University *of* California
Agriculture and Natural Resources
Stanislaus & San Joaquin Counties

LIVESTOCK LINES

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DID YOU KNOW...

Which mineral supplied by beef is most likely to be missing from American diets? Beef is one of the best food sources of iron, a mineral lacking especially in the diets of many women and children.

By Theresa Becchetti

Livestock and Natural Resources Farm Advisor

Drought, 2012

As everyone is busy shipping cattle, I'm out clipping for peak forage production. Every year Diana Waller, NRCS, and I get out and clip on ranches scattered in the two counties on both sides. This information allows us to start to build a really strong local forage production. Soil surveys often do not collect forage data for a long enough period of time to really take in the variability that we can see with long droughts, normal years, and the occasional years with nice wet weather providing enough forage to have everyone wanting more cattle. We use the data we are collecting in years like these to also help decide the impact of a drought. In the case of a drought, your Ag Commissioner, NRCS, FSA, and myself all work together to determine the level of the drought.

The Ag Commissioner offices both try to collect different data than forage production. In Stanislaus County you should have received a survey asking you to answer questions about your losses for the year. In San Joaquin County, please call the Ag Commissioner's office to give any information you think is important to help make a decision. This might include lower stock density, feeding hay, lower gains, shipping earlier, or any other management change you faced.

This year the only program currently available from FSA will be if there is a 50% loss. FSA can pay for any percent loss over 50%, so if there is a 55% loss, FSA could pay for the 5%. That is of course if you purchased your $250 insurance back in December.

If you have any questions, please feel free to call and talk to any of us. The next Livestock Lines will have this year's forage production data as well as a summary from the past few years that we have been clipping.

To simplify information, trade names of products have been used. No endorsement of named products is intended, nor is criticism implied of similar products which are not mentioned.

PINKEYE—BAD YEAR COMING PREPARE TO PREVENT OR TREAT

This drought year may be really bad for pinkeye. In fact, during the past several years pinkeye outbreaks in calves have been worse than expected, so this year could be really expensive. Last month's Vet Views discussed fly control, which is one extremely critical component of pinkeye prevention. In this month's Vet Views, we revisit some of the other basic principles of pinkeye prevention. We hope that this article provides you with useful information that can guide in developing rational approaches to preventing this very frustrating disease. The currently accepted cause of pinkeye in cattle is eye infection with bacteria called *Moraxella bovis*. Along with *M. bovis*, another recently identified species of *Moraxella* called *Moraxella bovoculi* has also been cultured from pinkeye-affected eyes of cattle. At the present time, no studies have proven that *M. bovoculi* can actually cause pinkeye; however, its presence in eye cultures from affected animals definitely makes its role in causing pinkeye very suspicious.

Vaccination. Vaccination against pinkeye with commercially available *M. bovis* vaccines has been associated with both successes and failures. It is likely that the variable responses to vaccination reflect differences in the strains of bacteria in a vaccine bottle versus the strains circulating in the herd, and whether there is cross protection between them. In most situations, it is recommended to start vaccinating with a commercially available *M. bovis* vaccine; if pinkeye is still a problem, and then consider changing to a different commercially available product or else to an autogenous *Moraxella* vaccine. Some producers have found improvements in pinkeye prevention by moving to an autogenous vaccine designed against *M. bovis* and/or *M. bovoculi* isolated from pinkeye-affected cattle in their herd. At the present time, there are no commercially available *M. bovoculi* pinkeye vaccines. In situations where cattle have been vaccinated against *M. bovis* with a commercially available vaccine and over 5% of calves are still developing pinkeye, it is recommended to test eye swabs from affected animals for the presence of *M. bovis* and *M. bovoculi*. Such testing can be performed by your local veterinarian. If *M. bovis* or *M. bovoculi* are identified, you may then consider having an autogenous vaccine made against the particular strains present in your herd. Your local veterinarian can help advise you in pursuing this option. In a situation where you choose to simply change the particular brand of commercial vaccine you are using, it's a good idea to carefully read the label on a vaccine before purchasing it to determine if the vaccine you are considering changing to covers different strains of *M. bovis* than the ones in the vaccine you've already tried. In some cases vaccine manufacturers provide this information, and when available, it can be very useful. It is important to work with your veterinarian when making this vaccine decision.

When vaccinating, it is important to begin vaccinating at least 6-8 weeks ahead of the time when you typically might expect to see your first pinkeye cases. If you wait until your first cases appear before you vaccinate, you have waited too long. By starting to vaccinate early, you give the calf's body time to develop the necessary antibody responses against *Moraxella*. As part of a healthy and functioning immune system, also consider your trace mineral supplementation program. Both selenium and copper are vitally important in the overall immune "health" of your cattle; in other words, adult cattle and calves need these trace elements in order to develop adequate immune responses to *Moraxella* antigens, whether they arrive in the form of a vaccine or natural infection.

Another thing to be aware of is the use of modified live IBR vaccines in calves at the time of shipping, especially during summer months when pinkeye is typically at its peak. There have been some anecdotal reports of severe pinkeye outbreaks in calves that were vaccinated with modified live IBR vaccines right at the time of shipping. If using such vaccines, it may be best to wait several weeks before shipping to reduce chances for serious pinkeye outbreaks in calves.

Clipping pastures. Another aid in the prevention of pinkeye is to clip pastures before turning cattle out if grass is too long and already headed out. This will decrease irritation to the eyes that can initiate a pinkeye outbreak. The irritation of dust, plant pollen, or weed seeds can promote tearing from the eyes and may result in shedding of the bacteria (*M. bovis; M. bovoculi*) by "carrier cows". These carriers may harbor *M. bovis* or *M. bovoculi* without actually showing signs of disease and serve as sources of bacteria that can then be spread by flies to susceptible cattle, especially calves.

Foxtails or plant awns. Eye irritation can be caused by tall grasses as mentioned above; however, another common plant product (foxtails) can cause severe irritation. Foxtails (or other weed seeds or awns that stick in the eye) become lodged in the eyes of cattle and cause significant damage, irritation, and watering (tearing) of the eye. This can lead to further spread of *Moraxella* bacteria. Face flies that are attracted to this tearing can easily spread the pinkeye organisms between animals. Cattle examined for pinkeye should also be examined for the possible presence of these foxtails or plant awns, and if found, they should be removed. One clue to the presence of foxtails is the location of the damage in the eye. With uncomplicated pinkeye the damage usually begins in the center of the eye and spreads outward. With a foxtail or other foreign body the damage will be "off-center", starting at the edge of the cornea. The examination of the eye for foxtails and pinkeye creates another opportunity for spread of the disease and this spread must also be prevented as discussed below.

Disposable gloves. When examining eyes, always use disposable gloves. The pinkeye agents will bind to your hands (or clothes) and you can then become a very effective transmitter of the disease, and, in effect you become like a "giant face fly" in terms of helping spread *Moraxella* between calves. When you do treat a pinkeye-affected calf, be sure to use disposable needles and syringes—and then dispose of the needle when you are done treating the animal!

Keep your clothing clean. Just as with your hands, your clothing can easily become contaminated with the pinkeye causing agents. Therefore, it is best to treat any pinkeye or potential pinkeye cases after you have done all the routine animal handling procedures on healthy animals for the day. Alternatively, change clothes after handling pinkeye cattle and before handling normal cattle, or wear a plastic apron to protect your clothing from becoming soaked with the "eye juice" from a pinkeye-affected animal. This apron should be disinfected between animals as discussed below.

Disinfectants. The routine use of a disinfectant for any equipment used on animals with pinkeye is necessary. Nolvasan® (chlorhexidine; Fort Dodge now Boehringer-Ingleheim) is an excellent choice because it is not irritating to tissues and works well as a disinfectant. A very inexpensive and effective disinfectant is household bleach at a 1 to 10 dilution (mix 1 part household bleach to 9 parts water). Your veterinarian can also suggest other disinfectants that will accomplish these goals. Things to be disinfected include (1) forceps, hemostats, or tweezers used to remove foxtails, (2) nose tongs for restraint, or (3) rope or nylon halters. It may be a good idea to clean and disinfect the head catch or head restraint area of the chute as it may be an area of contamination and spread of the pinkeye causing agents.

Eye patches. There seems to be debate over whether eye patches are a good idea or not. From the standpoint of the pinkeye-affected calf, the eye patch should help make the calf more comfortable since it will help protect the eye from bright sunlight. Think how painful it is to walk out of your eye doctor's office into bright sunlight without sunglasses after you've had your pupils dilated! By keeping the affected calf's eye covered, you provide relief from bright sunlight and also help limit spread of eye secretions from animal to animal and reduce fly exposure to these infective ocular fluids. While these are potential benefits of eye patches, correct application is important. Leave the bottom of the patch open so there is some air circulation under the patch as well as a route for fluids to drain out of the affected eye. Periodically check underneath these patches to make sure the eye is OK; ideally you should be looking under a patch every 3 days. Along with applying a patch, consider separating pinkeye affected calves from the rest of the herd to help limit spread of infective fluid between animals.

Treatment. If pinkeye cases do occur, what are the treatment options? Two injectable (administered in the muscle or under the skin) antibiotics currently have label claims to treat pinkeye in cattle: oxytetracycline and tulathromycin (DraxxinÒ). Experimentally, ceftiofur (Excede®) and florfenicol (Nuflor®) have also been shown to be effective at treating cattle pinkeye; use of these drugs would be considered "off label" and would require a veterinarian's prescription. Another popular treatment is penicillin injected under the bulbar conjunctiva. When giving penicillin injections under the conjunctiva of the eye, you will want to be wearing gloves and have the calf's head restrained with a halter. These injections can be tricky to do correctly and potentially dangerous

to the calf if the needle goes into the eye in the wrong place. To achieve good results, give 1 ml (1 cc) under the conjunctiva covering the sclera of both eyes for at least 3 days. This method can achieve fair to good results, but is more difficult and potentially more dangerous to the animal than simply giving an intramuscular or subcutaneous dose of oxytetracycline, NuFlor®, Draxxin®, or Excede®. Continued use of tetracyclines in areas with high numbers of anaplasmosis cases may make cattle susceptible to sickness due to anaplasmosis. Consult with your veterinarian regarding this potential problem.

For many years Furox sprays or powders (Nitrofurazone, Furox®, Topazone®, NFZ Puffer, P.E. 7, etc.) placed into the eye were used for the treatment of pinkeye. This method was not as effective as the above methods. However, since 2002 this treatment has been illegal for cattle. This is irrespective of whether or not you have a prescription or if a drug supply company sold you a furacin-containing product. Do not use the furacin-type drugs in cattle any more.

There are some liquids and spray-type products still available for pinkeye treatment. These products only stay in the eye for about 7 minutes before the tears wash it out and therefore, are much less effective than any of the methods described above. As with all treatments that are placed directly into the eye, proper restraint is necessary and the use of disposable latex gloves is recommended.

For many years, treatment with dexamethasone (Azium®) has been popular. Research indicates that when this is given under the sclera, there is no difference in the rate of healing. Therefore, use of this product is not usually recommended.

Your veterinarian. This may be the most important part of your prevention plan. Get your veterinarian's advice about prevention *before* an outbreak or if you had problems last year, seek your vet's advice ahead of time. Topics to be covered should include (1) fly control, (2) vaccines, (3) disinfectants, (4) tools and supplies to have on hand for prevention and treatment, and (5) treatment protocols and any necessary prescriptions. Keep written records of treatments and results. Discuss these with your veterinarian as you reevaluate pinkeye prevention and treatment plans for the future. Be sure your mineral program is working, as this is important in the animal's immune responsiveness.

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Alternative Castration Methods

I was recently at the Sierra Foothill Research and Extension Center with some local ranchers who were reading some of the posters on research that have been done on the station. One project in particular piqued some interest and I thought I would summarize it since it apparently wasn't a very well publicized project among cattlemen.

Ted Adams and Cindy Daly along with other researchers at UC Davis back in the mid 90's conducted a project looking at a chemical method of castration. GnRh – Gonadotropin-Releasing Hormone – is the hormone that starts the sequence of development of the testicles in bulls. Without going into an in depth endocrine and hormone discussion, think of GnRH as the handle of the faucet. Turning the faucet on releases a flow of hormones that starts testicle development and puberty. If you can turn the flow off, you can prevent testicular development and essentially "castrate" the bull calf. Using this theory, Adams and Daly created an anti-GnRH immunization that can be administered in a shot, creating a chemical castration.

An early paper looked at feedlot performance of steers and bulls immunized against GnRH. What they found was that the immunization reduced testicular growth but did not affect performance traits or testosterone levels at slaughter. Traditional castration reduced live and carcass weight, average daily gains, and dressing percent, but improved yield grade when compared to bulls and immunized bulls.

Further papers compared performance of bulls, immunized bulls, and castrated steers. Half of each group was also given Synovex C with initial treatment (castration and first shot of immunization) and Synovex S at weaning and feedlot entry. The immunized bulls also received a booster immunization when they entered the feedlot. What they found was the immunized bulls and animals given Synovex had less testosterone and scrotal circumference at weaning. Also, immunization, Synovex, or the combination of both significantly reduced scrotal circumference, testis weight, and tissue concentration of sperm at slaughter. At slaughter, only immunization continued to reduce levels of testosterone. The carcass weight was similar for immunized bulls, both synchronized and unsynchronized, implanted steers and unimplanted bulls (the control). Immunization and Synovex reduced the masculinity of the carcasses of bulls.

Another paper looked at testis function, aggressive behavior and carcass traits for bulls immunized at different ages. They immunized the bulls at 1, 4 or 6 months of age. Bulls and steers were used as controls. For this project, all immunized bulls received another immunization at 12 months of age. They found that age of first immunization did not have an effect of on anti-GnRH titer at slaughter (levels of immunization to prevent the release of GnRH). Testis weight was also affected as was testosterone levels by immunization. Immunized bulls were similar in feedlot gains and final weight as bulls, as found in other projects. But, aggressive behavior was reduced and carcass quality improved.

All of the research projects support using an immunization against GnRH can effectively castrate bulls in a noninvasive manner as well as provide enough residual level of testosterone to reduce the need to implement animals. While this work was done a while ago, I have not heard of any movement to making this a commercial option for cattlemen to use as an alternative to surgical castration.

Adams, T.E., and B.M. Adams. Feedlot Performance of Steers and Bulls Actively Immunized Against Gonadotropin-Releasing Hormone. 1992. Journal of Animal Science, 70:1691-1698
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Huxsoll, C.C., E.O. Price, and T.E. Adams. Testis Function, Carcass Traits, and Aggressive Behavior of Beef Bulls Actively Immunized Against Gonadotropin-Releasing Hormone. 1998. Journal of Animal Science, 76:1760-1766

Beef Quality Assurance

It has been three years since we held a BQA here locally, and everyone who attended that workshop needs to be re-certified. If you have not been to a BQA ever, or in over three years, it is time to join us. The next newsletter will have details on the BQA meeting that will be held this summer. Please be sure to join us. It is a very informative workshop and only costs $25 per ranch to be certified.

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