

Large Animal Newsletter

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Fecal Results Show the Need for Strategic Deworming in Grazing Cattle

Strategically dewormed animals have been shown to produce more milk, have improved feed efficiency, increased dry matter intake, improved reproductive efficiency, produce higher carcass quality, obtain higher body condition scores and have a stronger immune system to fight off other diseases. Gastro-intestinal parasites both directly and indirectly affect the animals in a number of ways. Animals are harmed by adult parasites living within the animals themselves but also through daily ingestion of infective larvae that begin attacking the animal's immune system as soon as the infestation process begins. The key to parasite

control involves preventing parasite build-up in the animals and their environment through strategically timed deworming programs.

Earlier this month, the staff at Twin Forks Clinic-Benkelman hosted a Deworming meeting sponsored by Intervet/Schering-Plough. As part of the meeting, producers were asked to collect 17-20 fecal samples from the same class of cattle, to be analyzed for worm eggs prior to the meeting.

22 different producers collected a total of 390 individual fecal samples. Of these 22 producers, 12 of them collected samples from mature cows on pasture, five of them collected fecal samples from grass cattle, four producers collected samples from replacement heifers on grass and 1 producer collected samples from suckling calves on grass.

These samples were sent to a lab in Lincoln, NE for analysis. The lab uses a process called the "Modified Wisconsin Sugar Flotation Method" to identify and count the number of worm eggs per sample. Five different types of worm eggs were identified including stomach worms, *Nematodirus*, *Cooperia*, Threadworms, and Tapeworms. In addition, the protozoal parasite *coccidia* was found.

Cattle become infested with parasites by inadvertently ingesting worm larvae while eating. Once in the cattle's system, the parasites mature and start laying more eggs. These eggs are passed through the manure of the animal, hatch into larvae and find their way to blades of grass and other feedstuffs where they are consumed again and the cycle continues. So basically, the more worm eggs that are found in the fecal samples, the higher the parasite burden is on the cows.

Of the samples that were sent from the mature cows, 67% of them showed moderate to high levels of worm eggs. A high percentage of individual samples from each group

contained eggs from stomach worms, Cooperia, and Coccidia. Half of the producer groups had egg counts/sample greater than 10, with counts as high as 45 eggs/sample. Most of these cows were dewormed with a pour on like Dectomax at preg checking time last fall. Of the cleanest cowherds, one was dewormed with Panacur at the end of December and another was a fall herd that was poured with Dectomax when it was preg checked during the first part of May.

Samples collected from the replacement heifers contained eggs from stomach worms, Cooperia and Coccidia as well along with some Nematodirus. Worm counts per sample were low when compared to the mature cows however, it is very important to monitor the parasite burden in replacement heifers because they are still growing and developing a calf in utero.

Samples collected from the grass cattle showed varying degrees of infestation. These samples contained eggs from stomach worm, Cooperia, and Coccidia. Worm egg counts varied from 36 eggs/sample to 0 eggs/sample. The two groups of cattle that had 0 eggs/sample were dewormed with Panacur prior to grass turnout.

One point of interest, samples from the suckling calf group contained eggs from stomach worms, Cooperia and Coccidia. It's important to note that calves on the cow can get infested with worms also. Keeping the cows dewormed will have a positive affect on the calf's performance directly and indirectly. In 22 trials in 10 states, strategically using Safe-Guard gave producers an average increased calf weaning weight of 28.9 lbs. Per hd. It's hard to say whether to attribute this increase to increased milk production in the cow due lower parasite burdens, or the actual lower parasite burdens in the calves or a combination of the two.

The goal of any strategic deworming program is to deworm with the right product at the right time, to kill the most parasites, and keep re-infestation at a minimum. A good strategic deworming plan for cows would be to deworm during the fall at preg check time, possibly with a good pour-on to control lice and some of the internal parasites. The cows can be dewormed again 6-8 weeks after spring turnout. This can be achieved by feeding fenbendazole (Safeguard) through the mineral.

For younger stocker cattle and replacements, a good plan might be to deworm at turnout, then again 3-4 weeks after turnout, then again 3-4 weeks after the second treatment. Anything that is intended to be kept through the winter should be dewormed in the fall as well.

Springtime provides an excellent environment for worm eggs to hatch and the larvae to contaminate pasture. Therefore, one of the best times to deworm is after turnout to grass. Probably the best way to achieve this is by using a "non-handling" form of fenbendazole (Safeguard). Non-handling simply means, that the cattle consume the dewormer without having to be handled through a working facility.

Probably the best "non-handling" formulation of Safeguard for this area is the 1.96% scoop dewormer in the flaked meal form. You can mix this right into your existing mineral mix to provide the dewormer needed.

One 25 pound bucket of Safeguard will treat 98,000 pounds of beef or roughly 75 mature cows. There is a scoop in the bucket, each scoop will treat 1350 pounds making measuring a little easier. The Safeguard needs to be thoroughly mixed with the amount of mineral mix that the cattle will consume within a 4-6 day period. Therefore you need to have a pretty good idea what the cattle are actually consuming, not what they should be consuming according to the directions on the mineral tag.

Depending on your operation, deworming at these times may not always be necessary. You can bring in fresh fecal samples and we can check them in house for worm eggs, or we send them off to the lab in Lincoln for a more detailed analysis if you would like. Stop in anytime and we can help you devise a deworming plan of attack.

Kevin L. Cawthra, Animal Scientist, Twin Forks Clinic

Cow Disposition Affects Pregnancy Rate

Now we have another good excuse to cull cows due to bad temperament. Producers that routinely breed cows artificially realize that cows that are unruly and nervous are less likely to conceive to artificial insemination. Presumably the lowered conception rates were because they have been stressed as they are passed through the working facilities and restrained while being synchronized and inseminated. Now it seems that, even in the serenity of a natural breeding pasture, cows with bad dispositions are less likely to conceive when mated with bulls.

University of Florida animal scientists recorded disposition scores over two years on 160 Braford and 235 Brahman x British crossbred cows. They wanted to evaluate the effects of cow temperament and energy status on the probability to become pregnant during a 90-day natural breeding season. Cows were scored as 1= calm, no movement to 5= violent and continuous struggling while in the working chute. Also a pen score assessment was assigned as 1= unalarmed and unexcited to 5 = very excited and aggressive toward technician. An exit velocity speed score was measured as the cows exited the working chute as 1= slowest and 5 = fastest. An overall temperament index score was calculated by averaging the chute score, pen score and exit velocity score. Blood samples were analyzed for cortisol concentrations. Cortisol is a hormone released when mammals

are stressed or excited. Increased cow temperament score and elevated plasma cortisol concentrations both were associated with decreased probability of pregnancy.

These results suggest that excitable temperament and the consequent elevated cortisol concentrations are detrimental to reproductive function of cows. These authors concluded that management strategies that improve cow disposition, enhance their immune status, and maintain the cowherd at adequate levels of nutrition are required for optimal reproductive performance.

Source: Cooke and co-workers. 2009 Florida Beef Research Report. [May 10th, 2010]
Dr. Glenn Selk, Professor-Animal Reproduction Specialist, Oklahoma State University.

Water Requirements for Beef Cattle Under Summer Conditions

Recently, the Great Plains have been hit with hot and usually windy weather. During this time of year it becomes increasingly important to provide a clean and adequate supply of water for all livestock. Water constitutes about 98% of all molecules in the body. Water is needed for regulation of body temperature as well as growth, reproduction, lactation, digestion, metabolism, excretion, lubrication of joints, along with many other bodily functions.

Individual water requirements by animals are influenced by several factors including rate of gain, pregnancy, lactation, physical activity, salt and dry matter intake, type of diet, and environmental temperature. These factors affect the speed in which bodily moisture is lost. The ways bodily moisture are lost include: urine, feces, sweat, or evaporation from the lungs or skin.

Not all water that is consumed by the animal is consumed by drinking. Feeds like silages, green chop, and

grass are usually high in moisture while grains and hays are low in moisture. Grasses tend to decrease in moisture as they mature, thus making it more important to keep tanks full.

Water requirements have been observed as follows for this time of year....

Cows w/calves	16.5-17.5 gal./day
Bulls	18-19 gal./day
Growing Cattle	6.5-15 gal./day
Finishing Cattle	9.5-23 gal./day
Dairy Cattle	10-30 gal./day
Horses	8-12 gal./day
Sheep/Goats	1-4 gal./day

A publication from the University of Georgia suggests that if the daily temperature is above 90°F, lactating and growing cattle have a requirement of 2 gallons/hundred pounds of body weight. Non-lactating cows and bulls have a requirement of 1 gallon/hundred pounds.

As mentioned earlier in this discussion, water requirements are affected by many different factors so these numbers are recommended for use as a guide only. There are several ways heat stress caused by lack of water can be avoided.

Have ample water available.

There should be enough water storage available to provide the animals adequate water for 3 to 7 days if you are using a windmill or solar pump and 2 to 3 days if you are using a "hard wired" electric pump.

Calculating this figure is pretty easy, just take the number of head in the pasture times the number of gallons they drink per day times the number of days of storage necessary.

From this we can figure how big of a tank we need. The formula for calculating the storage capacity of a tank is: $23.5 \times (\text{radius}^2) \times \text{depth}$ of the tank. But where most tanks are 2 foot in depth, here is a little cheat sheet for you to go by.

Tank diameter (feet)	Capacity (gallons)
8	752
9	952
10	1,175
12	1,692
15	2,644
20	4,700
30	10,575

Keep waterers and water tanks clean. Keep all storage tanks free of moss, dirt and anything that may have blown into to the tank. All animals perform better when they have access to clean water. There have been studies in Montana and Alberta, Canada that show a 5-30 percent weight advantage in calves and yearlings that had access to higher quality, clean water in tanks.

One way of controlling moss in tanks is by using copper sulfate. One pound of copper sulfate will treat 1,000 to 2,000 gallons of water. It is important to make sure that the copper sulfate dissolves completely, especially in metal bottomed tanks as it will cause them to rust quicker. One way to help this process along is by stirring the copper sulfate in a 5 gallon bucket of water about a day before you add it to the tank. One final note, do not use copper sulfate in water that may be consumed by sheep. Copper is toxic to sheep.

Avoid working cattle if possible. If you must work cattle during these hot days, work them early in the morning while it is still cool. Stop working cattle if the temperature is 80° or higher. This will keep the cattle from getting too hot, and give them a little time to recuperate before the weather heats up. Working cattle early is also easier on the crew working them.

Make sure water delivery is sufficient and that the cattle are drinking the water. Make sure that the equipment that you use to provide water is in good enough shape to provide adequate water to the animals at all times. Also make sure that the animals know where the water is located and are drinking from it. For

instance, if you use automatic waterers, and you receive a group of calves that have never seen a waterer in their life, those cattle aren't going to know what those waterers are for, let alone drink from them. It may be a good idea to provide a tank with water in it until the cattle figure the waterers out.

Kevin L. Cawthra, Animal Scientist, Twin Forks Clinic

Nutrient Quality of Wet Distiller's Grain Maintained When Stored Under Plastic for Several Months

Wet distiller's grain (**WDG**) can often be purchased at very attractive prices during the summer months. The major problem that arises concerning the purchase of WDG during the summer is the relatively short shelf life and the logistics associated with storing WDG. Wet distiller's grains can be stored in bags or mixed with forages and packed into bunkers.

However, these storage methods require additional inputs (purchase of forages, grinding/processing of forages, mixing and bagging equipment, fuel, and labor) that substantially increase the cost of the product

Therefore, a series of case studies have been conducted at the Agricultural Research Center in Hays

(**ARCH**) examining the feasibility of storing WDG in concrete bunkers without the addition of forage as a bulking agent. In each of these case studies 1 to 3 loads of WDG was unloaded directly into small concrete bunkers and covered with 6 mil black plastic and tires. Wet distiller's grains have been stored at ARCH from July to January, and from September to April with little change in nutrient composition and product loss. A thin layer of mold (approximately 0.5 to 4 inches thick) typically develops on the pile, but may be minimized by ensuring direct contact (no air gaps) between the WDG and the plastic.

A sample obtained from the face of each pile was submitted for mycotoxin analysis and found to be safe for all classes of livestock. Wet distiller's grains have been stored on several occasions for extended periods of time (6 to 8 months) in bunkers without incorporating forage as bulking agent with minimal product or nutrient loss. A cross-section of the pile, containing the mold layer should be analyzed for mycotoxins prior to feeding.

The chemical composition of WDG makes it an excellent candidate for low input storage systems. Wet distiller's grains is relatively acidic (pH of 3 to 4), and has a low starch content (2 to 6 percent on a dry basis), therefore if exposure to oxygen is limited the product should

remain stable for extended periods of time.

1A portion of this work was funded by a grant obtained from the Kansas Corn Commission. Justin W. Waggoner, beef systems specialist, KSU

Twin Forks Clinic Fall Trade Show

In upcoming weeks, Twin Forks Clinic will again host its fall trade show. Producers will have the opportunity to learn about new and existing products for the approaching weaning and preg checking seasons. Twin Forks veterinarians will be available to help you create a vaccinating and deworming plan for preg check and weaning. You will also be able to book some or all of your products at a cost savings.

Even if your are not able to attend the trade show, you can stop by either of our clinics to discuss your needs and take advantage of our booking discounts.

We will be sending out invitations for the trade show as soon as a date is set. It will also be posted on our blog at <http://twinforksclinic.blogspot.com/>, or you can check our page on Facebook and become a fan to stay current on the most up to date information.

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