

OFF THE HOOF

Kentucky Beef Newsletter December 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

- Be sure that weaned heifer calves are on a feeding program which will enable them to be at about 65% of their mature weight before the start of the breeding season. Rations should be balanced to achieve gains sufficient to get heifers from their current weight to that "target" weight.
- Body condition is important, plan an adequate winter program for cows to be at least body condition score 5 (carrying enough flesh to cover the ribs) before the calving and breeding season. This will help them to breed early in the spring. Thin cows should be fed to regain body condition prior to winter. Don't let cows lose weight/condition.
- Divide the herd into groups for winter feeding --
 - weaned heifer calves
 - first-calf heifers, second-calvers and thin mature cows
 - the remainder of the dry cows which are in good body condition
 - herd sires
- Begin feeding the lowest quality forage to dry cows which are in good condition during early winter and save the best hay for calving time or for weaned calves.
- Order and number ear tags for next year's calf crop this winter. It is also a good time to catch up on freeze branding and replacing lost ear tags.

Fall Calving Herd

- Get breeding supplies together, if using estrous synchronization and/or A.I.
- Have Breeding Soundness Evaluation (BSE) performed on bulls (even if you used them this spring).
- The fall breeding season starts. Breeding can best be accomplished on stockpiled fescue pasture; otherwise, cows with calves should be fed 25-30 pounds of good quality hay or its equivalent. Supplement with grain, if needed, and minimize hay waste. **DON'T ALLOW THESE COWS TO**

LOSE BODY CONDITION PRIOR TO OR DURING THE BREEDING SEASON. It is easy to wait too long to start winter feeding. Don't do it unless you have stockpiled fescue.

- Nutrition level of cows during the first 30 days after conception is critical. Pay attention.
- Observe performance of bulls during breeding season. Watch cows for return to estrus, if you see several in heat, try to determine the cause and consider changing bulls.

General

- Complete soil testing pasture to check for fertility and pH.
- Consider putting down geotextile fabric and covering with gravel in feeding areas before you begin hay feeding to minimize waste of expensive hay. Or, perhaps, construct concrete feeding pads for winter feeding areas.
- Monitor body condition and increase feed, if needed, for all classes of cattle.

A Training Camp for Young Athletes?

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

I've been thinking about a second career after my retirement from U.K. It should be something different than what I presently do but something which will also allow me to draw on my experience with beef cattle. I've got it! I'll run a training camp for young athletes – maybe aspiring Olympic athletes even. I have the perfect model for my new business venture – and that is the way we presently develop yearling beef bulls for breeding. They're athletes too, aren't they? I'll just use a similar plan for my new venture.

The first thing that I'll do to get them in shape is confine these young athletes to a small area and then give them all the starchy food that they can eat. They'll just lie around and walk over to the "training table" as often as they like. Hopefully their future "coaches" will confuse thickness (fat) with muscling because they might be a little on the "hefty" side. But that's okay, isn't it? We'll change them over to a diet of green salad when "ball" season begins. They'll be lean by the end of the season, won't they!

Nah, I won't do that. I'm just "poking a little fun" at the way we feed yearling bulls and then dump them into the breeding pasture. I understand that we are developing these young bulls so that we might have some idea of how their offspring will perform in the feedlot. But the problem is that these yearling bulls aren't ready to "get into the game" after their postweaning feed test. They're soft. They may also head to a breeding pasture that consists of toxic fescue. These young bulls will be so poor and run down at the end of their first breeding season that you could lead them around with a grass string! They might end up not siring many calves either.

Let's be honest here. It is also easier to sell fleshy bulls but we should never use flesh to cover up faults. Some of these bulls are just plain "overfed and underbred"! In my opinion, purebred producers should put selection pressure on young breeding animals and cull animals with problems before they are sold to commercial cattlemen and pass those traits on in their herds.

Speaking of athletes, legendary Coach John Wooden of UCLA basketball fame was well known for the first thing he taught his basketball players. He taught them how to put on their socks and properly lace up their sneakers. That must mean that feet are real important to an athlete! Bulls should, of course, be sound in their feet, too. Not just because they have to have good feet to "stay in the game" but they could also be passing on foot problems to the next generation. We should have cows which stay sound on their feet for about ten years. Foot problems are almost epidemic in our beef herds – but could be eliminated by constant selection. Watch for "toes" on young bulls that are beginning to curl inward. They won't get better. Certain bloodlines are worse than others, too.

Profitability in the cow herd is dependent upon breeding animals (bulls and cows) staying in the herd for several

years. Bulls should be selected and developed as athletes so that they are functional for long periods of time. Of course, we want them to also pass on desirable genes to their offsprings. The seedstock producer is the key to this whole process.

An Ounce of Prevention is Worth a Pound of Cure: What You Do Now Makes a Big Difference on Calves to be Born This Spring

Michelle Arnold, DVM (Ruminant Extension Veterinarian, UKVDL), University of Kentucky

Have a Question or Topic you would like addressed? Email me at michelle.arnold@uky.edu

A scours outbreak in calves on a cow/calf operation can be an economic disaster. Once the outbreak begins, it generally spreads quickly throughout all of the youngest calves. Bacteria, viruses and parasites can attack the lining of the calf's intestine, resulting in diarrhea and dehydration. Without a healthy gut lining, essential nutrients are not absorbed from milk which leads to weakness, weight loss, and often to death. Those calves that survive diarrhea may perform poorly for the remainder of their lives when compared to healthy calves. Scours vaccines are expensive yet very effective in preventing the most common causes of calf diarrhea if combined with proper nutritional management of the cow during her pregnancy and a clean calving environment. Although there is not much one can do about rain, mud, and manure, the goal is to keep cow's teats clean and dry to prevent the diarrhea-causing bugs from entering the calf's mouth. Fortunately, the scours vaccine prepares the calf to deal with many of these bugs in the event they do make it inside the calf's digestive system.

"Neonatal" calf diarrhea is defined as scours occurring within the first 3 weeks of a calf's life. Rotavirus, coronavirus, bacteria (*E. coli* K99; *Clostridium perfringens* Type C, *Salmonella* spp.) and the parasite Cryptosporidia are the most common causes of neonatal calf diarrhea. Controlling rotavirus, coronavirus, *Clostridium perfringens*, and *E. coli* K99 with vaccines can significantly reduce sickness and death loss due to calf scours. Although most beef cows in good body condition produce high quality colostrum, it may not contain the "correct" antibodies to fight the specific bugs that cause diarrhea. Scours vaccines are formulated to be given to pregnant cows and heifers late in gestation so they will make the correct antibodies while colostrum is being formed.

Table 1: Administration of the various scours vaccines based on calving season beginning March 1st

			Weeks Prior to Calving																	
			11/11	11/18	11/25	12/2	12/9	12/16	12/23	12/30	1/4	1/11	1/18	1/25	2/1	2/8	2/15	2/22	1-Mar	
			16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	Calving Begins	
Year One	Scour Bos® 9	2 ml IM 8-16 weeks prior to calving. Revaccinate with Scour Bos 4 four weeks prior to calving																		
	Guardian®	2 ml SQ 12 weeks precalving. Booster 3-6 weeks after primary dose																		
	ScourGuard® 4KC	2 ml IM 3 weeks apart, with 2nd dose given 3-6 weeks before calving																		
Year Two and Beyond	Scour Bos® 9	2 ml IM of Scour Bos 9 at 8-10 weeks prior to calving																		
	Guardian®	2 ml SQ at 5-7 weeks precalving																		
	ScourGuard® 4KC	2 ml IM at 3-6 weeks before calving																		
		Range to Administer Primary Dose																		
		Range to administer Booster Dose																		
		Range to administer Annual Revaccination																		

The three most popular vaccines available are ScourBos®9 and 4 (Elanco), ScourGuard®4KC (Zoetis) and Guardian® (Merck). As can be seen from Table 1, a first or primary dose followed by a booster dose is required the first year a scours vaccine is used (“Year One”). After the first year, just one annual revaccination is required (“Year Two and Beyond”) every year throughout the cow’s life. Which product is chosen often depends on when cattle will be worked; Scour Bos® is administered earlier during pregnancy, ScourGuard® is used late in gestation and Guardian® is in-between these two options. Obviously not all calves will be born the first week of calving season but plan to give the scours vaccine based on when the first calves of the season are expected. If the calving season is long (greater than 90 days), consider vaccinating the later-calving cows closer to their due date or give another round of the vaccine to those who have not calved within 60 days of the first dose.

It takes some planning to vaccinate correctly; timing is critically important with the different products:

- 1) Pregnant Heifers (or Cows) receiving their first dose of Scours Vaccine-
If using:
 - Scour Bos®9 –Administer first dose 8-16 weeks prior to calving
Booster dose using Scour Bos® 4-Administer 4 weeks prior to calving
 - Guardian®- Administer the first dose 12 weeks before calving and the second dose 3-6 weeks later
 - ScourGuard® 4KC-Administer first dose 6-9 weeks before calving and give the second dose 3 weeks later.
- 2) Cows (Annual revaccination)-

If using:

- Scour Bos®9 –Administer 8-10 weeks prior to calving season
- Guardian®-Administer 5-7 weeks before calving season
- ScourGuard® 4KC-Administer 3-6 weeks prior to calving season

Table 2: A comparison of scours vaccines given to the calf at birth versus scours vaccines given to pregnant cows

Protection Against Scours in Newborn & Unborn Calves												
Calf	E. Coll	Coronavirus	Bovine Rotavirus	Clostridium Perfringens Type C	Immediate Protection	Takes 7 Days to Protect	Cow	E. Coll	Coronavirus	Bovine Rotavirus	Clostridium Perfringens Type C	Clostridium Perfringens Type D
Calf-Guard		X	X			X	Scour Bos 4		X	X		
Bovine Ecolizer	X				X		Scour Bos 9	X	X	X	X	
Bovine Ecolizer+C 20	X			X	X		Scourgard 4KC	X	X	X	X	
Bar-Guard-99	X				X							
Clostratox Ultra C 1300				X	X							

If the cow herd is not vaccinated and calf scours develop, there are vaccines available to administer to newborn calves. These vaccines are given by mouth as quickly as possible after birth, preferably prior to nursing and definitely within the first 12 hours of life. These will provide some immediate protection in the gut but are not as effective as vaccinating the pregnant cows. As can be seen in Table 2, none of the products formulated for calves protects against all 4 major pathogens (*E.coli* K99, rotavirus, coronavirus and *Clostridium perfringens* Type C).

Preventing calf scours involves far more than simply administering a vaccine. Excellent cow nutrition during and after gestation, an easy calving process, and environmental management factors all contribute to a successful start. The cows' diet must provide adequate energy, protein and trace minerals to meet her needs during gestation and lactation, especially during bad winter weather. Remember up to 80% of fetal growth occurs in the last 50 days of gestation and cows are also producing colostrum during the final 4-6 weeks of pregnancy. A nutritionally-deprived cow will produce poor quality and quantity of colostrum, have less energy to deliver her calf quickly, and will not produce milk to her genetic potential. Calves born to energy deficient cows will have reduced amounts of brown fat needed to stand and nurse. Poor sanitation, cold, wet weather and overcrowding in calving areas all contribute to a higher risk of disease. Assist with calving early as necessary, especially with heifers. Make sure calves start nursing as soon as possible after calving, keeping in mind that calves should stand within 30 minutes of delivery and nurse within 30 minutes of standing. If in doubt, use a good quality colostrum replacer and feed the calf at least 2 quarts during the first 6 hours of life. Once the calf has received colostrum, it is still important to prevent the "bad bugs" (pathogens) in the environment from overwhelming the calf's immune system. Calf scour pathogens will build up exponentially in the environment as the calving season progresses. Calving in the same area that older calves are in greatly increases the risk to the newborn calf, especially in wet or muddy conditions as are often seen in the spring in KY. If possible, pregnant cows close to calving should be rotated onto clean pastures while cow-calf pairs remain on the old pasture. If calving in a barn or shed, the calving area should be kept as clean and dry as possible with frequent changes of bedding to remove the build-up of organisms. Make every effort to get the cow and newborn calf out of the barn quickly to lessen the chances of infection. Even the best calving management practices will have no effect if the first thing a calf ingests is manure from the calving area. Consult with your veterinarian on the best choice of vaccines for your operation.

The UK Veterinary Diagnostic Laboratory has an excellent test to diagnose the cause of calf diarrhea. A small sample of scours (in a leakproof container) from a calf that has not been treated for diarrhea with antibiotics is needed to run the test. This "Calf Diarrhea Panel" is a PCR assay that detects the nucleic acids in bovine coronavirus, rotavirus, *E. coli* K99, *Salmonella* and *Cryptosporidium*. The test is run on Tuesdays and Thursdays with results generally available within 2 days and costs \$65 (\$55 + \$10 Accession Fee). Visit the website at <http://vdl.uky.edu/TestInformation.aspx> for more information or call (859) 257-8283.

Preparing Your Cows for A Successful Breeding Season

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

A successful breeding season actually begins with management decisions made prior to calving. As we move into the winter feeding period, cattlemen need to review their management plan to ensure optimal rebreeding and success. Rebreeding efficiency can be optimized by focusing on body condition score (BCS), early assistance during calving difficulty, scheduling a breeding soundness exam for the herd sires, planning their herd reproductive health program, and developing a plan to regulate estrus in their first-calf heifers and late-calving cows.

Reproductive management begins with evaluation and management of BCS. Body condition score is a numerical estimation of the amount of fat on the cow's body. Body condition score ranges from 1-9; 1 is emaciated while 9 is extremely obese. A change in a single BCS (i.e. 4-5) is usually associated with about a 75

pound change in body weight. Evaluation of BCS prior to calving and from calving to breeding is important to ensure reproductive success.

Rebreeding performance of cows is greatly influenced by BCS at calving. Cows that are thin (BCS < 5) at calving take longer to resume estrous cycles and therefore are delayed in their ability to rebreed. Research has clearly demonstrated that as precalving BCS decreases, the number of days from one calving to the next (calving interval) increases in beef cows. Females with a precalving BCS of less than 5 tend to have production cycles greater than 1 year. For example, cows with a precalving BCS of 3 would be expected to have a calving interval of approximately 400 days, while a cow with a precalving BCS of 6 would have a calving interval of approximately 360 days. South Dakota research illustrates the influence of precalving BCS on the percentage of cows that initiated estrous cycles after calving. This experiment demonstrated that the percentage of thin cows that were cycling in the first month of the breeding season (June) was considerably lower than for cows that were in more moderate body condition. During the second month of the breeding season, 55% of the cows with a BCS of 4 had still not initiated estrous cycles, while more than 90% of the cows in more moderate condition had begun to cycle. Thin cows need a longer breeding season, which results in more open cows in the fall. They may also result in lighter calves to sell the next year because the calves from these thin cows will be born later in the calving season.

Management of BCS after calving also impacts rebreeding efficiency. Maintenance requirements for energy and protein increase 25-30% for most beef cows after calving. Producers need to plan their supplementation to match or exceed this increased nutrient requirement. Rebreeding efficiency is enhanced in cows that calved thin if their energy intake is increased (Rutter and Randle, 1984). Although the best management plan is to calve cows in a BCS of 5+, increasing the energy to cows that are thin at calving can boost reproductive performance.

Dystocia (calving problems) can severely delay the onset of estrus after calving. Research shows that for every hour a female is in stage 2 active labor there is a 4 day delay in the resumption of estrous cycles after calving. Early intervention helps; 16% more cows conceived when cows were assisted within 90 minutes of the start of calving. The best method is to reduce the incidence of dystocia via selection but early calving assistance will increase the opportunity of cows to rebreed.

One overlooked management tool that can improve reproductive performance is breeding soundness exams in bulls. Think of breeding soundness exams as breeding season insurance. These exams are a low-cost method of insuring that your bull is capable of breeding. Examine bulls for breeding soundness about 30 days before they are turned out.

I have worked in reproductive management for over 20 years and it amazes me how many cattlemen still do not vaccinate their cow herd against reproductive diseases. Several diseases are associated with reproductive loss (lepto, BVD, vibrio, trich, etc). The main problem is that most reproductive loss due to disease is subtle and ranchers don't notice the loss unless they have a massive failure. Most cattlemen are not aware of their losses due to abortion. Work with your local veterinarian to develop an annual vaccination plan to enhance reproductive success.

Lastly, ranchers need to develop a plan to enhance the rebreeding potential of their first-calf heifers and late-calving cows. Young cows and late-calving cows have one characteristic in common that will greatly impact their reproductive success; anestrus. After each calving, cows undergo a period of time when they do not come into estrus. This anestrus period can be as short as 17 days but can also last as long as 150 days depending upon a number of factors. Typically, mature cows in good BCS will be anestrus for 45-90 days (avg about 60 days) while first-calf heifers will be in anestrus for 75-120 days. Research has shown that only 64% of mature cows have initiated estrous cycles about 70 day after calving while on 50% of first calf heifers have initiated estrous cycles at nearly 90 day after calving. Let's consider the impact of anestrus and calving date for a herd that calves from March 1 until May 10. Bull turnout is May 20 and the length of anestrus for mature cows is 60 days and for young cows is 90 days. A mature cow that calves on March 1 will begin to cycle on May 1 and is highly

likely to conceive early. However, the mature cow that calves on April 20 won't cycle until June 20 and her opportunity to conceive early is very limited. A first-calf heifer that calves on April 20 won't begin to cycle until July 20 and will have limited opportunities to conceive. Cattlemen can reduce the anestrous period by fenceline exposure to a mature bull or by treating the cows with progesterone for 7 days prior to bull exposure. Sources of progesterone include the feed additive melengestrol acetate (MGA) or an EAZI-Breed CIDR® insert (Zoetis Animal Health). Both sources induce estrus in anestrous cows and exposure of anestrous cows to progesterone for 7 days before bull exposure will not reduce fertility. Pregnancy rates increase in these females because inducing estrus will increase the number of opportunities these cows have to conceive in the breeding season.

Managing for reproductive success actually begins at calving. Cows need to calve with a minimum BCS of 5 and with little assistance. Effective planning for reproductive health and management plan for limiting the impact of anestrus will ensure that cattlemen are happy, happy, happy at the end of the breeding season.

Beef Cattle Market Update – December 8, 2017

Andrew P. Griffith, University of Tennessee

FED CATTLE: Fed cattle traded \$3 to \$4 lower compared to last week on a live basis. Prices on a live basis were mainly \$117 while dressed prices were mainly \$186 to \$187.

The 5-area weighted average prices thru Thursday were \$117.47 live, down \$3.21 from last week and \$187.03 dressed, down \$3.02 from a week ago. A year ago prices were \$108.89 live and \$169.96 dressed. The December live cattle futures price has plummeted since early November losing nearly \$12 per hundredweight. Fortunately, the cash price for finished cattle has not fallen as dramatically. Live cattle futures have certainly put a damper on cash prices the past couple of weeks but cash and futures have not been in full parity during the decline as cash prices have only declined \$6 per hundredweight over the same time period. Cattle feeders do not have to be happy about declining prices, but they can take some comfort in prices not completely following technical trade in the futures market which means cash trade is still taking into account the fundamentals of the market.

BEEF CUTOUT: At midday Friday, the Choice cutout was \$205.55 up \$0.47 from Thursday and down \$0.60 from last Friday. The Select cutout was \$185.75 up \$1.92 from Thursday and up \$2.17 from last Friday. The Choice Select spread was \$19.80 compared to \$22.57 a week ago.

Choice beef buyers did little to change the market from one week ago, but Select beef buyers appeared to be on the move this week. There is very little time left for Choice prices to find additional support before the Christmas and New Year holidays as many retailers, restaurants and food service providers have likely made most of their purchases for holiday dining. This does not mean all buyers have completed their purchasing, but it is unlikely there are so many short bought in the market place that Choice beef will surge in the next two weeks. Alternatively, it appears some beef buyers are beginning to secure inventory for Select beef needs for the winter months. The Choice Select spread will begin narrowing and may do so at a rapid pace immediately following Christmas. The beef market continues to experience strong carcass grades, but much of the premium in the Choice cutout will be bid away as consumers begin focusing on end meats. This situation will likely lead to Choice Select spread under \$1 in February.

OUTLOOK: The cash calf and feeder cattle market took a tumble this week as feeder cattle futures followed live cattle futures during their price decline. The January feeder cattle futures contract price declined a little more than \$8 since the end of November. The futures price decline led calf and feeder steer prices to decline \$3 to \$9 compared to one week ago based on Tennessee weekly auction market averages while feeder heifer prices declined \$3 to \$8. The sudden drop in prices may have caught a few producers off guard that have been holding on to calves due to abundant grass and hay resources. However, now is not the time to panic and go in a selling frenzy. Producers who weaned calves for the purpose of adding weight should continue to do so while keeping an eye on the market. The sudden price downturn is likely to reverse and move back to

the trading range that has been consistent since the middle of September. Additionally, prices for light-weight calves tend to strengthen after the first of the year. Similarly, feeder cattle prices generally find support in January though they have been supported most of the fourth quarter of 2017. It may also be important for producers to realize that it may be difficult for calf and feeder cattle prices to outpace the prices realized the last few months of 2017. Fall calf and feed-er cattle prices were supported throughout the fall marketing time period which is rare. However, the market simply followed the live cattle market which it is expected to do in the coming months. Thus, as live cattle prices begin to escalate late in the first quarter of 2018 so will feeder cattle prices. Calf prices toward the end of the first quarter will be supported by the feeder cattle market and abundant spring forage. On another note, slaughter cow prices took a hit this week as prices were \$2 to \$5 lower based on Tennessee weekly auction averages. The decline eliminated last week's gains plus some. Slaughter cow prices should begin to slowly gain some footing from January through May