

Flint Hills District

Agriculture & Community Development

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Dealing With Anaplasmosis

By Sandy Johnson, extension beef specialist in Colby and A.J. Tarpoff, DVM and extension veterinarian.

A 2017 survey of herds across Kansas found Anaplasmosis positive herds in all reporting districts. See the May 2018 Beef Tips for a summary. It has been a more common problem in the eastern third of the state where prevalence is still higher, but increasingly noted across the state. The disease is caused by the *Anaplasma marginale* bacterium which lives in the red blood cells of infected animals. Once an animal becomes infected, the body's own immune system recognizes the abnormal red blood cells and removes the infected cells from the body. When the normal creation of new red blood cells can't keep up with the loss of the infected ones, the animal becomes anemic. The loss of red blood cells leads to a decrease oxygen carrying ability which results in clinical signs of disease. It usually takes about a month from time of infection to clinical disease but the range is 6-70 days. Although this disease can be spread during any time of year, clinical cases are most common during the late summer and early fall when transmission threats increase.

Transmission occurs by biting insects or equipment such as a needle or other veterinary instruments. Hypodermic needles are very efficient at transmitting this disease. A 2010 study showed that 6 out of 10 naive animals became infected after needle injections following a positive animal. Changing needles between each animal not only eliminates this transmission, but also helps curb other blood borne diseases such as Bovine Leukemia Virus. Cleaning and disinfection between each animal should also be conducted with routine instruments such as ear taggers, tattoo pliers, castration equipment, or any other tool that comes in contact with blood. Certain tick species, mostly Dermacentor species (American Dog Tick), can amplify the pathogen in their salivary gland. After amplification, they expose the next cow to a large amount of pathogen. This is why we refer to these tick species as a biologic vector. Stable flies, deer flies, and horse flies can all mechanically transmit the Anaplasma organism from one animal to another.

As more herds become impacted by anaplasmosis, the first experience may be finding one or more dead mature cows or bulls. Anaplasmosis-infected cows become weak and lag behind the herd due to the lack of oxygen. If forced to move, cows may become excited, mean and fight to keep from moving. Movement of animals with severe clinical cases can even cause death. This change in behavior can occur in normally docile cows and increased awareness is needed to prevent human injuries. Unlike most disease processes, clinical signs usually only occur in adults greater than 2 years of age. This is because younger animals have a greater ability to replace damaged red blood cells.

Control of Anaplasmosis is complex. Managing external parasites that transmit this blood parasite from one animal to another should always be at the top of the list of control measures. Season long control typically involves both environmental control and parasiticide use. Proper manure and feeding management that reduces decomposing feed will help decrease the breeding ground of some of these pests. Parasiticides are also targeted to specific pests during certain times of the year. Applications have many different modes including pour-ons, sprays, dust bags, ear tags, rubs, feed through IGR or larvicides, and environmental application. A mixture of two or more of these methods is often indicated to obtain season long protection. Many veterinarians recommend the use of feed-based chlortetracycline during critical times of the year to help control this disease. Feed-based use of antimicrobials now falls under the Veterinary Feed Directive. Questions have been raised on how effective the dosing is when feeding Chlortetracycline (CTC) to help control Anaplasmosis. A study conducted by K-State Research and

Extension compared CTC administered by body weight daily to cows either in a capsule form or in medicated mineral in a small amount of grain supplement and individually hand fed to a non-medicated mineral also hand fed. A separate phase of the study provided medicated mineral free choice. The concentration of CTC in blood was similar when administered in a gel capsule or individually hand-fed. This indicates that hand fed formulations in a feed are a reliable way to administer this product. When delivered in a free choice mineral (daily allocation for all cows provided each day). Serum CTC concentration were much more variable, which agrees with other studies that have measured and shown variation in daily intake of a free choice mineral. The full manuscript can be viewed at: <https://www.sciencedirect.com/science/article/abs/pii/S2590286520300021?via%3Dihub>.

There is not a fully USDA licensed vaccine on the market for anaplasmosis. There is however an experimental vaccine that producers may be able to utilize in some states. Use of this vaccine does need approval from the state veterinarian where the animals are located. While the vaccine does not prevent infections, anecdotal reports show a reduction of clinical signs of at risk animals when proper label instructions are followed. Continued research is currently being conducted to potentially create new vaccine alternatives.

Treatment of active infections with clinical signs has been a challenge for producers. Treatment has also been limited to the use of Oxytetracycline injectable formulations for decades. There has been a growing concern if some of these strains of *Anaplasma marginale* have developed resistance, or if treatment efficacy has been reducing. Another antimicrobial has been granted conditional approval for treatment of clinical anaplasmosis cases. Entofloxacin (Baytril 100-CA1) is a prescription medication that can be used in replacement dairy heifers under 20 months of age, as well as all classes of beef cattle except those under 2 months of age and beef bulls intended for breeding. It is important to note that federal law prohibits any extra label use of this class of antimicrobial.

Producers should be aware of symptoms of anaplasmosis to identify the issue as soon as possible if it occurs and to avoid the unaccustomed and potentially dangerous behavior of a critically ill animal. If anaplasmosis is confirmed in a herd, your veterinarian can help devise a management plan appropriate to the situation. Establishing and maintaining a strong Veterinary-Client-Patient-Relationship with a local veterinarian is extremely important when managing this disease.

For more information on anaplasmosis, please follow the link to the anaplasmosis fact sheet: <https://bookstore.ksre.ksu.edu/pubs/MF2212.pdf>



“A
sustainable
agriculture
is one which
depletes
neither the
people nor
the land.”
-Wendell
Berry

How Am I Doing?

As we look forward to the cooler fall weather and changing colors of leaves from green to the beautiful shades of red, yellow, and orange, I want to know what you think of the newsletter. How am I doing? Am I sharing helpful information. Is there something you would like to see change? Are there any topics you would like to see added? As an agent, I want to make sure that I am sharing information that is going to be the most beneficial to producers not just in my area, but throughout the state. To accomplish this, I am going to need your help.

Included in this section of the newsletter is a QR code. To use this code, you will use your phone camera to scan the QR which will then take you to a survey regarding the newsletter. The survey is 5 questions regarding what you like most about the newsletter, if you think it is beneficial, and what you would like to see added and/or changed. A link to the survey will also be available at the end of this article.

By completing this survey, I will have a better insight into what you as the reader would like to see and what information you think best helps you as a producer. This will also help me as an agent so that I may better serve you and others in the state of Kansas. If you have questions regarding the survey, please feel free to contact me. The link is: https://kstate.qualtrics.com/jfe/form/SV_4O3ZoiA2N38htvU



Best,
Shannon
(Agriculture/4-H Agent)

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K-State Research and Extension-Flint-Hills District

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-Mailing list: Know someone who should receive this newsletter? Call the office to have them added at (620)767-5136 or email Shannon at spencer@ksu.edu.

August Ag Fact

Kansas has an official state soil. It's called Harney silt loam and covers about 4 million acres of land in the state.



Fall Lawn Seeding Tips

The keys to successful lawn seeding are proper rates, even dispersal, good seed to soil contact, and proper watering. Evenness is best achieved by carefully calibrating the seeder or by adjusting the seeder to a low setting and making several passes to ensure even distribution. Seeding a little on the heavy side with close overlapping is better than missing areas altogether, especially for the bunch-type tall fescue, which does not spread. Multiple seeder passes in opposite directions should help avoid this problem.

A more serious error in seeding is using the improper rate. For tall fescue, aim for 6 to 8 pounds of seed per 1,000 square feet for new areas and about half as much for overseeding or seeding areas in the shade.

Kentucky bluegrass is much smaller seed so less is needed for establishment. Use 2 to 3 pounds of seed per 1,000 square feet for a new lawn and half that for overseeding or shady areas.

Using too much seed results in a lawn more prone to disease and damage from stress. The best way to avoid such a mistake is to determine the square footage of the yard first, and then calculate the amount of seed. Using too little seed can also be detrimental and result in clumpy turf that is not as visually pleasing.

Establishing good seed to soil contact is essential for good germination rates. Slit seeders achieve good contact at the time of seeding by dropping seed directly behind the blade that slices a furrow into the soil. Packing wheels then follow to close the furrow. The same result can be accomplished by using a verticut

before broadcasting the seed, and then verticutting in a different direction a second time.

Core aerators can also be used to seed grass. Go over an area at least three times in different directions, and then broadcast the seed. Germination will occur in the aeration holes. Because those holes stay moister than a traditional seedbed, this method requires less watering.

If the soil that has been worked by a rototiller, firm the soil with a roller or lawn tractor and use light hand raking to mix the seed into the soil. A leaf rake often works better than a garden rake because it mixes seed more shallowly.

Water newly planted areas lightly, but often. Keep soil constantly moist but not waterlogged. During hot days, a new lawn may need to be watered three times a day. If watered less, germination will be slowed. Cool, calm days may require watering only every couple of days. As the grass plants come up, gradually decrease watering to once a week if there is no rain. Let the plant tell you when to water. If you can push the blades down and they don't spring back up quickly, the lawn needs water. Once seed sprouts, try to minimize traffic (foot, mower, dog, etc.) seeded areas receive until the seedlings are a little more robust and ready to be mowed. Begin mowing once seedlings reach 3 to 4 inches tall. (Ward Upham)



Why Livestock Producers Should Care about Antibiotic Resistance

Courtesy of Mike Tokach, Swine nutritionist, Bob Goodband, Swine nutritionist, A.J. Tarpoff, Extension Veterinarian, Jose Soto, and Morgan Scott, Veterinary epidemiologist

Antibiotics are critical tools for treatment and control of diseases in livestock. Antibiotic resistance threatens the use of antibiotics in livestock for two important reasons. If resistance develops, the antibiotic may not be effective in treating the disease. Increased antibiotic resistance could lead to policies limiting access to antibiotics for use in livestock.

Q: What is antibiotic resistance?

Infectious bacteria that used to be susceptible to antibiotic therapy but are now no longer killed or inhibited by a particular antibiotic are considered to have acquired "resistance" to that antibiotic. Many bacteria are present in the gut. Antibiotics kill bacteria that are causing an illness but negatively affect good bacteria that protect the body from infection. Antibiotic-resistant bacteria are not affected but grow and multiply because they no longer have to compete with as many good bacteria. To complicate matters, bacteria can transfer antibiotic-resistance traits to other bacteria.

Q: Is antibiotic resistance in livestock really an issue for human health?

Although the major contributor to antibiotic resistance in humans is antibiotic use in human medicine, many studies agree that antibiotic use in animals has added to the resistance problem, particularly when considering enteric (gut) bacteria. More than 15 classes of antibiotics have been developed to kill bacteria in humans or livestock. Over time, all have become associated with resistance. Antibiotic use in livestock leads to an increased prevalence of antibiotic-resistant bacteria. Much of the resistance is to antibiotics that are not important for human use; however, some resistance has developed to antibiotics important to human medicine.

Q: How are people exposed to antibiotic-resistant bacteria from livestock?

- Consumption of meat products that have been contaminated with antibiotic-resistant bacteria that were not properly handled or cooked;
- When fertilizer or water containing animal feces harboring

antibiotic-resistant bacteria is used on food crops later consumed by people and

- Failure to follow good hygiene/sanitation practices when working with livestock.

Q: Which bacteria in livestock pose the greatest risk for humans?

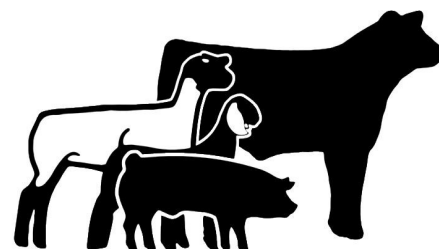
Campylobacter can cause mild diarrhea in young animals when present in the small intestine. *Campylobacter* has developed resistance to several antibiotics including ciprofloxacin, which is an important broad-spectrum antibiotic for human. The use of ciprofloxacin is banned in livestock.

Salmonella enterica may be present as one of many strains. Most strains have low pathogenicity, but some strains affect livestock with occasional diarrhea, septicemia, and death. Antimicrobial resistance in *salmonella* is monitored intensively because of potential transmission between animals and people.

Enterococcus spp. are commensal bacteria found in human intestines as well as in livestock. In humans, these infections pose a minor risk to healthy individuals but may cause life-threatening infections in individuals with compromised immune systems. Vancomycin is typically used to treat these infections, although some strains express vancomycin-resistant genes.

Staphylococcus aureus is a Gram-positive bacterium typically associated with skin infections. When resistant to methicillin (MRSA) or vancomycin (VRSA), this organism can pose a serious risk to human health.

Escherichia coli is a predominant isolate in feces and can cause diarrhea in young pigs. The direct risk of infection due to *E. coli* resistance is hard to quantify, but the organism can readily transfer resistance genes to other bacteria.





K-STATE

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for Life*



Upcoming Events

The following are area or Statewide Agriculture, and/or Community Development/4-H events.

For more information on these events please contact the Extension Office

August

12– Morris Co. 4-H Carcass Dinner– Council Grove

14– 4-H State Horticulture Contest– Manhattan

21-22– Kansas Livestock Sweepstakes– Manhattan

September

6– Labor Day– Offices Closed

10-19– Kansas State Fair– Hutchinson

30– K-State Beef Stocker Day– Manhattan

