

OFF THE HOOF

KENTUCKY BEEF CATTLE NEWSLETTER NOVEMBER 1, 2020



University of Kentucky
College of Agriculture,
Food and Environment
Cooperative Extension Service

Cooperative Extension Service
University of Kentucky

Beef IRM Team

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Timely Tips

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

Spring-calving cow herd

- If you need to replace cows, consider buying bred heifers in some of the Kentucky Certified Replacement Heifer sales that are being held across the state this month.
- Extend grazing for as long as possible to decrease the amount of stored feed needed.
- Evaluate body condition of cows. Sort thin (less than body condition score 5) cows away from the cow herd and feed to improve their condition. Two and three-year olds may need extra attention now. These cattle can use additional nutrients so they can add condition before they calve next spring.
- Dry cows in good condition can utilize crop residues and lower quality hay now (but don't let them lose any more body condition). Save higher quality feed until calving time. Keep a good mineral supplement with vitamin A available.
- Pregnancy diagnose your cows if you have not already done so. Culling decisions should be made prior to winter feeding for best use of feed resources. Consider open, poor-producing and aged cows as candidates for culling.
- A postweaning feeding period will allow you to put rapid, economical gains on weaned calves, keep them through the fall “runs” and allow you to participate in Kentucky CPH-45 sales. Consider this health and marketing program which is designed for producers which are doing a good job of producing high quality feeder calves.
- Replacement heifers require attention during the winter, too. Weaned heifer calves should gain at an adequate rate to attain their “target” breeding weight (2/3 of their mature weight) by May 1.

Fall-calving herd

- Continue to watch fall-calving cows. Catch up on processing of calves including identification, castration and vaccinations.

- Cows that have calved need to go to the best pastures now! Help them maintain body condition prior to breeding in December.
- Vaccinate the cows while they are open and prior to the breeding season. Move cows to accumulated pasture (not this year!) or increase feed now. It is best to vaccinate cows 30 days before the breeding season begins.
- Start the breeding season in late November or early December for calving to begin in September. If you are using AI and/or estrous synchronization, get your supplies together now and schedule your technician. Don't forget Breeding Soundness Evaluations (BSE) on your bulls. Make final selection of replacement heifers now.

General

- Have your hay supply analyzed for nutritive quality and estimate the amount of supplementation needed. Consider purchasing feed now.
- Take soil tests and make fertility adjustments (phosphate, potash and lime) to your pastures.
- This is a good time to freeze-brand bred yearling heifers and additions to the breeding herd.
- Graze alfalfa this month after a "freeze-down" (24 degrees for a few hours). Don't waste your feed resources. Avoid excessive mud in the feeding area. Hay feeding areas can be constructed by putting rock on geotextile fabric. Feed those large round bales in hay "rings" to avoid waste. Concrete feeding pads could be in your long-range plans.

Recent and Upcoming On-line Beef Education Opportunities

Beef IRM Team, University of Kentucky

Weaning 101 Workshop – a Virtual Weaning Program

Week 6. **Infrastructure Overview for Weaning Calves** – Higgins

Week 7. **Traceability and Value-Added Marketing** – Thompson

Week 8. **Technology Applications for Beef Cattle** – VanValin

Beef Minutes

October 22. **Evaluating Replacement Heifers** – Anderson

October 30. **Mineral Basics** – VanValin

Beef Bits Podcast

Episode 5. **Frisky Fall**. Discussion on rebreeding strategies with Anderson

Episode 6. **Befriend a Butcher** with Dr. Gregg Rentfrow

Reaching Out While Locked In Beef Webinar Series

October 13. **Organizing the Breeding Season** – Les Anderson, AFS Beef Extension

October 27. **Preparing for Winter Feeding** – Katie VanValin, AFS Beef Extension

November 10. **Winter Feeding Structures** – Steve Higgins, Director of Environmental Compliance

November 24. **Structures and Working Facilities** – Morgan Hayes and Josh Jackson, BAE Extension

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Black vulture depredation: Lessons learned from my first calving season at the UKREC *Dr. Katie VanValin, Assistant Extension Professor, University of Kentucky*

This year has held a lot of “firsts” for me, including my first calving season at the UKREC in Princeton, KY. Our beef herd is comprised of 150 fall calving cows. We are now at the very tail end of our calving season, however early on in our calving season it became apparent we had a black vulture problem on our hands.

Black vultures are native to Kentucky, but increased populations have made them a problem for livestock producers across the state. Like most animals us humans deem a nuisance (like I do snakes), black vultures play an important role in our overall ecosystem. These birds consume and dispose of animal carcasses. However, when their feed supply becomes limited, they will resort to killing live animals, such as newborn calves.



Vultures are keenly aware of one another, which can work to our advantage when combatting them. The use of vulture effigy's can be a deterrent to live birds causing them to leave the area. In order to harvest a vulture for use as an effigy you must obtain a sub-permit through Kentucky Farm Bureau. Other alternatives include purchasing or making your own black vulture effigy. Faculty in the University of Kentucky Department of Forestry and Natural Resources have created a publication with step by step instructions and a pattern for creating an effigy ([FORFS 18-03](#)).

Like any cattle producer, my staff and I were frustrated by the problem that we faced. You try to do everything right to get a calf on the ground and then something like this happens and takes all of that hard work away. We wanted to act quickly to put a stop to this problem before it got any worse, so on a Saturday morning I set out to make an effigy using the UK extension publication mentioned above. I was able to obtain the supplies needed at a local farm store and set to work making these effigies. A few hours and a bit of elbow grease later, the “birds” were cut out and assembled. I was able to make 4 effigies for the price of a single commercially available one on the internet. The instructions in the publication are very easy to follow, if I can make them so can you!

We hung the completed effigies in the pastures where we were calving. Now I think it is important to note the correlation is not causation but after placing our effigies we have not faced any more problems and have had fewer vulture sightings. Note this is just our anecdotal findings and was not a controlled research trial. However, I wanted



to share this experience and a resource that is out there to help try to combat this issue facing many producers.

Rapid Death in Feeder Calves? It May be *Histophilus Somni* (Formerly known as *Haemophilus Somnus* or “Somnus”)

Dr. Michelle Arnold, UK Veterinary Diagnostic Laboratory

October and November are known as two of the most difficult months to buy feeder calves in KY due to major health challenges. Weather is often blamed but is just one of many risk factors that play a role in Bovine Respiratory Disease (BRD) development. This fall, the bacterium *Histophilus somni* (formerly known as *Haemophilus somnus*) has emerged as a major bacterial pathogen responsible for the rapid development of disease and death in feeder operations. While *Mannheimia haemolytica*, commonly called “Pasteurella”, is the bacterial species known to cause bronchopneumonia and rapid death, *Histophilus somni* (HS) can cause similar symptoms and is proving very difficult to treat and control with traditional methods. In addition, a more severe form of disease, known as the “septicemic form” of *Histophilus somni* has been seen in several cases submitted to the UKVDL over the last month. This septicemic form typically hits calves 30-60 days after arrival and the bacteria may affect the brain, heart, larynx, muscles, joints, liver and kidney in addition to the lungs. In some cases, the calves are simply found dead with no clinical signs. The septicemic form usually results in rapid death, generally less than 48 hours from development of symptoms up to the time of death. The joints are frequently involved, and calves may become noticeably lame or wobbly and the joints may become extremely swollen, like *Mycoplasma bovis* joint involvement. On necropsy, several of these cases have had laryngitis and edema (swelling) in the back of the throat because the bacteria have attacked the laryngeal muscles. The HS organism is often found in combination with *Pasteurella multocida* or other BRD bacteria in “biofilms” which are clusters of bacteria in a matrix that serves as protection from antibiotics and host immune system responses. Stress can trigger dispersal of large numbers bacteria from the biofilm that can then invade the lower respiratory system. Once it establishes infection in the lungs, it can travel in the bloodstream to joints, organs (especially the heart), and to the brain. These calves may develop pneumonia, pleuritis (infection of the membrane surrounding the lungs), myocarditis (infection in the heart muscle), thrombotic meningoencephalitis (infection in the brain), tenosynovitis (infection within joints), laryngitis, and otitis media (middle ear infection). The disease can happen anytime in the year but most clinical cases occur between October and January. Previously, disease due to HS or “histophilosis” was associated with primarily Northwestern and Midwestern states in the USA and Canada but cases are now being diagnosed throughout the US, including Kentucky. Most comprehensive studies have been conducted in Canada where HS accounts for an estimated 40% of the death loss in feedlots. Unlike typical BRD outbreaks that peak at 14 days after arrival to the feedlot, HS acute pneumonia cases peak at 25 days on feed. In the absence of consistently effective treatment or vaccine options, management practices are crucial to controlling *Histophilus* mortality. Metaphylaxis, where treatment is applied to the whole group (either on arrival or once 10-20 % of the calves are showing clinical signs of BRD), along with prompt individual treatment of sick cattle is one recommended control approach. Vaccines are available against HS but protection is by no means complete from these products.

The common BRD-associated bacteria (*Mannheimia haemolytica*, *Pasteurella multocida*, and *Histophilus somni*) are found in the nasal passages of healthy calves but with stress (such as transportation and commingling) and viral infection, they can descend into the lungs and sometimes spread throughout the body, causing disease. This simple disease model is now under scrutiny with the realization that multiple factors contribute to complex interactions between the environment, the bacteria and viruses, and the calf’s immune system. Stressed cattle are more susceptible to the viral components of BRD, including Infectious Bovine Rhinotracheitis (IBR), Bovine Viral Diarrhea virus (BVD), Parainfluenza 3 virus (PI₃), Bovine Respiratory Syncytial virus (BRSV) and possibly another agent commonly found, Bovine Coronavirus (BCV). Viruses are known to damage the lining of the respiratory tract and some will actually suppress the immune system,

allowing secondary bacterial infection. Once established in the lung, the bacterial components are responsible for the inflammation and bronchopneumonia signs seen with BRD. Combinations of different bacteria can work synergistically to cause more severe disease than if operating alone. There are no early clinical signs that indicate *Histophilus* is part or all of the disease problem, other than it tends to occur later after arrival than most cases of BRD. The *Histophilus somni* Disease Complex (HSDC) is a term used to describe the respiratory disease when HS reaches the lungs and the complications from “septicemia”, when HS leaves the lungs and lands in the brain, heart and joints. Components of the HSDC include:

1. Rapidly Fatal Pneumonia: Some animals with HS pneumonia are simply found dead due to a rapidly fatal type of damage to the lung called “severe fibrinous pleuritis”. Currently, this is the most common manifestation of HS in western Canadian feedlots and is seen 30-90 days after arrival. Rarely are abnormalities found in any other organ besides the lungs which are covered in a thick sheet of fibrin and the lungs are often remarkably collapsed underneath.
2. Bronchopneumonia: Some calves with HS develop typical signs of BRD including depression, separation from the group, off feed, cough, excessive nasal discharge and difficult or rapid breathing. Respiratory signs with fever of 104°F or above confirms the diagnosis of BRD but detection of the bacteria and/or viruses involved must be done at a diagnostic laboratory. Treatment is often very difficult and unrewarding in the field although in the laboratory, the bacteria is usually susceptible to many antibiotics.
3. Heart Muscle damage: HS can cause a “necrotizing myocarditis” when it localizes in the muscles of the left ventricle of the heart. Death can be rapid with no previous signs (similar to a heart attack) or chronic forms lead to “poor doers”.
4. TME: Thrombotic meningoencephalitis-myelitis or “TME” is a disease of older calves and yearlings affecting the brain. During an outbreak, individual cases occur sporadically in separate pens in a feed yard. Signs include depression, fever, blindness, coma and death; this can look similar to signs seen with polyoencephalomalacia or “brainers”. Treatment with antibiotics is most often unrewarding.
5. Other Manifestations: Arthritis with joint swelling, laryngitis and middle ear infections with drainage from the ear canals may also be seen.

Diagnosis of *Histophilus somni* pneumonia in a live calf is challenging because it is present in the upper airways of both healthy and diseased calves so swabs taken from deep in the nose will not necessarily tell the story of what is causing disease in the lungs and elsewhere. The HS organism can be difficult to grow in the laboratory, especially if the calf was treated with antibiotics, so the PCR assay is strongly recommended in addition to culture for detection. Mixed lung infections with other disease-causing bacteria such as *Mannheimia haemolytica* and *Pasteurella multocida* can easily overgrow *Histophilus somni* on a culture plate so the identification may be missed when relying on traditional bacterial culture methods alone. Culture is still important to identify what antibiotics should be effective. Unfortunately, the transfer of genetic elements that caused antimicrobial resistance to develop in *Mannheimia haemolytica* is also thought to occur with HS.

Prevention is difficult. This is not a disease complex managed through a needle. What we do in the first 14 days after arrival is crucial because we can't reverse the damage done by this disease. Biosecurity and biocontainment practices must be followed. Because HS pneumonia and septicemia often develops along with viral infections (especially BVD) or in combination with other bacterial pathogens, control should begin with minimizing well-recognized factors predisposing to BRD. Stress plays a major role in disease through immunosuppression so excellent nutrition, sound vaccination protocols and management are critical. There are numerous challenges to production of an effective vaccine to prevent *Histophilus somni* infections. In spite of all the considerable amount of work on bacterin-based HS vaccines, there is no direct proof that these vaccines

are effective under field conditions, but they may help lessen the severity. Consult with your local veterinarian for the best management plan for your operation.

The following steps should reduce the risk of pneumonia in feeder calves:

1. Vaccination with a modified live (MLV) 5-way respiratory virus vaccine and a *Mannheimia haemolytica* toxoid (“Pasteurella”) after calves have rested 24 hours. Because vaccines usually cause calves to have a slight fever, research has shown the MLV vaccine may be delayed 2-3 weeks in high risk calves without affecting the morbidity and mortality rate.
2. Cattle with extremely low blood concentrations of the trace elements selenium and copper have difficulty fighting any disease challenge. An injectable trace mineral supplement (such as Multimin 90) is one option to boost the copper and selenium levels during the initial arrival period.
3. Metaphylactic treatment (treatment of all calves on arrival or when 10-20% show signs of BRD) of high risk calves (high risk = lightweight, weaned on the trailer, green calves) with long-acting antibiotics is a well-established, beneficial procedure that can reduce morbidity (sickness) and case fatality (death) by up to 50% in high risk calves. Be aware that overconfidence in and reliance on metaphylaxis and long-acting antibiotics can lead to delayed follow-up treatment if calves are not adequately monitored. In other words, calves still need to be watched very closely in spite of having an antibiotic on board.
4. Feed bunks and watering troughs are known areas for disease transmission. Keep sick cattle, especially chronic pneumonia calves, away from healthy calves and manage their feed and water separately. Do not allow nose-to-nose contact between sick and healthy groups.
5. Do not pen new arrivals next to calves that were purchased last week! Try to load your farm with calves as quickly as possible rather than buy a load every week for 4 weeks and combine them in same area. This is a sure-fire recipe for disaster.
6. Management is key. In a recent article by Chad Engle from the US Meat Animal Research Center, he wrote, “I like to think of our feedyards as five-star hotels. Once these calves step into our “hotel”, they should be greeted by knowledgeable handlers, fresh feed, clean waterers and clean pens. We never put new calves into pens that do not have fresh hay and ration in the feed bunks. It is our job in the feedyard to show those calves that the feedyard is the best place on earth for them to be.” Enough said.
7. Good sanitation, especially regularly cleaning and sanitizing waterers, feed bunks and working chutes is imperative.
8. Buying preconditioned calves that have been weaned and vaccinated for respiratory diseases prior to weaning (especially BVD) and dewormed will help decrease, but does not eliminate, sickness and death loss.

In summary, the disease syndrome caused by *Histophilus somni* may have many different clinical signs besides the typical pneumonia case. Disease onset is rapid and response to antibiotic therapy is frequently very poor due to biofilm protection. Diagnosis in a live calf can be difficult since *H. somni* is often recovered from nasal swabs of healthy calves so the presence of the bacteria in the nose of a sick calf does not prove it is causing disease. It is also a difficult bacterium to grow in the laboratory, especially if the calf has been recently treated with antibiotics. Future research will focus on the relationship between HS and other respiratory pathogens, developing improved diagnostic tests, monitoring antibiotic efficacy and development of effective vaccines for prevention of disease. In the meantime, make your feedyard a five-star hotel for calves to prevent, rather than treat disease.

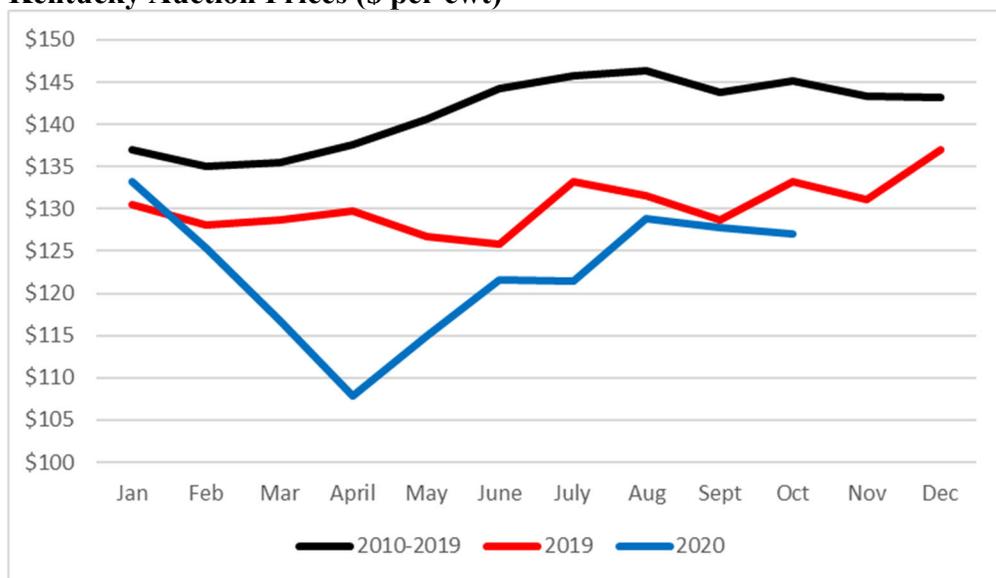
Kentucky Beef Cattle Market Update

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

October has not been kind to cattle producers and traditional seasonal factors have been amplified this year by uncertainty over the election and back-and-forth discussions about another round of stimulus funds. Federally inspected cattle slaughter remains around 2019 levels. Beef cow slaughter has remained pretty high since summer, but dairy cow slaughter has been down over the same time. Dressed steer weights continue to run about 3% above last year. Seasonally, weights tend to peak in late November or early December.

Fed cattle prices decreased slightly from the first of the month, which is a counter-seasonal move. Spring CME© live cattle futures also dropped sharply throughout the month, which worked to pressure heavy feeder cattle prices in KY. Consistently rising corn prices have also weighed on feeder markets as that impacts feed costs this winter. It really wasn't until the last two weeks of the month that full price impact was felt in Kentucky markets, so figure 1 really doesn't show the extent of the drop over the last couple weeks. On a state average basis, an 850 lb M/L #1-2 steer has moved into the low-mid \$120's. Groups and higher quality feeder have not fallen as much and remain in the \$130's.

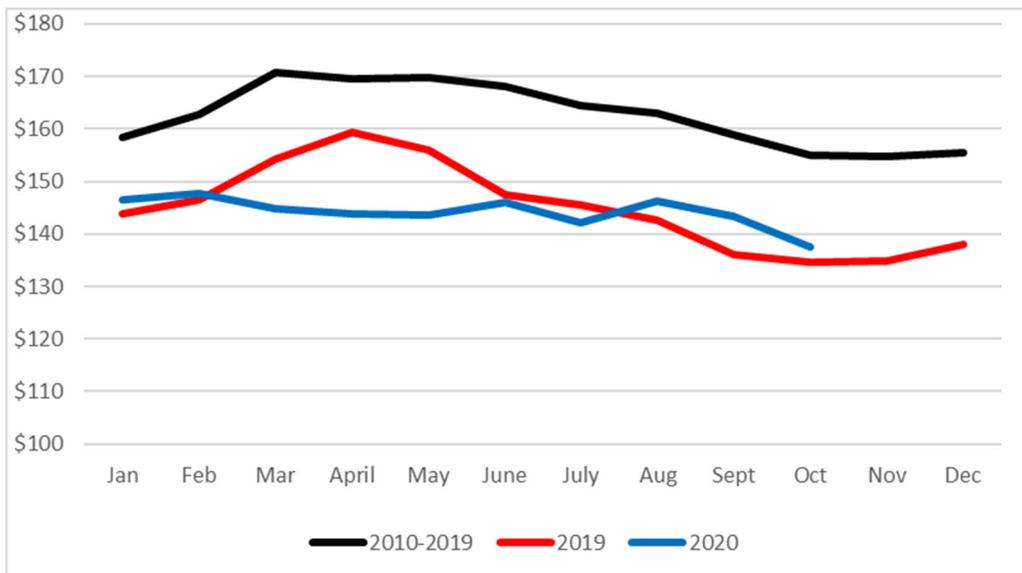
**Figure 1: 850 lb Medium / Large Frame #1-2 Steers
Kentucky Auction Prices (\$ per cwt)**



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

Our flat calf market finally broke below \$140 per cwt on a state average basis for the month of October. Declining spring CME© feeder cattle futures and higher feed prices are also affecting calf markets as they impact winter backgrounding returns. Much like the discussion of figure 1, figure 2 doesn't show the extent of the drop in calf prices that largely occurred during the second half of October. On a weekly basis, calf markets are very close to where they were during this time last year. Market reporters continue to describe separation between weaned calves and green calves, which is very common as weather patterns change in the fall.

**Figure 2: 550 lb Medium / Large Frame #1-2 Steers
Kentucky Auction Prices (\$ per cwt)**



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

The year 2020 has been a year of constant transition and adjustment, which tends to weigh on any market. As I look to 2021, I see no reason to think that beef cow numbers won't be down again. And, a smaller calf crop will help improve prices somewhat. As the economy recovers from COVID, beef demand should also improve. In truth, I really don't think consumer demand has been a major issue this year, but the impact on the foodservice market has been felt on upper end meats. We learned this spring that the biggest COVID-related threat to cattle markets was processor shutdowns, so avoiding those this winter will be key.

Finally, I continue to hear from folks who are unaware of the direct payments in the Coronavirus Food Assistance Program (CFAP) and have not signed up for the second round of these payments (CFAP 2.0). If you are reading this, you are most likely aware, so spread the word to other producers that they should take advantage of this program.

Applied Reproductive Strategies in Beef Cattle

Dr. Les Anderson, Extension Professor, University of Kentucky

An exciting educational opportunity occurs on November 4-5. The Beef Reproduction Task Force is hosting an on-line educational event on improving reproductive efficiency in beef cattle. This seminar is free but pre-registration is required. Follow the links on the flyer to pre-register for this meeting.



Applied Reproductive Strategies in Beef Cattle

Beef Reproduction Task Force

2020 ARSBC – **FREE** Webinar Series

Pre-registration is required for each session

Nov 4th: go.beefrepro.org/Cow_Heifer

Nov 5th: go.beefrepro.org/Bull

Vet CE: go.beefrepro.org/VET_CE

Following registration you will receive an email with session information and links

Nov 4th – Cow & Heifer Session

**All times are CST*

1:00-1:45 PM: Dr. Phillippe Moriel, Univ. of Florida - *Enhancing long-term growth and reproduction of heifers*

2:00-2:45 PM: Dr. Reinaldo Cooke, Texas A&M - *Nutritional strategies for pregnancy success*

3:00-3:45 PM: Dr. Cliff Lamb, Texas A&M - *Utilizing sexed semen in AI and ET programs*

4:00-4:45 PM: Matt Perrier, Dalebanks Angus - *Reproductive technologies that have changed the ranch*

Nov 5th – Bull Session

1:00-1:45 PM: Dr. David Kenny, Teagasc - *Bull development and its impacts on sperm*

2:00-2:45 PM: Dr. Zach McFarlane, Cal. Poly - *Bull nutrition for a successful herd sire*

3:00-3:45 PM: Dr. Tom Geary, USDA-ARS - *Bull fertility: nutritional effects and new measures*

4:00-4:45 PM: Dr. George Perry, Texas A&M - *The ultimate value of breeding soundness evaluations*

Nov 5th – Veterinary Continuing Education Session **Open for all*

5:15-6:00 PM: Dr. Paul Walz, Auburn Univ. - *Vaccination to protect against reproductive disease*

6:15-7:00 PM: Dr. Lee Jones, Univ. of Georgia - *Investigating conception failures and pregnancy loss in beef cows*

7:15-8:00 PM: Dr. Chance Armstrong, Louisiana State Univ. - *Bull breeding soundness exam: What's new?*



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**Beef
Reproduction
Task Force**