



# Beef Tips

May 2016

Department of Animal Sciences & Industry

[www.asi.ksu.edu/beeftips](http://www.asi.ksu.edu/beeftips)

## Upcoming Events

### Beef Sustainability Knowledge Summit

May 10, 2016  
Manhattan, KS  
[KSUbeef.org](http://KSUbeef.org)

### Anaplasmosis Symposium

May 11, 2016  
Salina, KS  
[KSUbeef.org](http://KSUbeef.org)

### K-State Cattle Feeders College

May 24, 2016  
Garden City, KS  
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[KSUbeef.org](http://KSUbeef.org)

### Beef Improvement Federation Annual Convention

June 14-17, 2016  
Manhattan, KS  
[KSUbeef.org](http://KSUbeef.org)

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## Dealing with anaplasmosis in cows

David Rethorst, DVM, Veterinary Diagnostic Lab

Historically, anaplasmosis in Kansas has been diagnosed in the counties east of and including the I-35 corridor. The 2013 Disease Trend Map from the Kansas State Veterinary Diagnostic Laboratory (**KSVDL**) shows that anaplasmosis was diagnosed in 37 of the 51 counties in this area and only 8 of the 54 counties west of the I-35 corridor. In 2015, the KSVDL map revealed that cattle infected with anaplasmosis were diagnosed in 45 of the 51 eastern counties and 24 of 54 counties west of the I-35 corridor. Three of the fifteen counties west of the I-35 corridor, yet east of and including the 281 corridor, had positive cases of anaplasmosis in 2013. Yet in 2015, cattle infected with anaplasmosis were diagnosed in 13 of the 15 counties. Are there more cases of anaplasmosis creeping west in Kansas or are our improved diagnostic tools and our awareness of the disease helping us do a better job of finding this problem in our cows? Or is it a little bit of both? With cows being routinely hauled into and out of disease endemic areas on an annual basis for summer grazing and reports of strains of *Anaplasma marginale* that are resistant to chlortetracycline, one can see why the prevalence is increasing in Kansas.

*Anaplasma marginale* is a blood parasite that is spread by wood ticks, dog ticks, horse flies, deer flies, stable flies and fomites such as injection needles, tagging tools, tattoo pliers and other instruments that may be contaminated with blood. Cattle and the male wood tick are the primary reservoirs of the disease, with the organism multiplying in the salivary gland of the male wood tick. In Kansas, clinical signs of the disease are seen late summer through the fall months. These signs are the result of a marked anemia caused by *A. marginale* including open mouth breathing, staggering,

and an aggressive attitude which are attributable to hypoxia created by the anemia. Other signs are yellow membranes of the eyes and vulva, abortion and death of mature cows. Death of mature cows during late summer and fall is one of the more common signs of anaplasmosis.

Many producers use chlortetracycline (**CTC**), a feed grade antibiotic, to prevent, control and treat anaplasmosis in their cows. In January 1, 2017 the Veterinary Feed Directive (**VFD**) that will go into effect will require a producer to have a VFD signed by their veterinarian and filed with their feed supplier before they can purchase CTC. Extra-label use of feed grade antibiotics will not be allowed and certainly will not be prescribed by a veterinarian in the VFD era.

Chlortetracycline is labeled for “*the control of active infection of anaplasmosis.*” Control, by Food and Drug Administration definition, means that signs of clinical disease are present in the herd and the antibiotic is being used to control the spread of disease to other animals in the herd. In the case of anaplasmosis, if CTC cannot be used until clinical signs of the disease are present, the producer is “behind the eight ball”. If the use of positive blood tests is allowed in order to document “active infection” and thus allow “control” strategies to begin would be a step in the right direction. At this point, we do not know if this will be allowed by FDA. Hopefully we will have a better idea after the Anaplasmosis Symposium being sponsored by Kansas State Research and Extension (KSRE) and the KSU College of Veterinary Medicine (KSU CVM) on May 11,

*continued...see Anaplasmosis on page 4*

**“You can’t manage what you don’t measure.”**

## ***Tally Time – Too many late calving cows***

*Sandy Johnson, livestock specialist*

We choose the length of our calving season by how long we leave the bulls out. Some leave bulls out until it is convenient to remove them and may get away with a reasonable calving period, until they don’t. A recent call reported a frustration with as many cows yet to calve after 60 plus days of calving as had calved in the first or second 21 day periods. Assuming all those remaining calve in the 4<sup>th</sup> 21-day period, those calves will be 80 to 100 pounds lighter than the early born calves at a common weaning point. If we assume a sale price of \$1.80, that is \$144 to \$180 in lost value.

It will be important for the producer to work through possible causes of this issue which may include nutrition, genetics, health, male fertility, management or a combination to prevent future occurrence. Consideration may be given to marketing these as bred females as they may fit better in another producer’s system. There are some management actions that can be taken now to hasten rebreeding.

The first step is to get them into a positive energy balance as soon as possible after calving. They will need the highest quality feed available and whatever additional supplement might be needed to meet requirements. If they are grazing, remember there must be both sufficient quality and quantity to meet needs.

There are a number of factors that control how long it takes before a cow resumes normal estrous cycles after calving. They include presence of the calf, suckling, nutritional status, cow age, uterine involution and calving difficulty. Nutritional status generally has the longest negative effect. A key component of the endocrine mechanism that controls the resumption of estrus cycles is LH (Luteinizing Hormone).

Immediately after calving a small amount of estradiol in the cow’s system keeps the amount of LH released low. As time passes after calving, the cow becomes less sensitive to the negative feedback of the estradiol and LH release increases. At some point sufficient LH is released to result in ovulation and formation of the first postpartum corpus luteum. An early release of prostaglandin F<sub>2α</sub> often occurs after this first ovulation, shortening the estrous cycle. Generally, the next cycle will be of normal length and fertility.

Tools we can use to get cows cycling sooner mimic or stimulate parts of this normal process. Progesterone exposure, temporary weaning/calf removal, and bull exposure have all been shown to

shorten the postpartum interval to conception. Each of these treatments can cause an increase in LH pulse frequency.

The use of a CIDR (intravaginal insert containing progesterone) or feeding melengesterol acetate (MGA; orally active progestin) have both been shown to induce estrus in previously non-cycling cows. When compared, more cows were cycling sooner after CIDR treatment than MGA feeding. The CIDR does not have the complication of MGA feeding and the need to ensure each animal gets their daily dose. One week of treatment is common in research settings but 5 to 9 days would likely work as well for this purpose.

Changes in response to temporary calf removal have been shown after 48 hours but in some cases up to 96 hours were needed. Younger calves often have greater shrink associated with the separation but most studies have not found a difference in 205 day adjusted weights. No doubt the separation has some degree of stress on everyone including those that are in listening range of the complaining cows and calves. A tight fence, calf-accessible water and access to high quality feed are needed.

Exposure to bulls or androgenized steers or cows have had positive effects on cyclic activity in cows. Direct contact with bulls produced more cycling females than fence line contact. The interaction of all factors controlling the postpartum interval at the time of exposure has an effect on their response. While data are mixed on the timing of the bull exposure, the response does seem to be sooner when cows are exposed later postpartum as compared to soon after calving. One study combined bull exposure and temporary weaning after treatment with a progestogen. Presence of vasectomized bulls and temporary weaning resulted in higher first service conception rate and fewer services per conception than bull exposure alone or controls.

For postpartum cows that are thin and having difficulty achieving a positive energy balance, only permanent weaning of the calf may help her resume normal cycles within an acceptable time frame.

To avoid the need to apply these tools, watch body condition score of cows to help plan a weaning time. Develop a production system that ensures cows achieve adequate BCS prior to calving. Monitor your calving distribution each year (by cow age group to the extent possible) and be sensitive to increasing numbers of late calving cows. Use a short breeding season on yearling replacement heifers (no longer than 45 days).

## ***Match mineral supplementation to cattle diets***

*Jaymelynn Farney, beef systems specialist*

Mineral supplementation is something that can be somewhat confusing, yet it is important to make sure that cattle are receiving the required amount. Minerals are required by animals the same as protein, energy, water, and vitamins. There are two main categories of minerals classified based on the amount required: macrominerals and microminerals (also known as trace minerals). Macrominerals are included in large amounts within the diet and are often reported as a percentage of the diet. Microminerals are included in minute amounts being reported as parts per million (ppm).

The primary macrominerals important for growth, bone development, energy utilization, hormone secretion, and fertility are calcium, phosphorous, and magnesium. Calcium and phosphorous are typically considered the most important because they not only need to meet cattle requirements, but also need to be balanced in relation to each other. In an ideal diet the ratio of calcium to phosphorous should be 1.5:1 to 3:1. Balancing for phosphorous requirements is important in your mineral supplementation because phosphorous is an expensive ingredient and unpalatable to cattle. Most forages are higher in calcium than phosphorous whereas grains and by-products are typically higher in phosphorous. With this in mind, most grazing minerals are formulated differently than those in a high energy (high grain) ration.

There are different sources of magnesium with varying absorptive capability and palatability. Magnesium oxide is the most common form of magnesium offered to cattle, even though it is fairly unpalatable. Magnesium sulfate and chloride are other options that are more palatable, however these forms can cause some issues with blood pH levels and are more expensive than magnesium oxide.

Potassium, sodium, and chlorine are other macrominerals important in muscle contraction, nerve transmission, and enzymatic function while impacting intake, gain, and milk production. Sodium and chlorine are included in diets as salt. Cattle have an “appetite” for salt so you can use extra salt to entice cattle to eat loose mineral or at high levels it can be used as a limiter for mineral or feed. Since salt is palatable for cattle and they have cravings for salt, DO NOT provide a salt block or loose salt in conjunction with loose mineral if you want them to consume appropriate quantities of the loose mineral.

Sulfur is the final macromineral of significant importance. Sulfur is required for synthesis of amino acids, and B-vitamins (thiamin and biotin). Deficiency of sulfur reduces feed intake, gain, and digestibility. In contrast to this, high levels of sulfur can lead to issues, especially negative interactions with important trace minerals that can lead to reductions in gains and fertility. Using dried distillers grains in minerals could cause some subacute trace mineral issues since DDGs can be high in sulfur.

Trace minerals are most commonly associated with reproduction and immune function. Important trace minerals include copper, manganese, selenium, zinc, cobalt, iodine, and iron. Copper, manganese, selenium, and zinc are very important in reproduction and can be fed as an inorganic or organic source, or offered as an injectable. Sources of selenium, especially in areas of selenium deficiency, might need to be supplied in the organic form to maximize absorption since the FDA restricts the total amount of selenium that can be fed to cattle. Rarely do clinical deficiencies of trace minerals occur, rather subclinical symptoms such as reduction in pregnancy rates, rough hair coats, hoof issues, retained placenta, low libido, and poor calf performance are observed.

Depending on forage type, your mineral needs will be different. On tame pastures such as fescue, fertilization plays a major role on the amount of macrominerals provided by grass. In non-fertilized fescue pasture, calcium and phosphorous levels are lower than requirements. With appropriate fertilization, during the summer months calcium and phosphorous levels are adequate to meet cattle requirements, yet during the winter months (October to April), fescue does not provide enough calcium to meet cattle requirements. Fertilizing fescue with phosphorous results in phosphorous levels that meet cattle requirements from October through May.

Plants in native range typically have their highest phosphorous levels in the spring with a decline in levels through the summer and are definitely deficient in the dormant period. With this in mind, a mineral supplementation program could be to provide a lower phosphorous mineral in the spring flush and feed the higher phosphorous mineral while the forage is dormant.

***“A mineral supplementation program could be to provide a lower phosphorous mineral in the spring flush and feed the higher phosphorous mineral while the forage is dormant.”***

*continued...see Minerals on page 4*

Beef Tips  
May 2016

***“The disease (anaplasmosis) is being reported in more counties than three years ago.”***

## ***Anaplasmosis... continued from page 1***

2016 in Salina. For more information on the meeting or to register, contact Anthony Ruiz at [anruiz@ksu.edu](mailto:anruiz@ksu.edu) or 785-392-2147. Registration is due May 6, 2016. In some instances, there are questions about how is CTC delivered that hopefully can be clarified at the symposium.

Other strategies that can be utilized in the control of anaplasmosis include tick control, fly control and being diligent in avoiding the transfer of blood from animal to animal via needles, tattoo pliers and other instruments. Insecticide pour-ons can aid in the control of both ticks and flies. Reducing and eliminating potential breeding sites is necessary for proper fly control. Studies indicate pasture burning reduces tick numbers however, anecdotal reports following burning indicate that ticks are driven to the draws during burning.

A killed, provisional use anaplasmosis vaccine is currently being produced at Louisiana State University. This vaccine was a federally licensed product at one time but a change in marketing strategy by the sponsoring pharmaceutical company removed it from the market. The vaccine is reported to not prevent infection by *A. marginale* but will reduce the clinical signs of the disease. The use of this vaccine must be authorized by the state veterinarian. Once again, more questions that need to be answered.

As you can see, anaplasmosis is a growing concern in the state of Kansas. The disease is being reported in more counties than three years ago. There are questions about how we are going to be able to use CTC after January 1, 2017 as well as questions about use of the killed vaccine and how to control ticks and flies. Communicate with your veterinarian as you seek answers for your questions. KSRE and KSU CVM are both committed to helping the producers and veterinarians in the state of Kansas answer these questions.

## ***Minerals... continued from page 3***

Understanding the characteristics of the forage and any supplement offered can allow you to make appropriate adjustments in your mineral program. There are times where you can offer a low phosphorous mineral, which will reduce cost, and there are times that a trace mineral might be all that needs to be offered. Gone are the days where a 12-12-12 mineral is your most economical option for cattle production. It is also important to quantify mineral intake to determine if feeding intervention is needed. Appropriate feeding of mineral is one method to manage feed costs.

# K-State Cattle Feeders COLLEGE

## MILL & MAINTENANCE SESSION

GARDEN CITY KS - MAY 24, 2016

### Finney County Exhibition Building — 409 Lake Avenue

*This edition of the K-State Cattle Feeders College will offer in-depth and hands-on educational sessions for individuals directly involved in the milling and maintenance departments.*

5:00 P.M. Registration

5:30 Dinner

Welcome and Introduction of Speakers

Presentation of "Top Hand" Awards

### FEATURED PRESENTATIONS

#### Silage Safety

- ♦ Dr. Keith Bolsen, Kansas State University Emeritus Professor

#### Feed Mixer Technology and Maintenance

- ♦ Mr. Mark Cooksey, Roto-Mix LLC, Dodge City, KS



WELDING

#### Practical Welding Tips

- ♦ Mr. Kurt Wenzel,  
Garden City Community College Welding Program

Dinner sponsored by:



For more information go to [www.southwest.ksu.edu](http://www.southwest.ksu.edu)

### "Top Hand" Cattle Feeding Industry Employee Awards

Help us tell the story of the individuals who make Kansas the best place to feed cattle in the nation.

Do you have members of your organization that are "Top Hands" and symbolize the values of hard work, honesty, reliability, integrity, and animal stewardship that the Kansas Cattle Feeding Industry was built on? If so, tell us what makes these individuals stand out from the herd in 100 words or less.

**A representative of the nominating feedyard and the award recipient must be present to accept awards.**

Nominations are due May 20, 2016. Submit nominations via mail or e-mail to:

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Garden City, KS 67846  
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**MERCK**  
Animal Health



Kansas State Veterinary  
DIAGNOSTIC LABORATORY

NO COST to attend, but registration is required by May 20th

To register, please contact one of the following:

Katelyn Barthol  
Finney County Extension  
620-272-3670  
[kbarth25@ksu.edu](mailto:kbarth25@ksu.edu)

**K-STATE**  
Research and Extension

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