Timely Tips
Dr. Roy Burris, Beef Extension Specialist, University of Kentucky

Spring-Calving Cows

- The spring calving season should be in full swing now, top priority should be to get a live calf and keep cows in sufficient body condition to rebreed early. Calving areas should be accessible and as clean and as free of mud as possible. Pastures which have good sod and are close to handling facilities work best.
- Check cows at least twice daily and first-calf heifers more frequently than that. Be ready to assist those not making progress after 1 to 2 hours of hard labor. Chilled calves should be dried and warmed as soon as possible.
- See that each calf gets colostrum within an hour of birth, or administer colostrum (or a commercial colostrum replacement) with an esophageal feeder, if needed.
- Identify calves with eartags and/or tattoos while calves are young and easy to handle and record birthdate and Dam ID. Commercial male calves should be castrated and implanted as soon as possible. Registered calves should be weighed in the first 24 hours.
- Continue grass tetany prevention. Be sure that the mineral mix contains magnesium and that cows consume adequate amounts. You can feed the UK Beef IRM High Magnesium mineral.
- Separate cows that have calved and increase their feed. Energy supplementation to cows receiving hay is necessary to prepare them for rebreeding. For example, a 1250 lb cow giving 25 lb/day of milk would need about 25 lb of fescue hay and 5 lb of concentrate daily to maintain condition. If you need to go from a condition score of 4 to 5, you will need to add about 2 more lb of concentrate. Cows must be in good condition to conceive early in the upcoming breeding season.
- Watch for calf scours! If scours become a problem, move cows which have not calved to a clean pasture. Be prepared to give fluids to scouring calves that become dehydrated. Consult your
veterinarian for advice and send fecal samples to diagnostic lab to determine which drug therapy will be most effective. Try to avoid feeding hay in excessively muddy areas to avoid contamination of the dams’ udders.

- Obtain yearling measurements on bulls and heifers this month (weight, height, pelvic area, scrotal circumference, ultrasound data, etc.) if needed for special sales. Heifers should be on target to be cycling by the start of the breeding season.
- Plan to vaccinate calves for clostridial diseases (Blackleg, Malignant Edema) as soon as possible. You might choose to do this at the prebreeding working in late April or early May.
- Finalize plans for your spring breeding program. Purchase new bulls at least 30 days before the breeding season – demand performance records and check health history including immunizations. Use visual evaluation and expected progeny differences (EPD’s) to select a bull that fits your program. Order semen now, if using artificial insemination.
- Prepare bulls for the breeding season. Increase feed if necessary to have bulls in adequate condition for breeding.

**Fall-Calving Cows**

- Bull(s) should be away from the cows now!
- Creep feed calves with grain, by-products or high quality forage. Calves will not make satisfactory gains on the dam’s milk alone after about 4 mos. of age – since there isn’t much pasture in March, fall calves need supplemental nutrition. Consider creep grazing on wheat pasture, if available. Calves can also be early-weaned.
- Calves intended for feeders should be implanted.
- Plan to pregnancy check cows soon. You can also blood test for pregnancy 30 days after bull removal.
- Consider adding weight and selling your fall calves as “heavy” feeder calves while prices are high. Keep them gaining! Prices are too high to waste time.

**General**

- Watch for lice and treat if needed.
- Repair fences, equipment and handling facilities.
- If you have a dry, sunny day, use chain-link harrow to spread manure in areas where cattle have overwintered. This may be done in conjunction with renovation.
- Renovation and fertilization of pastures should be completed.
- Start thistle control. They can be a severe problem in Kentucky pastures. Chemical control must be done early to be effective.

**Farmers Feed the World….Now**

*Dr. Roy Burris, Beef Extension Specialist, University of Kentucky*

In the 1800’s, one farmer grew enough to feed 3-5 people. In other words, maybe they produced enough to feed their family. By 1940, that number had grown to nineteen and was enough to feed a family with a little left over. If you wonder what farm life was like back in those days, I actually have some idea since the old family farmstead had some buildings from the Civil War era which gave a clue of what had gone on, and we still grew most of our own food in the 1950’s and 60’s when I was just a kid.
The “new” house and barn were built in the 1920’s by my great-grandfather but the farmstead was started by his grandfather and many of those buildings, and a lot of the lifestyle, remained for generations. It appeared to be a model of a self-sufficient lifestyle.

One of the oldest and most mysterious buildings on the homestead was the “old kitchen”. It dated back to a time when kitchens were separate from the living quarters – had two rooms, a cellar and a loft. The cellar was full of canned goods and even had canned sausage in it. Onions were tied in bundles with the tops on and hung up to dry – which accounted for some of its pungent aroma. The loft contained some old side-saddles, a dough board and a spinning wheel left over from a different era. Potatoes were spread out and covered with lime until they were needed.

An old blacksmith shop was falling down but an anvil, forge and some old tools remained from a time when everyone traveled by horseback and farm work was done with horses or mules. They were a critical part of farm operations. There were log corn cribs that were made from chestnut logs which were readily available before the chestnut blight of the early 1900’s. Corn was hand-picked from the river bottomland and fed to the livestock, especially fattening hogs, but the best ears of corn were kept to be ground into corn meal for family use (like cornbread).

That big, old tree outback near the pig pen was there for a reason, too. On a cold day in early winter there would be a “hog killing” and the hogs would be hoisted up to hang from a limb – after they were killed, put into the “scalding pan” and scraped. I would even get to stay out of school and help. No, I wasn’t traumatized by the event. I was just excited because I knew we would have fresh tenderloin with biscuits and gravy. There would be scrambled eggs with pork brains too, but I could do without that. The ham, shoulders, sausage and bacon went into the old smoke house for curing. Souse (head cheese) was made from “parts” too, but that was saved until the end of a long winter. It helped to be hungry before consuming that stuff.

There was a brooder house that was stocked with chicks every spring. I remember helping my grandmother “wring their necks” and pluck their feathers when they were large enough to eat so that we could have fried chicken for dinner (the noon meal) to go with fresh green peas, new potatoes (from the garden), wilted bibb lettuce/radish salad (from the tobacco plant bed) and corn bread. Good eatin’!

We had “free range” chickens before that was cool. There was a hen house with nests for the eggs and a “roost” so they could be put up at night – away from the foxes. “Gathering” the eggs was usually uneventful – unless there was a chicken snake in a nest. Any eggs that weren’t used at home were taken to the grocery to sell for a little “egg money”.

A big garden was essential to farm families. Our garden was plowed with a team of mules that were left over from earlier times. Their only function was to plow the garden and that, I think, was just an excuse to keep them around – they had apparently earned their keep before the tractor appeared.

Farm life was hard but if big families worked together they could make it and enjoy the fruits of their labor. But most family members started moving off farms to better paying jobs and the farmers that remained on the land became masters of efficiency. A farmer today feeds 155 people. Wow, just take a look at the supermarket aisles and see the abundance of food. Isn’t it time that everyone should thanks a farmer?
Recent Winter Weather Conditions Impact Kentucky Cow/Calf Herds and Producers
Michelle Arnold, DVM- Ruminant Extension Veterinarian (UKVDL) and Louis L. ‘Lucky’ Pittman, Jr., DVM- Veterinary Pathologist/Section Head (Breathitt Veterinary Center)

Near the end of most winters, diagnosticians at both the Murray State University – Breathitt Veterinary Center and the UK Veterinary Diagnostic Laboratory frequently receive diagnostic submissions for necropsy of aged beef cows – often broken-mouthed or toothless – that are heavily pregnant or are in peak milk production, 1-3 months after calving. These older cows are frequently in poor body condition (BCS 2-3) with no body fat stores and frequently have a rumen full of forage material (hay). These cows may be described as “bloating” by the producer. Despite having had access to free choice hay, these old girls have just ‘run out of gas’ with a belly full of hay and green grass just around the corner. However, this winter, we have been encountering these ‘malnutrition’ cases on a much more frequent basis, at a much earlier date, and are seeing young cows and pre-weaning/weaning age calves also affected, with some of the first cases fitting this description arriving at MSU-BVC in late December, and the UKVDL in February and continuing through the present time.

The winter of 2013-14 has presented long periods of colder temperatures and greater snow/ice cover than most Kentucky beef producers have encountered in the past 15-20 years. It is likely that winter feeding programs on many farms have been inadequate for pregnant/lactating cows and growing calves. We have observed increased submissions and telephone consultations with veterinarians and producers who are experiencing animals losing excessive body condition and/or dying of apparent malnutrition.

Numerous university studies have demonstrated that the lower critical temperature for cows with dry, heavy winter coat is 18F. If cows are wet, the lower critical temperature is surprisingly high, at 59F. For every degree that the environmental temperature drops below the low critical temperature, a cow must expend 2% more calories in order to maintain body heat and condition. Wind-chill effects due to wind speeds will further increase energy expenditure (for detailed information: http://www.omafra.gov.on.ca/english/livestock/beef/facts/07-001.htm). During extended periods of low ambient temperature (as we have experienced this winter), if producers are not supplementing cattle with adequate energy and protein sources, hay alone may not provide sufficient nutrition to meet the animals’ needs. This will result in depletion of body fat stores, breakdown of muscle protein, and death due to insufficient nutrition.

The Spring/Summer of 2013 presented good growing conditions with greater hay production than in recent years. However, poor cow performance in herds where winter feeding consists of hay only suggests that the hay produced was of poor nutritional content. Although hay may look good, unless a producer has had their hay tested for nutritional content, they do not know what the true feed value is. Producers need to realize that cattle can actually ‘starve to death’ while consuming all the hay they can eat, especially if crude protein levels are 3-4% and TDN is <30%. Remember, in the last 60 days of gestation, an adult cow (1200 pounds eating 2% of her body weight) requires at least 54-56% TDN and 8-9% available crude protein while an adult beef cow in the first 60 days of gestation requires 59-60% TDN and 9-10.5% available crude protein.

We have also received numerous calls and diagnostic submissions associated with ‘weak calf syndrome’ or full-term calves which were presumed to have been born dead. Almost without exception, these calves have been born alive, but never stood or nursed, and there have been no gross or microscopic lesions or pathogens identified in fetal tissues or placenta, which would indicate an infectious cause of mortality.
Dietary protein levels during the last trimester of pregnancy have been well-documented to play an important role in calf survivability. 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 had received adequate dietary protein during the last 100 days of pregnancy (for more detailed information: http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1151&context=rangebeefcowsymp). Calves born during unseasonably cold weather, with ice or snow on the ground, are at risk of chilling and death if they do not gain their feet and nurse soon after birth; inadequate energy and protein nutrition in the dam often leads to higher calf mortality in these conditions. Additionally, colostrum quality and quantity from protein- and energy-deficient dams may be less than optimal for best calf survival and performance.

It is evident that some producers in Kentucky have not provided adequate mineral supplementation to their cattle this winter, as copper and selenium levels in liver samples analyzed from a number of animals have been far below acceptable levels. Many of these cases have died of malnutrition and/or herd-wide outbreaks of respiratory disease (including pneumonia in pre-weaned calves). Additionally, we have seen a number of grass tetany/hypomagnesemia cases in early-lactation beef cattle consuming only hay suggesting that 2013 hay supplies may also be low in magnesium content.

It is important to understand that the winter of 2013-2014 has been exceptionally difficult for cattle in Kentucky and cows are “pulled down” much more than we typically see in late winter. This fact is why we are seeing an increase in death loss across Kentucky due to malnutrition in all ages of cattle and many stillborn and weak calves that do not survive. What has normally worked in years past (feeding cattle hay exclusively throughout the winter) will not necessarily work this year. Consider supplemental feed to help your cattle through the next month to 6 weeks until grass is growing and is past the “watery” stage. Energy AND protein are both crucial; protein tubs will not be sufficient in most cases to fulfill energy requirements. Contact a nutritionist or your herd veterinarian to review your feeding program. Adequate nutrition is not just important today but also down the road. Continued 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. Remember the old adage regarding the effect of winter on cattle, “February breaks them, March takes them.” Unfortunately, that could not be truer in the aftermath of the severe winter of 2013-2014.

Poor Quality Yields Poor Performance

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

The extremely wet spring in the southeast resulted in hay fields being cut late when forage was physiologically mature. Mature forage has greater fiber content and less protein than vegetative forage. The ideal stage of maturity for cutting our cool-season forages from a quality and yield perspective is from boot stage, just prior to seed head emergence, to early flowering. Digestibility rapidly declines as plants advance in maturity. Mature forage cut for hay yields a double whammy to the beef cow. The forage is lower in digestibility yielding less energy and has a slower rate of fermentation leading to decreased intakes. Thus, mature forage can greatly lower the nutritional balance of a cow.

How bad can it be? The only way to really know is to test the hay. Sample the hay and send it off for analyses to find out the quality and work with a nutritionist to develop a feeding strategy. Beef cows in fair to good body condition (4+) at weaning require a diet containing approximately 48-55% TDN and 7-8% crude protein. Why the range? Variation in condition, energetic efficiency, intake, and environmental
conditions impact the nutritional needs of beef cows. Much of the hay in Kentucky, Tennessee and other states in the upper Southeast is Kentucky 31 Tall Fescue infected with the wild-type endophyte. The alkaloids produced by the endophyte are generally highest in the seed heads and mature hay has plenty of these. These alkaloids can reduce forage intake beyond that of the physiological maturity of the forage. Thus, late cut wild-type infected tall fescue hay would need to be higher in energy concentration to offset this reduced intake. However, this is contradictory to the relation of forage maturity and energy availability.

In order to provide adequate ammonia for the microbes in the rumen to thrive and digest the fiber, it is generally stated that a level of 7% available protein is needed in the forage or diet. Several hay samples this year fell below this threshold. The bugs essentially hit the wall and fiber digestibility suffers. This leads to longer rumen retention times and lower intakes. This rumen digestive physiology fact is often the basis to the old adage of a belly full of straw and starving to death. A small level of protein supplementation in these deficiency cases improves forage digestion and energy balance. In plain words, late cut tall fescue is problematic for late gestation and early lactation as it will not meet the nutritional needs of the cow at these phases of production often requiring some form of supplementation. In many situations, correcting the protein deficiency by feeding 0.5 – 1 lb of protein will not rectify the energy deficit. For the extremely poor quality hay, the supplement level required to balance the energy and protein needs may be 7-9 pounds. A self-fed product supplying 0.75 lb of TDN a day is simply not able to compensate for the reduced energy contribution of the forage. By testing your hay and working with a nutritionist you can develop a strategic supplementation program.

This year’s poor hay quality coupled with the extremely cold winter temperatures is beginning to be seen. This low energy hay combined with the increased energy for maintenance to compensate for the cold stress has resulted in some cows being in a negative energy balance or simply in a state of malnutrition. Cows pull from body reserves to support the increased energy needs lowering their condition. Often the long hair coats tend to mask this tissue loss and cows enter the calving season thin. During the last trimester fetal development increases nutrient needs greatly. Protein deficiencies during gestation can lead to weak calves. Trace mineral deficiencies can also occur resulting in white muscle disease from low selenium and poor calf health. Cows will lose even more condition as they go through the first eight weeks of lactation if the forage quality is poor. This will lower milk production and lead to poor calf performance.

For 1,400 pound beef cows that are in their first month of lactation with a potential of 20 lbs of milk and receiving hay that is 48% TDN and 8% crude protein with an intake of 1.8% of their body weight, the current Nutrient Requirements for Beef Cattle publication would indicate the energy and protein deficit to be 5 lbs of TDN and 0.86 lbs, respectively. Assuming a 1:1 mixture of soyhulls and corn gluten feed would contain 78% TDN and 16% crude protein on a dry matter basis, it would take about 7 lbs of supplement to meet the maintenance needs. Cows in good condition at calving and having the body reserves will mobilize tissue to support lactation. Feeding less than the above level of supplement will be acceptable for cows with adequate reserves, but excessive mobilization of tissue can increase post-partum anestrus or the time from which she calves and comes back into heat. This lost time means lost pounds on the next calf crop. Cows that are thin at calving and lack the body reserves to mobilize to support lactation will suffer lower milk production, extended anestrus and in the most severe cases of malnutrition they may even die. To optimize reproduction, the research suggests cows should be consuming adequate nutrients to meet maintenance or slightly above.
As pasture green-up begins, don’t be fooled by the cow. The early forage will be extremely high in water content. There will be little dry matter per acre resulting in energy expended to walk the fields and in cases with lactating cows they quickly mobilize tissue losing more reserves than if they were maintained on hay until the grass was 3-4 inches before turning out. Fresh cows on lush forage should have access to high magnesium mineral supplement to prevent grass tetany as well. Cows and calves are too valuable not to provide them with adequate nutrition to avoid deficiencies.

The moral of the story, it is too late to prevent nutritional inadequacies after you see symptoms of deficiency. Be proactive, attempt to cut this year’s hay early and have all your hay tested this year. Then talk to your county agent, nutritionist or contact your beef specialist to develop a feeding strategy.

**Horned, Polled, Scurred: What’s the Big Deal?**

*Darrh Bullock, Extension Professor, University of Kentucky*

Are you confused about the genetics associated with horned, polled and scurred cattle? If so, you’re not alone. There are numerous popular press articles, Extension factsheets and breed association articles on scurs, but I was struck by the lack of consistency. There are a lot of misconceptions and confusion about horned/polled/scurred cattle and I will attempt to sort those out in this article, however, I am not completely convinced that we know the whole story, yet.

Horned feeder calves are not desirable; they are potential hazards for other cattle and the humans working them. For this reason calves with horns are discounted at the sale barn. Even though scurs pose no danger to other cattle or humans they are still discounted by many buyers. To avoid these discounts beef producers either have to breed them to be smooth polled or dehorn/de-scur their calves. If you plan to breed for smooth polled cattle it is important to understand the genetic action of the poll/horn gene and the scur gene, however, you will learn that avoiding horns is relatively easy, but avoiding scurs can be much more difficult.

The poll/horn and scur condition are caused by different genes, on different chromosomes, but there appears to be a relationship between the two. I will discuss the poll/horn condition first, since it is more straightforward, then I will tackle the scur condition and strategies for developing a breeding plan to eliminate horns and minimize scurs.

In Bos taurus (European breeds) cattle the horn/poll gene action is simple recessive with the poll allele (P) being dominant to the horn allele (p). Every parent has a pair of genes and they pass one of these genes to their calf; the calf gets one allele from the bull and one allele from the cow to make its pair. What this means is that if a calf get’s a polled allele from either parent then it will be polled. If it gets two polled alleles it is considered homozygous polled; if it gets one polled and one horn allele it will be physically polled, but it will be referred to as heterozygous polled or a carrier; if it gets two horned genes it will be homozygous horned and will be horned.

Since polled is dominant to horned, if you mate a homozygous polled bull to a group of females then all of the offspring will be polled. However, if you breed a polled bull that is a horn allele carrier to a group of cows then chances are you will get some horned calves. Of course if you have a horned bull that means he is homozygous for the horn allele and he will pass a horn allele to all of his calves and you will have a higher incidence of horned calves.
Bos indicus (Brahman) influenced cattle have an additional gene that complicates things called the African horn gene. This gene interacts with the normal poll/horn gene and is sex influenced. We are not going to discuss this condition, but it is a possible explanation when a bull is tested homozygous polled and has a horned bull calf there is a slight possibility that the African horned gene was introduced somewhere in his pedigree and not necessarily a mismatched mating or incorrect genomics test. Remember, reference to poll in this section means the absence of horns, the cattle could be scurred which we will discuss next.

Unlike the poll/horn trait, scurs is not a simple recessive trait and is not completely understood! The scur gene is sex influenced meaning that its action is different depending on whether it is a male or a female. In females the non-scur allele (Sn) is dominant to the scur allele (Sc), similar to polled and horned. However, in males the action is the opposite; the scur allele is dominant to the non-scur allele. Unfortunately, that is the simple part of this complex gene. The part that is less clear and causes the differing opinions in the scientific community is whether there is a relationship between the poll/horn gene and the scur gene or they are independent. Based on the limited scientific information available it appears there are actually three factors that determine whether a calf will develop scurs or not: poll/horn genotype; scur genotype; and the sex of the calf.

The first thing that should be very obvious is that horned cattle (pp) cannot have the scur phenotype. If cattle have the genotype for both the horned condition and the scurred condition they will always be horned. For a bull to develop scurs, it must be a horn allele carrier (Pp) and be either heterozygous for the scur allele (SnSc) or be homozygous for the scur allele (ScSc). For a heifer to develop scurs she must be a horn allele carrier (Pp) and homozygous for the scur allele (ScSc). For a bull to be smooth polled it must be either homozygous or heterozygous polled (PP or Pp) and homozygous for the non-scur allele (SnSn). For a heifer to be smooth polled it must be homozygous or heterozygous polled (PP or Pp) and homozygous or heterozygous for the non-scur allele (SnSn or SnSc).

There are genomics tests available to determine if polled cattle are carriers of the horn allele, but there are currently no genomics tests for the scur gene. From a practical standpoint, if you have a smooth polled bull and breed him to a group of cows; if any of his heifer calves have scurs then he is a scur allele carrier. However, if no heifer calves have scurs, even if the bull calves have scurs, then he may not be a carrier, but unless the bull is bred to a very large number of cows it is impossible to know for sure. At this time there is no absolute way to determine if a bull is homozygous for the non-scur allele. A common misconception is that a homozygous polled bull shouldn’t have scurred calves; it eliminates the possibility of horned calves (unless African horn allele is present) and reduces the incidence of scurs, but they can occur. If he has at least one scur allele (ScSn or ScSc) and is bred to cows that have the scur allele and the horn allele then it is possible for him to produce scurred calves.

Based on the premise that the scur condition requires the presence of the horn allele then we know by association that a scurred animal is a horn allele carrier. However, this logic cannot be reversed; smooth polled cattle can also be carriers of the scur allele. Bottom line, it is easy to breed for polled cattle, buy a homozygous polled bull and you will not have any horned calves. Scurs, as you now know, is a completely different story; buying homozygous polled bulls will assist in reducing the incidence of scurs, since the horn allele is necessary to produce scurs, but until there is a genomics test for the scur allele they will be difficult to eliminate.

Completely avoiding both horns and scurs in your cowherd is near impossible. Understanding how we get polled and horned cattle is relatively simple and a genomics test can tell us if an animal is a carrier of the horn allele or not. Unfortunately, the presence or absence of scurs just barely scratches the surface of
providing us with an understanding of what is happening genetically, and to make our job more difficult
there is not a genomics test to help us identify carriers. When managing your breeding program to
minimize these conditions it is critical not to complicate the situation more by introducing myths and
misconceptions. Understanding how these genes work is the first step in developing a successful breeding
program to eliminate horns and reduce scurs.

**Cow College 2014 Open for Registration**
*Land Dale, Beef Extension Associate, University of Kentucky*

The University of Kentucky Beef IRM group is pleased to announce that UK’s 2014 Cow College is now
open for registration. Cow College is an intensive, hands-on course for beef producers designed to expose
them to the most cutting edge information related to beef cattle production and business. The program is
divided into four two-day sessions, and one single-day session. Nearly half of the time in Cow College is
hands-on sessions. In addition to the hours of instruction and interaction with specialists, participants
receive printed materials to take back to the farm. The total cost of the program is $125 for all five
sessions, or $50 for each session individually. Class sessions will be conducted on UK’s campus in
Lexington. Fees do not include lodging.

Proposed dates for Lexington:

- Economics/Management        July 9-10
- Reproduction/Genetics        August 28-29
- Forages/Nutrition            July 22-23
- End Product                  September 11-12
- Herd Health                  August 8

Enrollment is on a first come, first served basis. **Participants must be graduates of UK’s Master
Cattleman Program.** It is limited to the first 30 people who reserve a spot with a deposit of $50 made
payable to COW COLLEGE. Credit card payment is not accepted. The deadline for registration is June 1,
2014. For online registration go to [http://www.uky.edu/Projects/BeefIRM/welcome.htm](http://www.uky.edu/Projects/BeefIRM/welcome.htm) and click on the Cow College icon to register.

Deposit to Cow College should be mailed to:

Land Dale
Cow College
Kentucky Cattlemen's Association
176 Pasadena Drive
Lexington, KY 40503

If you have any questions or need further information, contact Land Dale at land.dale@uky.edu or
call: (859) 278-0899.

**Stocker Outlook for 2014**
*Kenny Burdine and Greg Halich, Marketing Specialists, University of Kentucky*

2014 will likely set an all time high for calf prices in Kentucky. This does not mean stocker operators
cannot make an acceptable profit. However, to do so they will have to have a good handle on their costs
and know what their likely sale price will be in the fall to know what they can bid on calves this spring.
This article is meant to provide the baseline for estimating these buy prices and to help stocker operations plan for 2014.

The last two years have brought both extremes in profitability for stocker operations and can provide a great deal of insight in how grain markets impact feeder cattle markets. In 2012, weather challenges led to a much smaller corn crop than would have been expected given the acreage planted. The result was a substantial increase in corn prices during the summer. This led to sharp decreases in feeder cattle prices which meant that summer stocker operators sold feeder cattle in the fall for much less than was expected when calves were placed in the spring. Further, the dry conditions greatly impacted forage production. The result was a very challenging year for profitability, especially for those who did not protect their sale price when calves were purchased in the spring.

2013 was almost the complete opposite and ended up being an incredible year for stocker operations. Weather was extremely favorable for row crop production, which resulted in excellent corn yields. The result was a substantial decrease in corn prices during the summer. This led to sharp increases in feeder cattle prices which meant that summer stocker operators sold feeder cattle in the fall for much more than was expected when calves were placed in the spring. This bull feeder cattle market combined with good pasture growth made for very favorable returns to stocker operations in 2013.

Feeder cattle prices have risen sharply since fall 2013 with the summer and fall CME© contracts up by around $10 per cwt since November of 2013. This increase in deferred feeder cattle futures has been largely behind a market run-up in calf prices since the first of the year. At the time of this writing (March 5, 2014), 500 to 600 lb feeder steers have been moving in a range of $175-$205 per cwt. In most years, the price of these calves doesn’t peak until grass comes in the spring.

Fall feeder cattle futures (adjusted for basis) are typically the best way to estimate likely feeder cattle values for fall, the expected revenue for a summer stocker program. Grazing costs including pasture costs, veterinary and health expenses, hauling, commission, etc. can be estimated and subtracted from the expected value of the fall feeders. Once this has been done, a better assessment can be made of what can be paid for stocker cattle this spring to build in an acceptable return to management, capital, and risk.

Key assumptions for the stocker analysis are the following:

1) Graze steers April 1 to October 1 (183 days), 1.4 lb/day gain (no grain feeding), 2% death loss, and 4% interest on calf. Given these assumptions, sale weights would be 756 lbs and 856 lbs for 500 lb and 600 lb purchased calves respectively. Using a $176 CME© futures contract for October 2014 to estimate sales price, a 756 steer is estimated to sell for $169.50 and an 856 steer is estimated to sell for $161.50. This amounts to an $8 per cwt price slide for heavyweight steers which is much higher than what was used last year due to the impact of lower expected corn prices and a higher overall feeder cattle market. These sale prices are based on the assumption that cattle are sold in lots of 40 or more head.

Estimated costs for carrying the 500 and 600 lb steers are shown in Table 1. Most of these are self-explanatory except the pasture charge. A stocking rate of 1.0

<table>
<thead>
<tr>
<th>Table 1: Expected Variable Costs 2014</th>
<th>500 lb Steer</th>
<th>600 lb Steer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pasture Charge</td>
<td>$30</td>
<td>$36</td>
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<tr>
<td>Vet</td>
<td>$20</td>
<td>$20</td>
</tr>
<tr>
<td>Interest</td>
<td>$21</td>
<td>$23</td>
</tr>
<tr>
<td>Death Loss</td>
<td>$22</td>
<td>$23</td>
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<tr>
<td>Sale</td>
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<td>$12</td>
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<tr>
<td>Other (water, etc)</td>
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<td>$18</td>
</tr>
<tr>
<td><strong>Total Variable Costs</strong></td>
<td><strong>$149</strong></td>
<td><strong>$166</strong></td>
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</table>

Note: Interest varies slightly by purchase price.
acre per 500 lb steer and 1.2 acres per 600 lb steer were assumed to come up with these charges. The pasture charge accounts for variable costs such as bush-hogging, fertilizer, and re-seeding. The last of these pasture costs are on a pro-rated basis and are considered a bare-bones scenario. These costs will be much higher in some situations and producers should adjust accordingly.

Target purchase prices were estimated for both sizes of steers and adjusted so that gross returns over variable costs ranged from $50-150 per head. This gives a reasonable range of possible purchase prices for each sized animal this spring. Results are shown in Table 2. For 500 lb steers, target purchase prices ranged from $1.97 to $2.16 per lb. For 600 lb steers, target purchase prices ranged from $1.78 to $1.94 per lb. When targeting a $100 per head gross profit, breakeven purchase prices were $2.07/lb for 500 lb steers and $1.86/lb for 600 lb steers.

Of course it is highly likely that your cost structure will be different than that presented in table 1. If this is the case, simply shift the targeted gross profit up or down to account for this. If your costs are $25 higher per calf, then you would shift each targeted profit down by one row: For example, you would use the $125 gross profit to estimate a $100 gross profit. Another way to evaluate this is that a $1 increase in costs would decrease the targeted purchase price by $.20 per cwt for 500 lb steers and $.16 per cwt for 600 lb steers.

It is important to note that the gross profits in table 2 do not account for labor or for investments in land, equipment, fencing, and other facilities (fixed costs). Thus in the long-run, these target profits need to be high enough to justify this labor and investment.

Calf prices will be considerably higher than what was seen during 2013. Thus it is important to be prepared for this sticker shock so that you can make rational decisions. Remember to look at the margins and not absolute prices. While there is a great deal of variation in calf prices right now, the market for weaned calves in early-March in Kentucky appears to be in the $190 to $205 per cwt range for 500 lb steer calves and in the $175 to $190 per cwt range for 600 lb steer calves.

With calf prices at such high levels, and with the potential for them to move even higher, summer graziers will have a great deal of money at stake in 2014. Further, if we have learned anything over the last few years, it is that feeder cattle markets are highly volatile, especially during the corn growing season. Thus price risk management will be critical as calves are placed this spring. Further, if you can lock in an acceptable profit, you will be more confident in bidding on calves and have less concern about market risk.

Hedging, through the sale of futures contracts, provides solid downside risk protection, but will subject the producer to margin calls if cattle prices increase. Entering a cash forward contract with a feedlot or order buyer, or offering cattle through internet sales with delayed delivery, will reduce or eliminate price uncertainty, but will also limit marketing flexibility should weather conditions necessitate sale at a different time. Finally, put options and Livestock Risk Protection (LRP) Insurance offer a less aggressive strategy that provides some downside price protection, but more ability to capitalize on rising prices. Regardless of what makes the most sense for the individual producer, time spent considering price risk management is likely time well spent in these volatile markets. Links to two publications on using futures markets to manage price risk in feeder cattle and a publication on the use of Livestock Risk Protection

| Table 2: Target Purchase Prices For Various Gross Profits in 2014 |
|---------------|-----------------|-----------------|
| Gross Profit  | 500 lb Steer    | 600 lb Steer    |
| $50           | $2.16           | $1.94           |
| $75           | $2.11           | $1.90           |
| $100          | $2.07           | $1.86           |
| $125          | $2.02           | $1.82           |
| $150          | $1.97           | $1.78           |

Notes: Based on costs in Table 1 and sales price of $169.50 and $161.50 for 756 lb and 856 lb sales weight respectively for 500 lb and 600 lb purchased steers.
Insurance can be found on the livestock page of the UK Agricultural Economics website: http://www.ca.uky.edu/agecon/index.php?p=41. The best way to ensure profitability is to budget carefully and look to manage downside price risk.