

The Latest Across the Plains

Timely Reminders

- ◆ Keep pens box scraped.
- ◆ Haul manure whenever possible.
- ◆ Have your calving facilities and OB equipment ready.
- ◆ Have the right mineral for your cows' stage of production.
- ◆ Prepare now so your Hi-mag and Fly control minerals are on hand.
- ◆ Target a BCS of 5-5.5 on mature cows and 5.5-6.0 on heifers at calving.
- ◆ Be sure to adjust cow nutrition to match requirements as they calve.
- ◆ Make sure waterers are clean and in good working order.
- ◆ Decide which implant you will use on calves.
- ◆ Semen check bulls.

Unused Feed

"A ship is always safe at shore but that is not what it's built for." — Albert Einstein

Save Money \$\$\$ Test Your Feeds

Tests are relatively inexpensive, usually costing less than \$18, for the information derived. Contact our office to set up an appointment to have us pull feed samples if we have not done so yet.

What's New in the Industry

Remember that Rumensin and CTC are not a legal combination in mixed feed.

We want to hear from you...

Do you have a question you would like one of the nutritionists to address in depth in our newsletter? Just submit your question through our website www.GPLC-Inc.com and we will get to work on it.

Calendar of Events

- **Mar 21 - 22** Midwest Cow-Calf Symposium, Omaha, NE
- **Mar 28 - 30** Mid America Farm Expo, Salina, KS
- **Mar 28 - 30** Wisconsin Public Service Farm Show, Oshkosh, WI
- **Mar 31 - Apr 2** Cattle Raisers Convention & Expo, San Antonio, TX
- **Apr 3 - 6** National Institute for Animal Agriculture Annual Conference, Columbus, OH
- **Apr 5 - 7** Great Bend Farm and Ranch Expo, Great Bend, KS
- **Apr 6** Eastern Oklahoma Beef Cattle Summit, McAlester, OK
- **Apr 11 - 13** NAMA's Agri-Marketing Conference & Trade Show, Kansas City, MO
- **Apr 20 - 22** Oklahoma City Farm Show, Oklahoma City, OK



The Great Plains News Feed



Controlling Anaplasmosis in a VFD World

Zeb Prawl, M.S.

Since January 1, 2017, everyone involved in the livestock production business has had to learn how to utilize Veterinary Feed Directives (VFD) if they desire to feed one of several antibiotics approved for livestock production but also found to be important in human medicine. For most involved in beef cattle production, the one antibiotic that has received the most attention because of this new regulation is Chlortetracycline, or CTC. CTC has had many claims in beef cattle production, one of which is Anaplasmosis prevention. Anaplasmosis has long been thought of as a disease mostly contained to the southern/southeastern U.S. But over the last 20 years, Anaplasmosis has spread to almost all parts of the U.S. due to the efficient transport of livestock.

Anaplasmosis is a cattle disease caused by an organism named *Anaplasma marginale*. This organism is a unique one as it is called a rickettsia – it is halfway between a virus and a bacteria. Like a virus, it cannot grow without living cells around it. However, it is susceptible to tetracyclines like a bacteria. Anaplasmosis is the resulting disease caused by an infection of this organism. Because this is a blood borne disease, infected cattle react to this organism by removing their own infected red blood cells because they recognize them as antigens, which leads to severe anemia and often death in cattle.

All cattle, as well as several other ruminants, are susceptible to being infected and can act as a reservoir of the organism. Cattle of any age can be infected, but young cattle seldom become ill from the disease. Cattle under 12 months of age that become infected go through an incubation period of 45-90 days, have a very mild illness that is rarely noticed, then become a carrier of it for life. Cattle that are between 1-2 years of age can become ill after incubation, with the severity of illness depending on age. The older the animals, the more severe the illness can be. Older animals that become ill and are not treated can have a death rate of at least 50%. Animals that do get sick and happen to live become immune carriers and stay infected for life. While they may not get sick again from Anaplasmosis, they are carriers that easily can pass the organism to other animals through a variety of blood transfers from animal to animal including ticks, mosquitoes, biting flies, and needles. It is easily conceivable that one infected animal can infect an entire herd within a relatively short amount of time.

Nutritionally, there is little to do to help prevent Anaplasmosis. In fact, it has been shown that older animals in better shape actually have more severe cases of Anaplasmosis when infected. However, prevention of Anaplasmosis by long term feeding of CTC has long been accepted as proven to be effective in older cattle. Currently, there are three approvals for feeding of CTC to control Anaplasmosis in cattle. The first is for beef cattle weighing under 700 lbs. It is for a feeding rate of 350 mg/head/day. The second is for beef cattle weighing over 700 lbs. It is for a feeding rate of 0.5 mg/lb of bodyweight/day. Both are for the control of active infection of Anaplasmosis caused by *Anaplasma marginale* susceptible to Chlortetracycline.

The third claim is for actual free-choice feeding of CTC to control Anaplasmosis, which is closely regulated. It is for beef and non-lactating dairy cattle with a feeding rate of 0.5-2.0 mg/lb of bodyweight/day. This is as an aid in the control of active infection of Anaplasmosis caused by *Anaplasma marginale* susceptible to Chlortetracycline. This free-choice feeding of CTC has the following LIMITATIONS: In free-choice cattle feeds such as feed blocks or salt-mineral mixes; Free-choice feed must be manufactured from NADA 048-761 (Aureomycin) or ANADA 200-510 (Deracin) using an FDA-approved formulation. A feed mill license is not required if following free-choice loose-mineral formulation published in 21 CFR 558.128.

In the past, producers have fed CTC through their mineral/vitamin mixtures at levels from 4,000 g/ton to 8,000 g/ton of CTC. In order to do that now, one must have a VFD from a licensed veterinarian with a stated level of CTC in the product that is to be fed daily. This can be done through the mineral or through a feed. Either one must be delivered to the animals on a daily basis, according to the FDA approval claims. For the third claim listed above, there is one widespread commercially available FDA approved mineral formulation that can be fed free-choice for Anaplasmosis prevention. The feed label for this product would look like this:

**YOUR FEED MILL Free-Choice
Anaplaz Mineral
MEDICATED**
A Mineral Supplement for Beef Cattle.

CAUTION: Federal law restricts medicated feed containing this veterinary feed directive (VFD) drug to use by or on the order of a licensed veterinarian.
For beef and non-lactating dairy cattle: as an aid in the control of active infection of Anaplasmosis caused by *Anaplasma marginale* susceptible to chlortetracycline.

ACTIVE DRUG INGREDIENT				
Chlortetracycline			6,000.0 g/ton
GUARANTEED ANALYSIS				
Calcium	(Min)	10.5	(Max)	12.5 %
Phosphorus			(Min)	8.5 %
Salt	(Min)	13.5	(Max)	16.5 %
Magnesium			(Min)	6.0 %
Potassium			(Min)	1.25 %
Zinc			(Min)	**** ppm
Copper			(Min)	**** ppm
Selenium			(Min)	*** ppm
Vitamin A			(Min)	***,*** IU/lb

LIST OF INGREDIENTS

Dicalcium Phosphate, Salt, Calcium Carbonate, Magnesium Oxide, Cottonseed Meal, Molasses Products, Mineral Oil, Potassium Chloride, Copper Sulfate, Iron Oxide, Sodium Selenite, Vitamin A Supplement, Vitamin D3 Supplement, Vitamin E Supplement, Zinc Sulfate, Zinc Oxide, Ferrous Sulfate, Manganese Sulfate, Manganese Oxide, Ethylenediamine Dihydriodide, Calcium Iodate, Cobalt Sulfate, Cobalt Carbonate.

FEEDING DIRECTIONS

Feed a non-medicated mineral supplement for 14 days prior to feeding YOUR FEED MILL Free-Choice Anaplaz Mineral, then feed YOUR FEED MILL Free-Choice Anaplaz Mineral continuously on a free-choice basis. Pasture and roughage should be adequate to assure consumption of 0.0027 to 0.011 oz/lb of bodyweight/day of this product, which will provide 0.5 to 2.0 mg chlortetracycline per lb of bodyweight per day. If cattle consume more or less than these amounts, move feeder further or closer to the general resting or watering areas. If consumption of the YOUR FEED MILL Free-Choice Anaplaz Mineral is greater than 0.011 oz/lb of bodyweight/day after moving feeder further from general resting or watering areas, provide salt in a separate feeder to help decrease consumption of YOUR FEED MILL Free-Choice Anaplaz Mineral.

WARNING: A withdrawal period has not been established for this product in pre-ruminating calves. Do not use in calves to be processed for veal.
CAUTION: This feed contains added copper, do not feed to sheep.
CAUTION: Do not exceed 0.3 mg/kg of selenium in the complete feed.

This product can look only like this in terms of its macro-mineral formulation. Trace mineral and vitamin fortification can vary a little bit, but is dependent on the actual trace mineral and vitamin premixes used as there is room in the formula for only a specified amount of premixes for these nutrients. In other words, one cannot take their standard or custom mix mineral formulas they have always used and just add 6,000 g/ton of CTC to it and be legal. This mineral formulation cannot be altered in any way during manufacturing, other than the addition of Altosid-IGR for horn fly control. It is widely recognized that this mineral/vitamin formulation is less than desirable in terms of precision mineral fortification to beef cattle grazing average to good quality grasses, which is typically Anaplasmosis season. It is also known that intakes of this mineral formulation have been inconsistent, but generally lower than desired. One must make sure they are doing all they can to promote consumption of this product if it is going to be the way you deliver the CTC for Anaplasmosis prevention in your cow herd.



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There are vaccines that are potentially available for Anaplasmosis prevention in cattle. The first is a killed vaccine that was developed at Louisiana State University in the late 1980's and early 1990's. The vaccine is not licensed by the USDA, but is approved for use as an experimental vaccine in the following states/territories: Arkansas, California, Florida, Georgia, Idaho, Indiana, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maryland, Mississippi, Nevada, North Dakota, Ohio, Oklahoma, Oregon, Tennessee, Texas, Virginia, West Virginia, Wisconsin, and Puerto Rico. The USDA has not carried out efficacy or potency tests on this experimental vaccine. It is available only through licensed veterinarians. The second Anaplasmosis vaccine is a live vaccine developed by a lab in California. However at this time, the availability of this vaccine cannot be determined.

Anaplasmosis is a disease that we cannot afford to turn our cheek to in hopes that it won't strike our cow herds from year to year. It is a disease that can strike suddenly with little to no warning. We at Great Plains Livestock Consulting, Inc. are available to help you decide the best way to continue Anaplasmosis prevention in your cattle through a feed and/or program and to work with your veterinarian to make sure that method of prevention is adequate to get the job done. Give us a call so that we might help you with those plans.



Post AI Heifer Nutrition

Chris Muegge, M.S.

Although Midwestern winters are anything but predictable, there is an end in sight. Calves are hitting the ground, feed stock supplies are being inventoried, and spring planting and grazing strategies are starting to take shape. These all typically coincide with the beginning of breeding season in our cow herds. Traditionally, the approach of synchronizing and breeding our heifers and then turning them out to grass has timed out rather well with the onset of green forage in our pastures. However, recent research has suggested that without proper management we may be hindering the ability of these heifers to maintain their pregnancy after breeding. The vast majority of research discusses how to grow these heifers through the winter, maintaining a proper body condition and average daily gain, but this all may be in vain if proper steps are not taken post-conception.

Early spring growth grass is typically high in protein and energy; however, it is also very high in moisture. A mature cow can eat up to 130 lbs of forage while heifers may only consume 60-70% of that amount. The high moisture content of early spring grass results in a dilution effect on the available protein and energy in the forage. This is most likely leaving heifers in negative energy balance when turned out to pasture. A negative energy balance results when an animal is consuming less energy than what it takes to support itself. Therefore, turning heifers out too early may leave them unable to maintain themselves and their pregnancy. In breeding stock, this often means loss of weight, an increased post-partum interval, and reduced pregnancy rates.

Maternal recognition of pregnancy does not take place for 16-17 days post insemination while it will take up to 25 days for the embryo to become attached to the uterus. Any stressors or changes in environment and nutrition during this time could prevent a successful pregnancy. In order to answer some of these questions, a series of studies were performed to examine the effects of grazing experience and ration composition on heifer pregnancy rates.

The University of Wyoming examined the effects of grazing experience on heifer performance. These heifers were developed for 45 days in a dry-lot and then either turned out to pasture 30 days prior to breeding and remained on pasture post-breeding or immediately after breeding. After breeding, heifers with prior grazing experience had an improved average daily gain, along with 10% higher conception rate. Heifers that remained in the dry-lot until breeding lost an average of 3.5 lbs/day during the first week on pasture while heifers exposed to pasture prior to breeding lost an average of only 1.94 lbs/day. The abrupt change in the delivery system that nutrients were offered to these heifers resulted in the reduction of available protein and energy.

Additional research at the University of Wyoming and Purdue University studied the effects of post-AI nutrition on heifer performance. Heifers were developed in dry lots through the fall and winter months maintaining 1.5

lb/day average daily gain. Once bred, heifers were split into 3 groups: 1) fed at 125% of the maintenance requirements; 2) fed at 100% of the maintenance requirements; 3) 80% of the maintenance requirements. These diets were fed for 21 days following artificial insemination. After the initial 21 days, heifers were commingled and turned out to the same pasture.

At 30 days post-AI, pregnancy checks revealed that heifers maintained at 125% of their maintenance requirements had a 17-21% higher conception rate than heifers maintained at 80 or 100% of their requirements. These heifers maintained at 125% of their requirement also had a higher overall pregnancy rate after exposure to cleanup bulls for the remainder of the breeding season.

A further study looked at the effects post-AI nutrition on embryo quality. After insemination, heifers were transitioned to one of two rations. Ration 1 exceeded nutritional needs at 120% of NRC requirements while ration 2 fell short at 80% of NRC requirements. Embryos were collected and scored 6 days after AI. Embryos from nutrient-restricted heifers were of lower quality with fewer blastomeres and a lower percentage of live blastomeres than heifers fed above their requirements.

Taken together, this research indicates that embryo quality is affected by abrupt changes in nutrition and the nutrient delivery system offered to the heifer following insemination. Although the nutrition of developing heifers from weaning up to the AI date is crucial to how they perform, it is also very important to maintain adequate rations and/or supplementation to those heifers after breeding. The main takeaway is that any abrupt environmental or nutritional change around the time of AI, could have a detrimental effect on the success of the pregnancy.

Although these studies highlight some of the possible negatives of turning heifers out to pasture after breeding, this is sometimes the only feasible management step that can be taken. In many cases pastures are too far away to offer consistent delivery of supplementation. Many times, pasture access is very limited prior to breeding. However, if managed properly prior to and after breeding, heifers can be transitioned to pasture while maintaining optimum reproductive performance. Certain practices can be put into place ensure the success of these heifers.

Steps to a Successful Pregnancy

- If transportation must take place, it should happen within 5 days of breeding
- A gradual step down ration program can be delivered to heifers placed on pasture
- Interval supplementation with high-protein feeds can be an option when labor is limited
- If supplementation is not possible, step down the breeding ration so that it is similar in nutrient quality to that of the pasture
- Avoid irrigated pastures or pastures heavy in legumes
- If heifers can remain in the drylot, allow 45 days before moving them to pasture
- Work with a nutritionist to develop your complete heifer replacement program

Developing heifers is a lengthy and expensive process. Years of genetic selection, feed costs, and management go into producing high quality breeding stock. Confirming a heifer pregnant during her first exposure substantially improves her lifetime return on investment. A balance between nutrition and management can be met but it does take some prior planning. Feel free to contact your local Great Plains Livestock Consulting, Inc. nutritionist with any questions on developing your replacement heifers.





GREAT PLAINS Livestock Consulting, Inc.

500 S. 4th St.
P.O. Box 377
Eagle, NE 68347

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Staff

Ruminant Consultants

Ki Fanning, Ph.D., PAS
Cell: (402) 890-5505
Ki.Fanning@GPLC-Inc.com

Jeremy Martin, Ph.D.
Cell: (402) 890-5507
Jeremy.Martin@GPLC-Inc.com

Dan Larson, Ph.D.
Cell: (402) 560-4052
Dan.Larson@GPLC-Inc.com

Zeb Prawl, M.S.
Cell: (620) 243-3846
Zeb.Prawl@GPLC-Inc.com

Luke Miller, M.S.
Cell: (660) 299-0798
Luke.Miller@GPLC-Inc.com

Jason Warner, Ph.D.
Cell: (402) 890-8533
Jason.Warner@GPLC-inc.com

Chris Muegge, M.S.
Cell: (317) 460-6618
Chris.Muegge@GPLC-Inc.com

Adam Schroeder, M.S., MBA, PAS
Cell: (815) 592-5491
Adam.Schroeder@GPLC-Inc.com

Field Representatives

Jon Snoke
Cell: (402) 862-5485
Jon.Snoke@GPLC-Inc.com

Brent Nelms
Cell: (308) 340-1003
Brent.Nelms@GPLC-Inc.com

David Claycomb
Cell: (660) 953-0004
David.Claycomb@GPLC-Inc.com



Phone: (402) 781-9378

Fax: (402) 781-9379

www.GPLC-Inc.com

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