Beef Tips

May 2009 | Department of Animal Sciences & Industry | www.asi.ksu.edu/beeftips

Upcoming Events

Beef Cattle and Forage Crop Field Day
May 7, 2009
Parsons, KS
620-421-4826

KSU Beef Research Highlights
Beef Empire Days Live Show
May 27, 2009
Garden City, KS

Intl. Conf. on Antimicrobials in Cattle Production
May 27—29, 2009
Manhattan, KS
www.beefcattleinstitute.org

K-State Beef Conf
Aug 13, 2009
Manhattan, KS
www.ksubeef.org

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Aureomycin and zinc reduce incidence of foot rot in grass cattle

Dale A. Blasi, beef specialist

Despite an occasional respiratory problem, the major health-related cost that stocker producers will experience with grazing calves are performance losses and treatment costs associated with foot rot. Now is a good time to consider management strategies that will minimize health issues and improve grazing performance.

Foot rot is a sub-acute or acute necrotic infectious disease caused by the entry of bacteria (primarily *Fusobacterium necrophorum*) through damage to the soft tissues between the toes and sole which become traumatized by rocks, dried mud and stubble. Lameness is the primary symptom but there are a number of reasons why calves may become lame. Many veterinarians advise to inspect for the presence of foreign objects before assigning a diagnosis of foot rot. However, equal swelling above the hoof line and dew claws and the presence of a foul odor is almost a sure sign of foot rot.

The incidence of foot rot while on pasture can be sporadic and may often affect up to 25% of calves within a pasture. Its occurrence is dependent upon the interaction of several factors: the presence of the right conditions for bacteria to invade, the particular animal, management practices and finally, environmental factors. In many cases, excessive moisture and alternate drying conditions promote skin cracking in the interdigital space. These environmental conditions, coupled with injury to the soft tissue, promote conditions which are conducive for the bacteria to invade and flourish. If treatment is delayed, foot rot can become chronic with a poorer prognosis for recovery because deeper structures within the toe may become infected. Unfortunately, by the time clinical symptoms are observed and the calf treated, gain may have already been sorely compromised.

Given the extensive nature of grazing programs, frequency of observation and the labor costs associated with treatment on pasture, many producers have resorted to the provision of sub-therapeutic levels of antibiotics in mineral mixes. However there is little data to substantiate the effectiveness. In addition, there is an ongoing debate on the relationship between the use of sub-therapeutic antibiotics in livestock and the perceived increase in human resistance to antibiotics.

Research at the KSU Beef Stocker Unit would indicate cost of treatment could approximate $100 per foot rot episode when accounting for antibiotic, labor and lost performance. This estimate does not account for the potential risk of injury to the rider(s) during the process of treatment in the pasture. With the use of sub-clinical antibiotics, stocker operators are proactively minimizing the occurrence of these noxious infections and in many cases, avoiding the unnecessary stress that both the manager and calf must endure when treatment is warranted for either foot rot or pinkeye.

The KSU Beef Stocker Unit has conducted research with pasture mineral supplements to control foot rot and pink eye over the past two years with Aureomycin (trade name for chlortetracycline) and ionophores (Bovatec and Rumensin) to evaluate health and productivity responses during a spring/summer grazing season. Two free-choice mineral supplements that contained either Bovatec and Aureomycin (**BA**) or Rumensin (**RU**) were compared.

See foot rot on page 3

"You can't manage what you don't measure."

Tally Time

Sandy Johnson, livestock specialist

Last issue we showed the inventory numbers needed to generate base production records for cow herds. Those numbers included Jan. 1 inventories of cows and replacement heifer calves, number of females exposed to bulls, live calves born, live calves weaned, cows sold, cows died and calves died. You might find several of these numbers are easy to come by now as the calving season winds up and breeding season begins. If you use an IRM Red Book to help keep track of records, look for the SPA (standardized performance analysis) performance measures pages for place to record these values.

A more complete set of production records would include pregnancy rate and calving distribution in addition to the base inventory records mentioned earlier. These reproductive measures are invaluable for troubleshooting reproductive problems and examining impacts of feeding programs on reproduction.

Historical production data can help answer questions about a change in profitability over time and the amount of actual production. This historical look can be especially useful for decisions about future courses of action and can provide a baseline for setting goals and directions. In some cases, comparing your herd values to a benchmark data set can provide useful insight. This is especially true for records that contain both production and financial components.

Item	CHAPS™	ARCH 2005
Pregnancy percentage	93.5	87
Pregnancy loss	0.73	4.12
Calving percentage	92.8	83
Calf death loss, %	3.03	1.4
Calf crop percentage	90.8	81
Female replacement rate	14.9	16.27
Calving Distribution		
% calves born d 1 - 21	64.3	45.98
% calves born d 1 – 42	89.2	88.84
% calves born d 1 – 63	95.7	100
% calves born d 63+	4.34	0
Weaning Data		
Avg. weaning weight	560	506
Pounds weaned/ exposed female	500	410

Table 1. SPA production measures for CHAPS™ herds (2003—2007, 70,000+ cows) and main ARCH herd. For more information on this data set see http://www.chaps2000.com/benchmarks.htm

If a single individual in the operation has all the records in their head or in a system only they can understand, the business will be at a severe disadvantage if something happens to that individual.

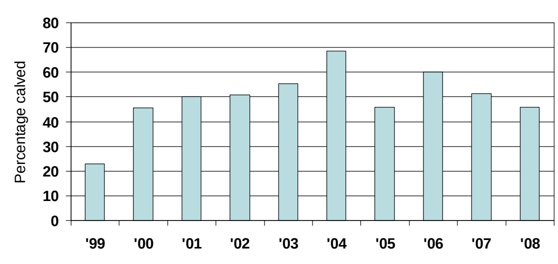
Table 1 has the 2005 SPA production data for the main cow herd at the Agricultural Research Center at Hays (**ARCH**). In the same table is the most recent summary data from the CHAPS™ data base (2003-2007; 70,000+ cows). In 2005, pregnancy rate was lower at ARCH compared to the database average. The calf crop percentage was nearly 10 percent below the CHAPS average. This means that there were only 410 pounds of weaned calf to pay for the feed of each cow exposed.

In looking at calving distribution data from the same herd for the past ten years (Figure 1), one year stands out. In 1999, only 23% of cows had calved within the first 21 days of the calving season. That was the only year that some form of estrous synchronization was not used at the start of the prior years breeding season. Since that time the proportion calved in the first 21 days has been 45 percent or greater. Some of the variability of this value over time for this herd reflects cows being moved to other projects. Most often it is early calving cows that are moved.

How does your production data compare to what is shown here? What are your goals for the future? Do you use this information to calculate what it costs to produce a pound of weaned calf?

The adage that "you can't manage what you don't measure" certainly applies to the cow/calf business.

Figure 1. Proportion calved in first 21 days of calving season in main ARCH cow herd.



***Foot Rot** continued from page 1*

Although the consumption of the RU mineral was significantly less than BA throughout the entire 90 day grazing season, there were no differences between the two treatments with respect to cattle gain. However, there was a significant reduction in the incidence of foot rot for those pastures that received the BA mineral (4.68 vs 16.88%). In another study, calves receiving Aureomycin alone compared to Aureomycin and Bovatec gained 7 pounds less per calf in a 90 day grazing period.

Zinc is a trace element important for maintaining skin and hoof integrity. Many field trials have evaluated zinc supplementation strategies with varied success. A K-State field trial (Brazle, 1993) was conducted over three grazing seasons with crossbred steers averaging almost 600 pounds. The cattle were allotted to groups provided either a control or a zinc methionine-containing mineral supplement while grazing burned, native Flint Hills pasture.

The addition of 100 pounds of Zinpro 100™ (50% zinc methionine) per ton of free-choice mineral improved steer daily gain by almost 0.10 pounds and reduced foot rot by 55% (5.38 vs. 2.45%). Approximately 20% of the live weight gain advantage was attributed to the control of foot rot alone, while the remaining fraction to a zinc deficiency. Because of substantial cost differences between organic and inorganic minerals, producers have wondered if an inorganic source of zinc such as zinc oxide would promote a similar response? To the author's knowledge, there have been no replicated trials conducted to answer this particular question.

Another management option that has been on the market for a relatively short period of time is the availability of a commercial vaccine (Fusogard®) which has been approved for use in cattle as a control for foot rot and liver abscesses. To evaluate its effectiveness, a large scale field trial was conducted at two locations in southwest Kansas to compare the administration of a single two cc dose at the initiation of the grazing season to untreated control calves. The manufacturer recommends two doses for optimal foot rot control. The 876 head of heifers and steer calves used in the study averaged about 600 lbs across all pastures and were grazed on native grass for 75 to 148 days. All cattle were observed weekly for visible signs of foot rot and other conditions that required medical attention. While pasture performance was similar between treatments, differences in the incidence of foot rot between the treated and control cattle (.91 vs. 2.28%, respectively) approached significance (P = 0.11).

Foot rot and pink eye are noxious diseases that reduce productivity. Stocker operators who graze calves should anticipate these problems and should consider strategies that prevent their occurrence.

Immunoglobulin A decreased in animals with pinkeye

Larry C. Hollis, D.V.M., M.Ag., extension beef veterinarian

For many spring-calving cow/calf producers, summer time is synonymous with pinkeye season. The pesky bacteria (*Moraxella bovis* and *Branhamella ovis*) most often incriminated with the problem seem to thrive in the summer months, when in reality this is just the primary time when (1) we have a susceptible new group of calves on the ground, and (2) the bacteria are most effectively transmitted from animal to animal by the seasonal presence of face flys and house flys as they feed on tears and the moisture around the eyes of calves.

A 3-year study from Iowa State* involving natural infection in a beef herd experiencing a 40% annual incidence of disease found that a specific immune factor (Immunoglobulin A, or IgA) was significantly diminished in animals with the disease. This suggests that elevated levels of IgA are necessary for protecting animals from clinical disease. Knowledge of this situation is important because most of the pinkeye bacterins commercially available today do a poor or very short-term job of stimulating IgA production. This helps explain why pinkeye bacterins sometimes seem to have limited effectiveness. Because of the short half-life of IgA, it also means that for vaccination with a pinkeye bacterin to have a chance to work, the vaccination program needs to be completed very shortly before the time when pinkeye problems are historically expected to start.

Lack of a consistently effective vaccination program causes many producers to continue to rely more on other management tools – timely fly control, dust control, reducing other sources of mechanical irritants that might allow the infection to gain a foothold in the eye, etc. Armed with the knowledge gained from this research study, it may be possible to develop a more consistently effective vaccine in the future.

*A summary of the study can be found at: http://www.ag.iastate.edu/farms/05reports/mc/InfectiousBovineKeratocon.pdf

Haying and grazing options after CRP contract expiration

Walt Fick, rangeland and pasture management specialist

Producers and landowners who have Conservation Reserve Program (CRP) contracts expiring have several options if they will not be extending or renewing the contract. One of the options is to use established cover for hay or pasture.

Land enrolled in CRP is generally highly erodible. Maintaining these acres with a perennial grass cover will reduce erosion, improve water quality, enhance wildlife, and reduce sedimentation.

Management decisions related to hay production include fertilization, burning, and time of cutting. Most CRP in Kansas was seeded to warm-season native grasses. Although fertilization with nitrogen and/or phosphorus might increase production, I do not recommend it because of potential changes in plant composition. Cool-season grasses and broadleaf plants will be stimulated by fertilization.

If you want to fertilize, I would recommend treating a small area. Observe and measure what happens. Warm-season grasses will respond to early May applications of 30 pounds per acre nitrogen, 10 pounds per acre phosphorus, and 0 to 30 pounds per acre potassium. Fertilization of cool-season grasses such as smooth brome and tall fescue should be based on a soil test. Follow recommendations found in the Kansas State University Research and Extension publications:

Smooth Brome Production and Utilization C-402
http://www.oznet.ksu.edu/library/crpsl2/samplers/c402.asp

Tall Fescue Production and Utilization C-729.
http://www.oznet.ksu.edu/library/crpsl2/samplers/c729.asp

If the land has not been burned for a few years, it would be a good idea to conduct a prescribed burn. Burning will remove mulch and standing dead litter. Although this material will add yield when baled, forage quality will be reduced.

The proper time to hay native warm-season grasses in Kansas is during July. Crude protein will drop a half percentage point every week during July, but will usually be 6 to 8% during this time. Peak yield on warm-season grasses will probably not occur until August, but by that time crude protein content will be less than 5%. A mid-July haying date on native grass is a good compromise between yield and quality. Cool-season grasses should be hayed during the heading to full bloom stage to optimize yield and quality.

Getting CRP ready to graze will probably require fencing and water development. Fence off CRP that is adjacent to native rangeland. Experience has shown that animals will not utilize seeded grass as well as native sod when given a choice. One can partially overcome this problem by using grazing distribution tools such as water development, placement of salt and mineral, and burning. Care should be taken in determining where to place water developments. If feasible, water developments should be positioned in a way that will encourage uniform grazing of the land.

Most CRP stands coming off contract are initially not in condition for full grazing pressure. A management strategy covering 2 to 4 years may be necessary to condition the plants to use. After years of non-use the plants are in a state of low vigor and may have a limited root system. Loss of topsoil from previous cropping and large spacing between grass plants is common, often resulting in low total forage production.

As with haying, if the land has not been burned for a few years, it would be a good idea to conduct a prescribed burn. Burning will not only get rid of old dead material, but should increase tillering and help the grass stand continue to develop. Frequent burning is not recommended in western Kansas. In eastern Kansas, do not burn unless heavy growth remains. Avoid annual burning until the stand is completely developed (2 to 4 years).

Use a light stocking rate to allow good plant growth the first year. Adjust stocking rates in subsequent years based on stand development. Stocker gains will be greater from burned CRP. A 3-year study done in Edwards County with cow-calf pairs comparing spring-burned and unburned CRP indicated equivalent calf gains in the range of 2.2 to 2.5 pounds per day.

Haying and grazing can be viable alternatives for use of CRP land coming off contract. Hay early and stock conservatively until the stands are fully developed.

"A mid-July haying date on native grass is a good compromise between yield and quality."