

OFF THE HOOF

Kentucky Beef Newsletter June 2016

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 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. Cows should 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 cows at weaning time
 - 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 on the basis of:

- 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.
- 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.
- 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.
- Prevent/Control pinkeye
 - consider vaccinating,
 - control flies,
 - clip tall, mature grass,
 - treat problems quickly.
- 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.
- 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.
- Maintain a clean water supply and check it routinely. Water is extremely important in hot weather.

Problems Beget Problems!

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

Did you hear about the guy that got his nose broken in six places? He said that he needed to quit going to those places! Cattle producers are a lot like that guy. We keep making a lot of the same mistakes. However, there are some problems that we should work to eliminate in our effort to have “trouble-free” cow herds.

Let’s start with a few things that should be obvious. Cows should be selected for small teats and tight, clean udders. We could quit milking cows that have just calved to reduce the size of their teats enough that a newborn calf can suckle. Hopefully, you don’t have to get cows in the barn when they calve. Cull cows with big, bulbous teats – don’t keep breeding them. Problems beget problems.

Those large, loosely attached udders that cows drag through the mud and manure should be eliminated, too. Not only are they difficult for a newborn calf to nurse they are a good source of pathogens that can cause scours. Cull those cows. The most important thing that a cow will do is raise a calf. Don’t stack the deck against calf survival.

There’s something else that I don’t do anymore – not just because I’m older, either. I don’t trim hooves. I have done that some in the past. But that was years ago, possibly because we had horses and there was usually some hoof trimmers around. But don’t do it! Select for sound feet and legs. Give those “ski-footed”,

“screw-clawed” bulls and cows a shot of “trailermycin”! Problems beget problems.

Don't tolerate bad dispositions, either. A rogue bull or cow will tear-up more than they are worth – and, possibly, injure you in the process. The breeding program is the best place to start. Select animals that are not problems and don't propagate those that are. Cull behavioral problems. Some folks once believed that aggressive bulls were better breeders or crazy cows were more maternal. Don't buy that. Docility also affects performance even in feedlot cattle. Start evaluating young cattle the first time that you work them and cull those with poor dispositions at weaning because ... problems beget problems.

What about “pulling” calves (assisting calves being born)? Hopefully you are only pulling some that are presented abnormally. Cows/heifers should be bred, managed and selected so that they can have a normal calf. Bulls should be used that will sire normal sized calves. Breed virgin heifers with normal pelvic areas to known calving ease bulls. We, at the UKREC, pulled two calves out of 155 births last year. It hasn't been too many years ago that cattlemen would pull about one-third of calves from heifers. We can minimize assisting cows at parturition and sleep a little better.

What about cows that don't claim their calves. Cows can get mixed up when several are calving at the same time in the same area. I can understand them claiming the wrong calf but I expect them to claim something! If they don't/won't “pair-up”, go ahead and save the calf. Then sell both of them – as singles.

How much dehorning do you do? No much anymore. Yes, we can successfully breed the horns off cattle. Dehorning is another procedure that can be avoided. Castrations cannot be avoided in most operations and should be done as soon as possible.

If you are in the business for the long haul, you need to continually breed for and select for cattle that are trouble-free, culling those that are not. It will pay off both economically and in personal satisfaction. Eliminating problems in your herd is a continuous process.

My rule of thumb is that your 2-year old's should breed back early (1st or 2nd cycle), maintain good body condition, wean a good calf and require no extra attention. If this is happening in your herd, your breeding and nutritional programs are pretty well matched. Congratulations.

Pasture to Plate Session 2

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

The Pasture to Plate program follows a group of calves from yearling age through the feedlot all the way to the plate. Participants in the program learn about the proper management of feedlot cattle including information on nutrition, health, marketing and environmental stewardship. They also learn the proper way to evaluate cattle in terms of their level of condition and when they are properly finished. This program then takes the additional step of evaluating the carcasses from a lean to fat standpoint and from an eating quality standpoint. There are a total of four sessions, Session one has been completed and the dates for Session 2. You are not required to have attended Session 1 in order to participate in the remaining sessions; everyone is welcome. Session 2 will be at the following locations on the corresponding dates:

Princeton – July 7

Eden Shale – July 12

Morgan County – July 13

This session will include information on feeding, health, environmental stewardship, ultrasound technology and live animal evaluation. Start times will be 5:00pm local time. Please check the website for directions. If you did not attend Session 1, or would like to refresh your memory of how the cattle looked at that time please check out the videos of the cattle on the website:

<http://www.kybeefnetwork.com/pasture-to-plate.html>

For more information contact Darrh Bullock (dbullock@uky.edu; 859-257-7514) or Jake Gankofskie (jgankofskie@kycattle.org; 859-278-0899).

Dealing with the Effects of Fescue Toxicosis **Michelle Arnold, DVM (UK Ruminant Veterinarian)**

Tall fescue (*Lolium arundinaceum* (Schreb.) Darbysh.) is a cool season, perennial grass. The KY-31 variety is usually infected with the fungal endophyte *Neotyphodium coenophialum* (also called *Epichloë coenophiala*) which grows within the intercellular spaces of the leaf sheaths, stems, and seeds. An “endophyte” is a fungus or bacteria that lives entirely within the tissue spaces of plants and is only visible microscopically. The plant and fungus enjoy a symbiotic relationship; mutually beneficial to both organisms. The fungus has free access to the plant’s nutrients and the plant provides a means for the endophyte to reproduce through infected seeds. The fungus, in turn, produces chemicals (ergot alkaloids) that function as chemical defenses, making the plant more vigorous, pest-resistant, drought-resistant, and tolerant of many adverse soil and environmental conditions. Often KY 31 tall fescue is the only grass that can survive and thrive in poor conditions. The endophyte produces a variety of ergot alkaloids, of which ergovaline is the primary concern and accounts for approximately 80-97% of the alkaloids in tall fescue. The highest ergovaline concentrations are found in the stem and seed head. Hay containing infected seed heads can remain high in ergovaline even when stored over several years.



Summer Slump-Photo M. Arnold (University of KY) The expected response to hot summer temperatures is an increase in blood flow to the skin and extremities in order to remove heat from the body core to the skin surface. However, with fescue toxicosis, the blood flow to the skin is reduced by the constrictive effects of the ergot alkaloids on the blood vessels, severely limiting the ability of the body to cool itself.

“Fescue toxicosis” is the general term used for the clinical diseases that can affect cattle consuming endophyte-infected tall fescue. The most important in KY is a syndrome frequently referred to as “summer

slump”. Affected cattle appear hot with labored respiration (open mouth and/or rapid breathing) and excessive salivation. They avoid grazing during the day, and seek shade or mud wallows to find relief from heat. External signs in cattle include poor growth or weight loss due to decreased feed intake, a dull rough hair coat caused by failure to shed the winter coat and excessive growth of hair, and decreased milk production. Internally, the alkaloids cause vasoconstriction or narrowing of the arteries which leads to poor blood supply to many body systems, causing increased body temperature (hyperthermia), decreased prolactin levels and decreased conception rates. Cattle ultimately spend less time grazing and more time hiding in the shade. Economically, producers can expect reduced pregnancy rates, longer breed back intervals and lighter calves at weaning. Clinical signs vary depending on the genetic makeup of the cattle, the environmental conditions, and the level and duration of the exposure. Cattle may show a vasoconstrictive response to the alkaloids in as little as two days after initial exposure and may stay constricted for up to 6-7 weeks after removal of the animal from infected pasture. The clinical signs may be more severe if tall fescue or other grasses have developed black ergot bodies in place of the seed caused by the fungus *Claviceps purpurea* which also causes vasoconstriction.

“Fescue foot” is dry gangrene of the extremities (usually hooves) that occurs due to narrowing of the blood vessels supplying blood to these distant areas. This syndrome is much more prevalent in areas other than KY. It generally occurs in late fall or winter when environmental temperatures are cooler. Vasoconstriction affects the hind limbs first. Signs include shifting hind limb lameness, unthriftiness, and finally necrosis (dry gangrene) of the hooves. The affected portions of the hoof will fall off or “slough”. Tips of the ears and tail may also be affected.

Photo by Eldon Cole, University of Missouri Extension-Fescue Foot



A third syndrome, known as “Fat necrosis” or “lipomatosis”, has been observed with chronic fescue toxicosis and is associated with masses of necrotic fat in the abdominal and/or pelvic cavities. These hard areas of fat can obstruct the birth canal and contribute to calving difficulties. Hard fat masses in the abdomen may lead to intestinal blockage. These conditions may be diagnosed with rectal palpation or may be found at necropsy.

Several management practices can be used to improve cattle production on toxic endophyte-infected tall fescue. The highly toxic seed heads are selectively grazed when they are immature and moderately digestible. These seed heads can be regularly mowed or chemically suppressed with Chaparral® herbicide (active ingredient: metsulfuran-methyl). Reductions in seed presence can easily reduce toxicity of the overall forage since ergovaline concentrations are 3-10 times greater in the seed heads than the leaf blades or sheaths. Removing seed heads is an effective tool to manage cattle on pasture without having to get rid of an existing stand of tall fescue. Steers grazing endophyte-infected tall fescue treated with Chaparral to suppress the seed head development had a 39% greater average daily gain (ADG), much higher serum prolactin levels and much lower rectal temperatures than steers on untreated fescue. Rotational grazing will be necessary to accommodate the reduction in forage production when seed heads are suppressed. Additionally, stocking rates may need to be re-evaluated since cattle increase forage consumption when fescue toxicosis is mitigated. Careful attention to soil test recommendations for fertilizer and good weed

control are necessary to sustain the stand when tall fescue is grazed hard or it will not persist. When application of Chaparral® is timed for seed head suppression (late April to early May), it will also control winter annual weeds and other early season broadleaves.

Providing pasture with a diverse mixture of forage species will reduce the impact of fescue as animals will selectively graze other forages. Interseeding legumes into endophyte-infected tall fescue pasture can benefit animal performance mainly through better diet quality and dilution of ergot alkaloids. Legumes can improve grass-based forage programs by increasing yield, improving quality, improving summer production, and converting atmospheric nitrogen into a form the plant can use, reducing the need for applied nitrogen fertilizer. Secondary plant metabolites, such as isoflavones produced by red clover, have been found to help alleviate the constriction of blood vessels. February is the month to frost seed clovers in KY or use a no-till drill when seeding between early March and early April. Supplementation with grain or coproduct feeds has also been found effective in reducing the observed effects of toxic fescue. Five pounds per head per day of soy hulls has been found quite effective, especially when calves have an estradiol implant placed in the ear.

Replacement with new grass is a longer term solution to the KY 31 problem. Use of tall fescue varieties artificially infected with novel or “friendly” endophyte strains that do not produce toxic ergot alkaloids result in greater average daily gain (ADG), lower body temperatures, and slick hair coats. These friendly endophyte pastures have slightly decreased carrying capacity but overall greater body weight gain per acre than toxic fescue pastures. In Kentucky, novel endophyte varieties have shown 10+ years of stand survival under good management. A new variety called “Lacefield MaxQ II”, named after Dr. Garry Lacefield (Extension Professor Emeritus at UK), was recently developed and will be marketed soon by Pennington Seed. In university trials, steers grazing Lacefield MaxQ II showed no decrease in serum prolactin levels or increased rectal and skin temperatures as compared to steers grazing KY 31. Careful grazing management is required during periods of slow pasture growth because cattle will continue to graze these fescue stands “into the ground” without the alkaloid present. Endophyte-free varieties are less tolerant to stresses such as drought, low soil fertility and overgrazing and rapidly deteriorate without excellent management. Stand life of endophyte-free varieties is similar to orchardgrass. Regardless of variety, good grazing management practices will be necessary for free and novel endophyte tall fescue to persist when grazed in the late spring or summer.

Perhaps the most effective way to avoid fescue toxicosis is to avoid fescue completely during the most harmful times. This is accomplished by moving cattle to warm season grass pastures or alfalfa during the late spring and early summer when seed heads are present in the stand and cattle are the most vulnerable to severe heat stress and depression in performance. Summer annual grasses such as sudangrass, sorghum x sudangrass hybrids, pearl millet and teff are warm season forage crop options. Alfalfa can be used for grazing throughout most of the grazing season including summer. This management technique provides grazing during active growth of the warm-season grasses and/or alfalfa when there is a decline in tall fescue growth.

In summary, fescue toxicosis is due to a fungal endophyte within the tall fescue plant which produces ergovaline, a compound that causes profound constriction of blood vessels in cattle. The hallmark effect of this vasoconstriction is hyperthermia or elevated body temperature which most often results in poor animal

growth and weight loss. Accumulation of the alkaloids in the tissues may cause the vessels to stay constricted for up to 6-7 weeks after removal of the animal from infected pasture. Solutions to the problem may include replanting endophyte-infected pastures with cultivars infected with novel or friendly endophyte or endophyte-free seed, diluting infected pastures with other grasses or legumes, suppressing seed head development through mowing or spraying, or using warm season grass pastures or alfalfa in late spring and early summer instead of fescue as the main forage source. Regardless of forage type, it is essential to always provide a complete mineral mix to ensure adequate intake of the trace elements year round.

Guidelines for tall fescue testing

The diagnosis of ergot alkaloid-associated problems is based on clinical signs as well as forage testing. There are two major options for testing of tall fescue: one is to determine the level of fungal toxins in pasture plants (“Ergovaline testing”), and the other is to determine the percentage of plants infected with the toxin-producing endophyte fungus in a particular field (“Endophyte testing”). Each test provides different information. Details on sample collection can be found at:

<http://www.uky.edu/Ag/Forage/ForagePublications.htm#Tall> Fescue. Information may also be found in the University of KY fact sheet PPA-30 entitled “Sampling for the Tall Fescue Endophyte in Pasture or Hay Stands” which is available at the local cooperative extension office or on the web at <http://www2.ca.uky.edu/agc/pubs/ppa/ppa30/ppa30.pdf>.

1. **Ergovaline testing:** To determine the levels of endophyte-associated toxins in the fescue forage, ergovaline testing can be performed. Testing for other endophyte-associated toxins can also be done, but ergovaline is the toxin of highest concentration and is thought to be the toxin of most concern. This test can be performed at the University of Kentucky Veterinary Diagnostic Laboratory Toxicology section. Please see the UKVDL website <http://vdl.uky.edu/> for submission forms and shipping information.

Sample collection: Each pasture or field should be sampled separately. To collect samples, randomly select 20 to 30 separate sites within a pasture and pull out a handful of grass, including some root material and the entire plant above ground. Walk in a zig-zag pattern through the field to get samples. Some suggest walking the field in a W fashion and collecting a large handful of pasture grass at the five ends of each “W”. Samples for ergovaline testing should be placed on ice immediately after collection and kept on ice until either shipped or placed in a freezer for storage until time of shipment. Samples should be shipped on ice by overnight courier, or else delivered directly to the laboratory by the client. Samples need to be taken when plants have been growing well for at least a month, so early summer is a good time for testing.

Ergovaline concentrations vary among different fields even with the same grass variety. Levels also vary from season to season and from year to year. Increased fertilization can increase ergovaline concentrations, as can stressful growing conditions. Ergovaline concentrations vary by part of plant, with seed heads typically containing the highest concentrations. One batch of samples collected at one time cannot be considered representative of the field at all times over the year.

2. **Endophyte testing:** To determine the percentage of plants infected with the toxin-producing endophyte fungus in a particular field, endophyte testing can be done. There are several laboratories that do this

test, including the University of Kentucky Regulatory Services laboratory. This test indicates how heavily infected pastures are, but does not give information on the levels of the endophyte toxins. Please see the University of Kentucky Regulatory Services website (<http://www.rs.uky.edu/>) under the “seed” tab for more information on sample collection and submission for endophyte testing. Note: the UK Regulatory Services accepts samples only from Kentucky farms.

EKY IRM Update Summer 2016

Mr. Ben Crites, IRM Coordinator, University of Kentucky

The Eastern Kentucky IRM program has been implemented in herds all across Eastern Kentucky for just over a year now. The objective of the program is to stimulate long term behavioral changes in management practices designed to increase reproductive performance. The program is comprised of two parts for educating producers; classroom instruction is combined with on-farm, hands-on demonstrations. Producers involved are divided into three main categories. Those that the cows are exposed to the bull 365 days and moving to one or two controlled calving seasons, those with extended calving seasons and wanting to shorten them, and those with a controlled calving season and looking to investigate implanting AI. For each producer involved in the program, a comprehensive personalized farm plan is developed by UK specialists. The plans are then implemented at each farm through the hands-on demonstrations by the program coordinators.

During the first year, 82 producers were enrolled in the program. These producers represented 37 different counties with a total of 1,798 cows. There were 36 producers moving from cows exposed to a bull year round to a controlled season, 21 producers moving from an extended to a controlled calving season, 19 producers with a controlled season and wanting to increase their reproduction efficiency, and 6 producers who implemented artificial insemination on only their heifers. Synchronization protocols for natural service and artificial insemination were both used during the spring and fall breeding seasons. The average conception rate in these herds increased 6% from 83% to 89%. We estimate that the average calf age will be increased by 76 days and calves should weigh approximately 150 more pounds at weaning. When taking into account the increased conception rate and additional revenue from calves that are older and heavier, assuming a 600 lb sale weight and a price of \$169.515/cwt the estimated total economic impact of the program is \$522,158.41. This equates to an average of \$6,367.79 per producer.

The EKY IRM program has received lots of positive feedback from both producers and agents alike. Almost all of the producers that participated last year, continued with the project this year as well. So far this spring, there has been close to 35 additional producers enrolled in the program from three additional counties. With the spring breeding season coming close to an end, we are currently working on a more detailed analysis of the impact that has been made to the producers involved in Eastern Kentucky.

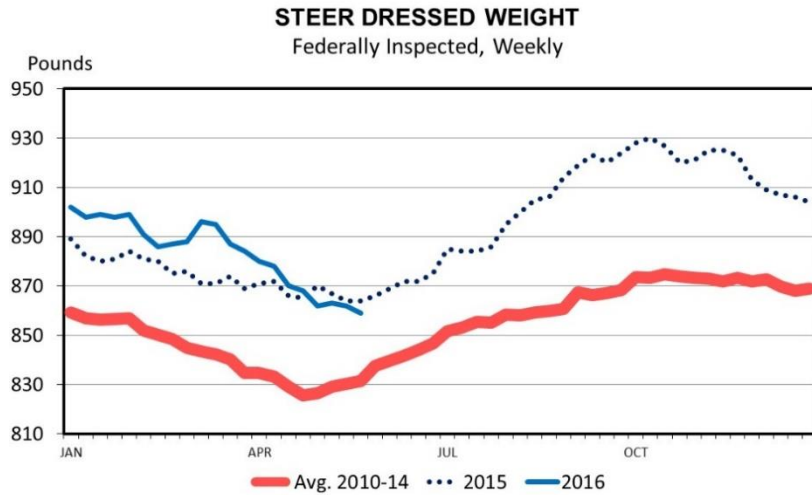
Kentucky Beef Cattle Market Update

Kenny Burdine, Livestock Marketing Specialist, University of Kentucky

This spring market continues to be one that can't seem to make up its mind. As I write this (6-14-16), the feeder cattle market has given back most of its gains from the previous week. The futures market continues to suggest lower prices from summer to fall, and the August contract continues to trade at a discount to the CME® feeder cattle index. For the week ending June 11th, 550 lb steer calves were moving in the mid-upper \$150's on a state average basis, with some larger groups well into the \$160's. At the same time, 850 lb steers were largely trading in the \$140's.

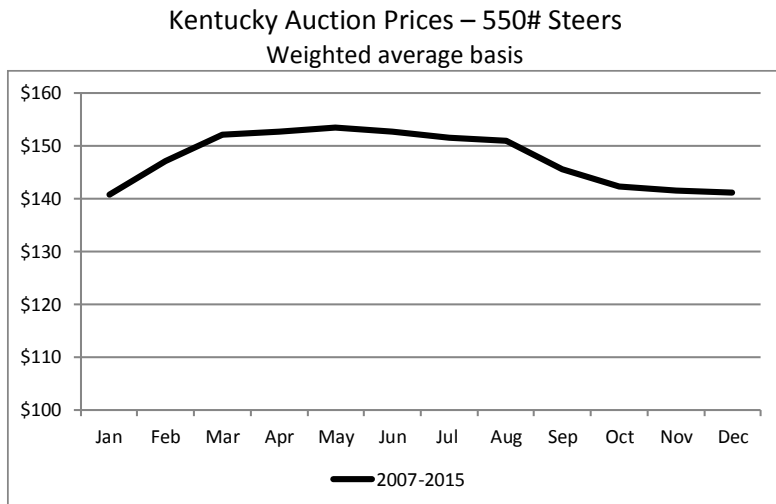
We talked a fair amount about dressed weights last month, so I wanted to show that chart again. Note that weights have continued to drop and are now below 2015 levels, though they still remain well above the

2010-2014 average. Marketings have been running high and it is likely that higher feed prices have led to moving cattle to slaughter a bit sooner. We also talked last month about cattle on feed numbers and some trends that I was watching. The May cattle on feed report showed a continued drop in the number of cattle on feed over 120 days, but a slight increase in the number of cattle on feed over 90 days. Placements of cattle above 700 lbs continues to run above year ago levels. In general, I think the market is moving toward becoming more current, which was a good deal of our problem in the first half of this year.



Data Source: USDA-AMS and USDA-NASS
Livestock Marketing Information Center

I also wanted to talk a little bit about historical calf prices as I think it may be an important item for consideration in the coming years. As I travel the state and talk with cow-calf operators, most are incredibly frustrated with the current market. This is understandable given how quickly the market has fallen since 2015, but many of them make statements suggesting they can't cover their costs on this market. While cost structures are highly variable and some may well be such that the current market is not profitable, I think it is important to understand that our current calf market is not that far from what might be considered normal. The following chart shows historical prices for a 550# steer in Kentucky from 2007 to 2015 (this price data comes from USDA-AMS and this is as far back as I have it for the weighted average approach that is currently used). You'll note that our current calf market is actually slightly above this 9-year average today.



Source: USDA-AMS, author calculations

When I show this chart in county settings, it is typically not well-received because everyone wants to believe

that our calf market needs to move back above \$2 per lb. However, 550# steers only sold for more than \$2 per lb on a state average basis for 19 months from March of 2014 to September of 2015. And, I maintain that our calf market reached those levels due to an extremely unique set of circumstances that extended the liquidation phase of the last cattle cycle.

As I write this, those 550 lb steer prices are actually at a higher level than they were in the summer of 2013. One of the messages that I usually try to get across is that the current calf market is a lot closer to “normal” than what we saw in 2014 and 2015. I understand the basic frustration producers have, but if cow-calf operations are truly not covering their costs in the current market, those producers really need to examine their cost structures to see what can be done. While a lot of factors can change forecasts, most indicators suggest that beef production will continue to grow, as will production of our competing meats. Given that, it is impossible to predict increasing calf prices over the next several years unless something fundamentally changes in the market.