds of silage to their rations.
- You should be feeding a mineral supplement with adequate magnesium to prevent grass tetany (~ 15% Mg) now. The Hi-mag UK Beef IRM mineral can be used now.
- Control lice. Watch for signs such as rubbing.
- Begin pasture renovation. You can overseed clover on frozen or snow-covered pastures.

You Are Our Clients Too!

Dr. Roy Burris, Beef Extension Professor, University of Kentucky

Agricultural Extension agents and specialists are sometimes caught between producers and their suppliers. It is our job to be informed and provide unbiased information which will serve our clientele's best interest. That is rarely a problem but over the course of a career you can be caught in some interesting situations.

Like several years ago when I strolled into the state cattlemen's convention and was met with an irritated regional sales representative for a feed company. His group had rented a booth and several of the company rep's were there. I was invited to sit in their midst and it was apparent that I was about to be the recipient of a good "old fashioned butt chewin'". I had no idea what the problem was but I was about to find out.

The conversation went something like this:

“You cost us a good client (and he told who it was). We know that you were the one that changed his ration!”

Sometimes the best defense is a good offense, so my reply went something like this:

“I didn’t go looking for your client. His veterinarian called me because his calves were dying! You were selling him a low energy, high urea complete feed for 3 hundredweight weaned calves. Why would you do that? You have some good products. Why didn’t you fix him up with a good supplement and let him feed his own hay and grain?”

“There’s not enough tonnage in selling supplements”.

“It’s always better if your client makes money. And, by the way, he is my client, too.”

Well, I left that encounter without the complimentary free cap but firm in my conviction that I had done the right thing for my client. That was more important than anything else. That’s my job. We want to have the best educated producers in the country and we are also proud of our working relationship with our feed industry representatives. That event was an aberration and not the norm.

Since that time, Dr. John Johns and I developed a rather intense “Nutrition” portion of the Master Cattleman program. We were not shrinking from our duties when we introduced the sessions either. I remember telling our participants that we were both authors of that section and that we had Ph.D.’s in beef nutrition with thirty years of experience each. Because ... sometimes the best defense is a good offense. Dr. Jeff Lehmkuhler has continued our efforts in Master Cattlemen Nutrition and Kevin Laurent provides ration balancing advice, too. We try to provide good nutritional advice but sometimes we have to “call ‘em as we see ‘em”.

We are grateful to the Agricultural Development Board for funding another round of the Master Cattleman program and will be starting another soon. Check with your County Extension Agent for Agriculture and Natural Resources if you are interested in becoming a Master Cattleman and learning more about beef cattle nutrition and all other areas of beef production. And, always remember that you are our clientele – first and foremost.

Beef Improvement Federation Conference in Athens, GA

Dr. Darrh Bullock, Beef Extension Professor, University of Kentucky

The Beef Improvement Federation (BIF) annual conference will be held in Athens, Georgia on May 31 – June 3. These meetings are unique in that they bring together beef producers from across the country with scientists and extension specialists to discuss current and emerging technologies associated with genetic improvement of beef cattle. There are main sessions in the mornings that address many of the mainstream issues confronting beef producers and breakout sessions in the afternoons that are more informal and facilitate discussions. Several Kentucky beef farmers make it an annual trip and gain valuable information to bring back to their operations, but our representation is too small compared to the value of the conference. If you are interested you can find more information on the BIF website: www.beefimprovement.org. You can also contact me for more information at: dbullock@uky.edu. Hope to see you there.

Stocker Conference Back in Tennessee

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

This year the Mid-South Stocker Conference will be held on March 1, 2017 in Manchester, TN at the Coffee County Conference Center. Tennessee will share some southern hospitality to attendees.

The conference brings back a little history by having a pre-conference tour on February 28. The tour will

involve backgrounding operations that utilize distillers grain products from the famous Jack Daniels distillery. In addition, tour participants will get to tour the Tennessee whiskey distillery with supper following in Lynchburg, TN. The tour is limited to the first 35 people to register, so don't wait.

This year, the Mid-South Stocker Conference includes a policy update from NCBA as well as a feedlot perspective on entering the cattle feeding business. An economic outlook of the beef industry will be presented as well as a discussion on post-weaning management to improve health and performance.

Want to get more from your pastures? Cool-season annual forages show promise to increase animal performance and information will be presented on how to best utilize them. Incorporating coproduct feedstuffs will also be discussed for use in stocker and backgrounding programs.

The virtual tours will continue in 2017. Producers from TN and KY will share information on their backgrounding and stocker operations. Conference-goers will also have opportunities to interact with tradeshow exhibitors and learn about new products available.

Registration information is available at <https://ag.tennessee.edu/midsouthstockerconference/Pages/default.aspx> For additional information, contact Jeff Lehmkuhler at jeff.lehmkuhler@uky.edu or call your county Extension office.

Frost Seeding Clover: JUST DO IT!

Dr. Chris D. Teutsch, Associate Extension Professor, Forage Specialist, University of Kentucky

Everyone is familiar with Nike's ad campaign that encourages people to "JUST DO IT". I am officially adopting this slogan for my 2017 Frost Seeding Campaign. Legumes are an essential part of a strong and healthy nitrogen cycle in grasslands. In many cases they come by themselves when we start to manage for them, but in some instances, we need to introduce them back into our pastures. Listed below are a few steps that we can take that will help to ensure that our FROST seedings are successful:

- *Control Broadleaf Weeds.* Broadleaf weeds must be controlled prior to seeding legumes. This is best accomplished by controlling weeds the season prior to renovation.
- *Soil Test and Adjust Fertility.* In order for pasture renovation to be successful proper soil fertility is required. Lime and fertilize pastures according to soil test results. Lime should be applied six months prior to renovation if possible.
- *Suppress Sod and Decrease Residue.* The existing sod must be suppressed and plant residue reduced prior to seeding. The reduction in plant residue facilitates good soil-seed contact. This can be accomplished by hard grazing in late fall and early winter.
- *Ensure Good Soil-Seed Contact.* Regardless of what seeding method is chosen, good soil-seed contact is required for seed germination and emergence.
- *Seed on Proper Date.* Frost seeding legumes back into pastures is best accomplished in late winter to early spring (February 1 and early March 1). Frost seeding is accomplished by simply broadcasting the seed on the soil surface and allowing the freezing and thawing cycles to incorporate the seed into the soil. Success with frost seeding can be enhanced by dragging your pasture after or as you broadcast the seed. This simply gets the seed in better contact with the soil. After March 1, drilling legumes into pastures is recommended since there may not be enough freezing and thawing cycles to adequately incorporate seed. *Prior planning and preparation are important so that seeding can be done in a timely manner.*
- *Use High-Quality Seed of an Adapted Species.* Choose forage species that are adapted to the area and end use. Use either certified or proprietary seed to ensure high germination, seed genetics, and low noxious weed content. Cheap, low quality seed often cost more in the end due to lower production and thin stands. In Virginia, a good mixture for renovating pastures with is 6-8 lb red clover, 1-2 lbs of ladino or grazing white clover, and 10-15 lb of annual lespedeza per acre.

- *Use correct seeding rate.* Calibrate your seeder prior to planting (see box on calibrating forage seeding equipment). Seeding at too high of a rate needlessly results in higher seed costs. On the other hand, seeding at too low a rate results in weak stands and lower productivity.
- *Inoculate Legume Seed.* Always use inoculated legume seed or inoculate it with the proper strain of nitrogen fixing bacteria prior to seeding. This is relatively inexpensive insurance that legume roots will be well nodulated and efficient nitrogen fixation will take place.
- *Control Seeding Depth.* Small seeded forages should never be placed deeper than ½ inch. When using a drill always check seeding depth since it will vary with seedbed condition and soil moisture status. *Placing small seeded forages too deep will result in stand failures.*
- *Check seed distribution pattern.* When using a spinner type spreader/seeder make sure and check your spreading pattern. In many cases small seeded forages are not thrown as far as fertilizer. This can result in strips of clover in your pastures rather than a uniform stand. Also check your seed distribution pattern. Single disk spinners often throw more seed to one side if not correctly adjusted.
- *Control Post-Seeding Competition.* Failure to control post-seeding competition is one of the most common causes of stand failures. Clip or graze the existing vegetation to a height just above the developing seedlings. This must be done in a timely manner to ensure that the competing vegetation does not get ahead of the seedlings.
- *Pray for rain.* Lastly and most importantly pray for rain. We can do everything just right, but if it doesn't rain success will be unlikely.

Forage Seeder Calibration at a Glance

- ✓ Planting too much seed increases establishment costs.
- ✓ Planting too little seed results in thin stands, increased weeds, and lower yields.
- ✓ Seeding charts can vary greatly from actual seeding rate.
- ✓ Seeders should be calibrated under field conditions whenever possible.
- ✓ The area covered and amount of seed dispensed must be known for calibration.
- ✓ **Seeding rate = amount of seed ÷ area covered**
- ✓ Area covered (acres) = seeder width (ft) x distance traveled (ft) ÷ 43,560
- ✓ Determining amount of seed (always tare scale for weighing container):

Collection: Seed is collected for a known area.

Difference: The difference between the original

For more information on frost seeding contact your local extension agent or visit Kentucky Forages at <http://www.uky.edu/Ag/Forage/>.

Why Antibiotics Fail

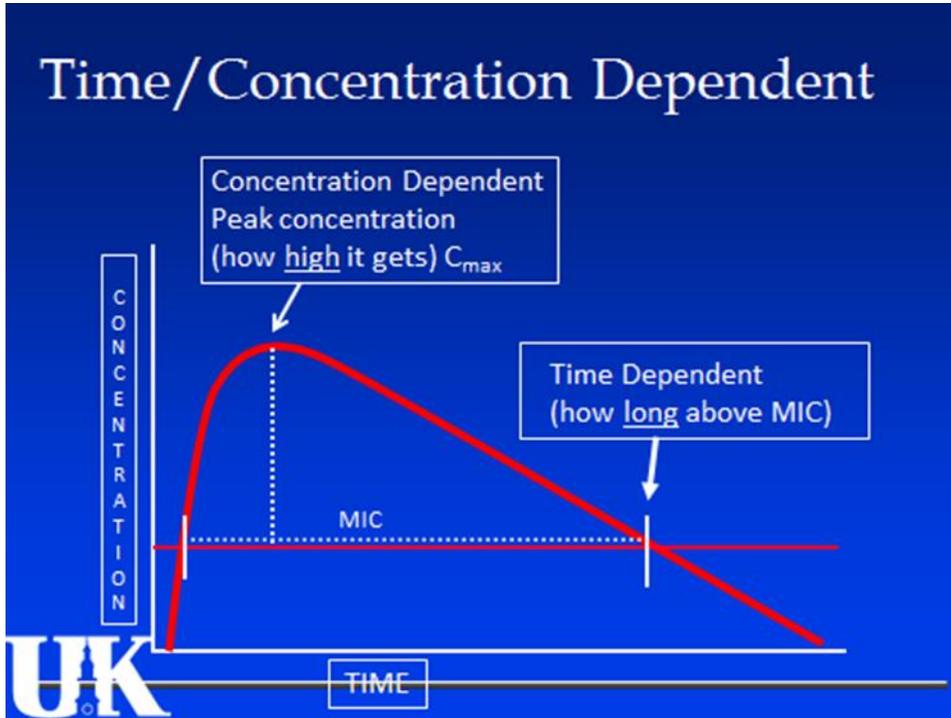
Michelle Arnold, DVM (Ruminant Extension Veterinarian, UKVDL)

Bovine respiratory disease (BRD) continues to be the most common cause of feedlot death loss, despite improved vaccines and expensive long-acting antibiotics formulated specifically against the bugs commonly found in a diseased bovine lung. Beyond death loss due to severe pneumonia, the costs of treatment (antibiotics) and prevention (vaccines), loss of production, and reduced carcass value in chronic cases must also be considered to understand the full economic loss to the industry. In the face of these challenges, consumers are increasingly demanding reduced antimicrobial use in the production of wholesome beef. The FDA, concerned that overuse of antibiotics in animals will create resistance and reduce their effectiveness in people, has already limited the use of antibiotics in feed through the Veterinary Feed Directive. Many cattle producers are concerned injectable antibiotics may be FDA's next target. While antibiotic resistance does occur, it is not the only reason for treatment failure. Given the need to continue using antibiotics in food-producing animals, it is

important to review their correct usage and why antibiotics may fail to work.

BRD relies on the mixture of host susceptibility, pathogens (viral and bacterial) and the environment to cause disease. *Mannheimia hemolytica* (formerly known as *Pasteurella hemolytica*), the most common bacteria found in bovine pneumonia, is an opportunist that gets in the lungs when the calf's defenses are down due to a respiratory virus and stress. Weaning, co-mingling, transportation, castration and dehorning, bad weather, overcrowding, and poor quality air are known to compromise a calf's immune system. A persistently-infected (BVD-PI) calf in a pen results in continuous exposure of the pen mates to the BVD virus and a constant reduction in their ability to fight sickness. Lightweight calves weaned on the truck that have not begun eating and drinking are at exceptionally high risk for disease and death. Each of these situations leads to poor antibiotic response.

It is important to understand why successful treatment of pneumonia is not simply a matter of grabbing a bottle of the latest and greatest antibiotic, drawing up a dart-full, shooting it in the sick calf and waiting for the magic bullet to take effect. Instead, full recovery is a joint effort between the calf's immune system and the selected drug to stop the growth of bacteria and destruction of lung tissue. Antibiotics hold bacterial growth "in check" and give the calf's immune system time to gear up and effectively fight the disease. Treatment failure may be due to calf factors including overwhelming stress, infection with BVD virus, or nutrition-related factors such as trace mineral deficiencies or subacute ruminal acidosis. Sound nutrition and management, especially around weaning, will substantially increase the response to antibiotics. Calves vaccinated 2-3 weeks pre-weaning against respiratory viruses are known to respond faster and better to antibiotic therapy if needed. A good environment with plenty of shade, space, clean water and bunk space reduces stress. Identification and removal of PI calves is accomplished through a simple, inexpensive ear notch skin test. Trace mineral deficiencies can be addressed quickly through an injectable trace mineral supplement while calves are transitioning on to a trace mineral mix.

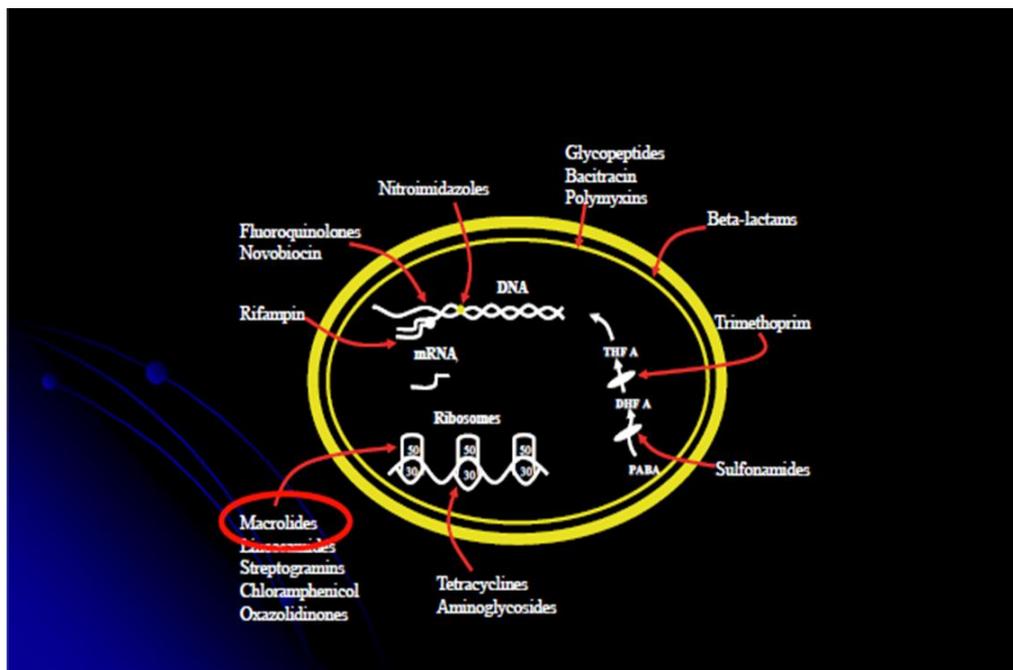


Treatment failure due to human errors may include poor timing, use of the wrong drug, improper dose or route of administration, mishandling issues or failure to recognize treatment response. Timing is crucial; if calves are treated early in the course of disease, almost any antibiotic will work. Conversely, if calves are treated late in the course of the disease, nothing will work. In addition to timing, dosage is crucial because antibiotics only work if they reach concentrations above the minimum inhibitory concentration or "MIC". Figure 1 graphically displays the difference between antibiotics that are considered "time dependent"

(effectiveness depends on exposure to the drug for a certain length of time) versus "concentration dependent" (bacteria must be exposed to a high concentration of the drug). If label

directions are not followed and only a partial dose is administered or perhaps a second dose is required but not given, the drug is unlikely to work effectively because it cannot reach the necessary minimum target concentration. Selection of the best antibiotic class or "family" is an equally important success factor. Figure 2

is an illustration of the mechanisms antibiotic classes use against bacterial cells. Beta-lactams



(penicillin, Excede®, Naxcel®, Excenel®) cripple production of the bacterial cell wall that protects the cell from the external environment. Aminoglycosides (gentamicin) and Tetracyclines (LA-300®, Biomec®, and many others) interfere with protein synthesis by grabbing on to the machinery in the ribosome needed to build proteins. Macrolides (Draxxin®, Micotil®, Zactran®, Zuprevo®, Tylan®) and Chloramphenicol derivatives (Nuflor®) also interfere with protein synthesis although at a

Figure 2: Drawing of a bacterium illustrating the ways different “classes” of antibiotics attack them.

different location on the ribosome. The Fluoroquinolones (Baytril®, Advocin®) block genetic replication by interfering with DNA and RNA synthesis. Why is this information important? If a calf requires retreatment, selection of an antibiotic from a different class will attack the bacteria through a different route and often enhances treatment response. Another good example is treatment for *Mycoplasma bovis*, a bacterium frequently found in chronic pneumonia cases. Mycoplasma has no cell wall so treatment with a Beta-lactam (such as penicillin or Excede®) will prove absolutely useless. A veterinarian is well-trained in antibiotic selection and is the best source of information when choosing therapy. Another issue that may affect success is mishandling the product; an antibiotic that gets too hot or is allowed to freeze inactivates the drug in most cases. Sometimes treatment failure is not a “failure” but rather an inability to recognize recovery. A calf that is eating, drinking and looks better after treatment but still has a slight fever often just needs time, rather than more medicine, to fully recover since fever is one of the last clinical signs to disappear.

Strategic and correct use of antibiotics will continue to be of importance for the cattle industry from this point forward. Careful attention to timing of treatment, drug selection, dose, and handling of the product will reduce the human factors that contribute to antibiotic failure. Calf factors including overwhelming stress, infection with BVD, environmental or nutrition-related disorders must be minimized in order for the calf’s immune system to work effectively with the antibiotic to stop disease in its tracks. Judicious or proper use of antibiotics will ultimately curb the development of antibiotic resistance and help protect human health, a win-win situation

Beef Herd Expansion Continues Despite Lower Prices

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

USDA’s annual estimate of the number of cattle in the US held some surprises this year. While this report is typically not a short-term market mover, it has considerable implications in the long-term as we consider the size of the US cowherd. It was not surprising that the US beef herd grew over the course of 2016, but it did grow at a rate that exceeded most expectations. According to the report, US beef cow numbers grew by 3.5% from January 1, 2016 to January 1, 2017. This represents a little over one-million cows, after a slight downward revision to the January 2016 estimate. The immediate implication is for even more calves moving through markets this year than expected.

As I have talked with producers across the state, many seem extremely surprised by this change in national numbers. I think much of that surprise stems from the fact that we didn't see the same pattern in KY. The USDA estimate for our state was very consistent with our expectations as Kentucky cow numbers were relatively flat. However, we also have to remember that while Kentucky is home to more than one-million beef cows, this only represents about 3.3% of the US beef cowherd. Considerable growth in beef cow numbers was seen in Texas, Oklahoma, Missouri, Nebraska, and Kansas and this really worked to drive the national inventory.

Heifer retention provides us an indication of future herd growth expectations and does suggest more moderate expansion for the current year. The number of beef heifers held for replacements was up by a little more than 1%. Ultimately, weather and profitability at the cow-calf level will determine where beef cow numbers go in the future. While both are difficult to predict, it is worth thinking about factors that will impact calf prices for 2017.

Let's start by getting on the same page about 2016. The calf market reached a bottom in late October / early November with Medium / Large frame #1-2 steers selling around \$120 per cwt on a state average basis. Obviously, larger high quality groups did much better than this and smaller groups and singles did much worse, but that should help set the baseline. Those same steer calves, in early February of 2017, were selling in the low \$130's on a state average basis and are very likely to continue to see price increases as we move towards grass this spring. The seasonal increase in calf prices that typically occurs from fall to spring is driven by stocker demand, not a change in the fundamentals of the beef market.

As we think about expectations for fall 2017, we have to think about what fundamental market factors will be different this year. We are very likely to see increases in beef, pork, and poultry production for 2017, all of which will put pressure on fed cattle prices in the foreseeable future. This expectation can be seen by looking at CME© Live Cattle futures, which are currently trading into April 2018 and suggest declining fed cattle prices over this time period. As we sell feeder cattle in the future, they will be sold with an expectation of lower values at their eventual harvest, which will make them less valuable for placement into finishing programs.

While I know the general tone of this article has not been encouraging, I have always preferred a direct and straightforward approach. Barring something unexpected, I don't think we have seen the bottom of the calf market yet. Cost control and efficiency are usually keys in these types of markets. Here are a few ideas that might be worth consideration.

First, truly work to understand your cost per cow. Leave it to an economist to start with this one, but it is impossible to manage what you don't measure. Through tracking of expenses, producers can get a feel for what it costs them to maintain a cow for a year. Then it is easy to consider what calf prices need to be to cover those costs and leave you with an acceptable return.

Second, don't be afraid to cull hard. With calf markets as high as they were in 2014 and 2015, it was possible to justify keeping some poorer producing cows around. In the current market, cows really need to earn their keep. Additionally, reducing your stocking rate has the added benefit of allowing you to stretch your grazing season and reduce your dependence on winter feed.

Third, consider post-weaning programs. There appears to be some premium right now for weaned and well managed calves which, when combined with weight gain, might make pre-conditioning programs attractive. Again, this is one where you want to push the pencil, but it is common for these programs to become more attractive when there are more calves on the market.

About two years ago, I was talking about how decisions that we make during good times have implications for how we get through the challenging times. I really wish that I could have talked about that a lot longer, but here we are already, talking about challenges. The decisions that we make today, will have implications for us

several years from now. As you manage your way through 2017, be sure to think about where you want to be in 3-5 years.

The USDA report is summarized in the table below and the full report can be accessed at: <http://usda.mannlib.cornell.edu/usda/current/Catt/Catt-01-31-2017.pdf>

USDA January 1, 2017 Cattle Inventory Report

	2016 (1,000 hd)	2017 (1,000 hd)	2017 as % of 2016
Total Cattle and Calves	91,918.0	93,584.6	102
Cows and Heifers That Have Calved	39,476.2	40,559.2	103
Beef Cows	30,165.8	31,210.2	103
Milk Cows	9,310.4	9,349.0	100
Heifers 500 Pounds and Over	19,907.3	20,052.0	101
For Beef Cow Replacement	6,340.2	6,419.2	101
For Milk Cow Replacement	4,814.0	4,754.0	99
Other Heifers	8,753.1	8,878.8	101
Steers 500 Pounds and Over	16,315.4	16,353.5	100
Bulls 500 Pounds and Over	2,142.4	2,233.6	104
Calves Under 500 Pounds	14,076.7	14,386.3	102