

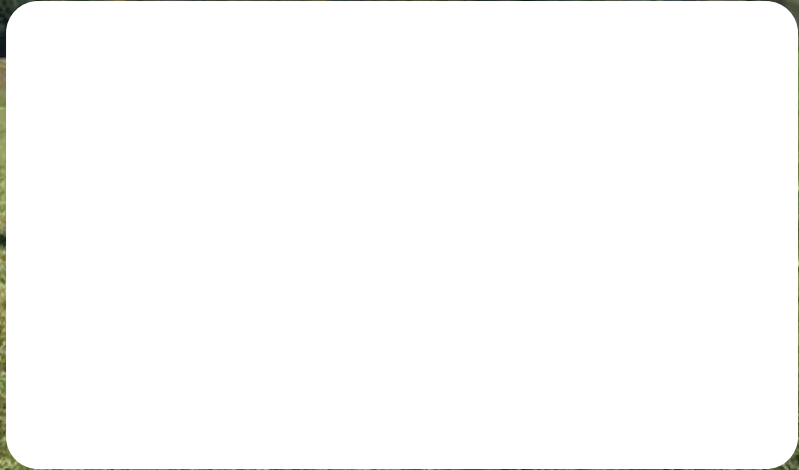
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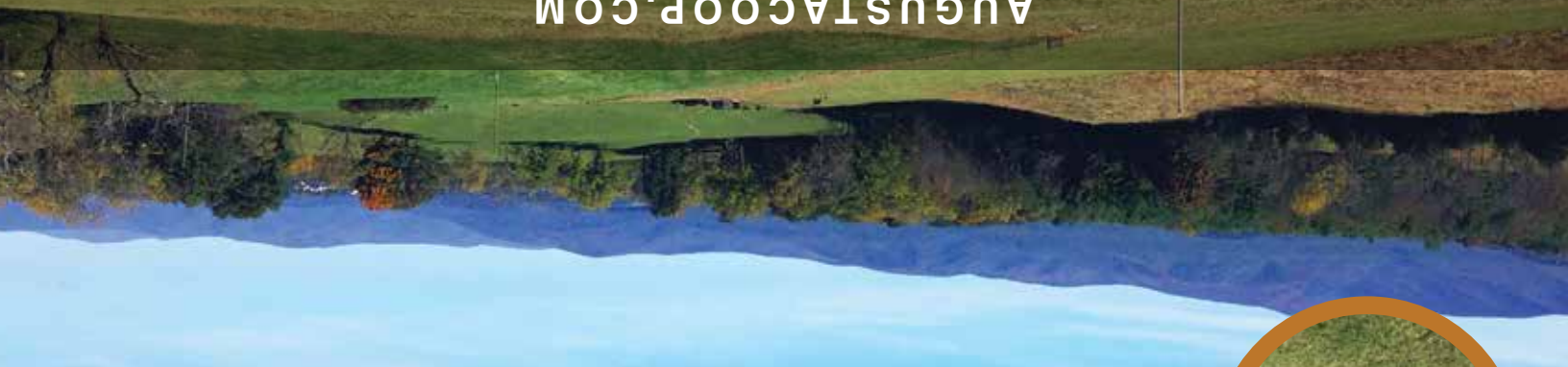
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AGRONOMY & BEEF BULLETIN
January 2023



1929



SINCE

FALL, WINTER CONDITIONS MAY INCREASE RISK OF COCCIDIOSIS INFECTIONS

CLINICAL SIGNS MAY DEVELOP FOLLOWING STRESSFUL EVENTS SUCH AS WEATHER CHANGES, OR IF THE CALVES ARE IN CONDITIONS SUCH AS BEING FED AND EATING OFF THE GROUND.

Ranchers in North Dakota have been observing calves showing signs of coccidiosis this fall and winter, according to Gerald Stokka, North Dakota State University Extension's veterinarian.

Coccidiosis is an intestinal disease that affects several different animal species. In cattle, it may produce clinical symptoms in animals from 1 month to 1 year of age, but it can infect all age groups.

Coccidia is a protozoan parasite that has the ability to multiply rapidly and cause clinical disease.

"Coccidia are very host-specific; that is, only cattle coccidia will cause disease in cattle," Stokka says. "Other species-specific coccidia will not cause disease in cattle."

The major damage to calves is the result of the rapid multiplication of the parasite in the intestinal wall and the subsequent rupture of the cells of the intestinal lining.

Several stages of multiplication occur before the final stage, the oocyst (egg), is passed in the feces. Oocysts are extremely resistant to environmental stress and are difficult to remove from the environment completely. Oocysts must undergo a final process called sporulation before they are infective again.

Oocysts frequently contaminate feed and water. When the sporulated oocysts are ingested by other animals, they start their life cycle over in the new host.

SYMPTOMS

In weaned calves, clinical signs of coccidiosis may develop following stressful events such as weather changes, or if the calves are in conditions such as being fed and eating off the ground. The conditions this fall and winter, with the ground not frozen under the snow, may have increased the risk of coccidiosis infections.

"Symptoms or signs of coccidiosis will depend on the stage of the disease at the time of observation," says Stokka.

In general, coccidiosis affects the intestinal tract and creates symptoms associated with it. In mild cases, calves only have a watery diarrhea, but in most cases, blood is present in the feces. Straining, along with rapid dehydration, weight loss and anorexia (off feed), may be evident.

Animals that survive for 10 to 14 days may recover; however, permanent intestinal damage may occur. The lesions associated with coccidiosis that are found after death generally are confined to the cecum, colon, ileum and rectum.

Laboratory findings should be correlated with clinical signs for a diagnosis because other infectious diseases such as salmonella and bovine viral diarrhea virus also may lead to blood in the stool, Stokka notes.

The susceptibility of animals to coccidiosis varies. "Coccidiosis frequently is referred to as an opportunist, which is a disease that will develop when other stress factors are present or when exposure to the oocysts is overwhelming," Stokka says. "The life cycle of coccidiosis in calves is approximately 21 days. This means that if a weaned calf is showing signs and symptoms of coccidiosis at 3 weeks after weaning, then the calf was exposed to the oocysts at weaning time. The logical conclusion is that weaning pens are contaminated."

TREATMENT

Infected animals must be treated for the infection and to correct dehydration. Producers should select the proper drugs in consultation with their veterinarian. Sulfa drugs and a therapeutic dose of amprolium are available to treat coccidiosis. Antibiotics may be necessary if secondary bacterial infections are suspected.

Products also are available for treating the entire group of calves, Stokka says. Treatment and prevention are most effective when started early.

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PREVENTION

Stokka and Karl Hoppe, Extension livestock systems specialist, suggest these steps to prevent coccidiosis:

- Move weaning or receiving pens to a clean area free of contamination.
- Increase the amount of space per calf at weaning.
- Feed an additive that can reduce the presence of coccidia.

“Feeding a coccidiostat (decoquinate or amprolium) or an ionophore (monensin or lasalocid) at weaning will reduce the risk of disease,” Hoppe says. “Be sure to follow label claims because each product will have slightly different label claims. Feeding an ionophore to the cows for reducing the overall coccidia parasites present in the environment also has the benefit of improving feed efficiency.”

Beef Magazine

Augusta Co-op Solution

Co-Op, Foundation Mineral w/ Rumensin, 50 lbs.

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MINERALS FOR BEEF COWS

PROPER MINERAL NUTRITION FOR BEEF COWS CONTRIBUTES TO ANIMAL PERFORMANCE. BASED ON ANALYSIS THE BEEF INDUSTRY OVER FEEDS MINERALS.

The most important source of minerals for beef cows comes from the pasture and forages they are grazing since these feeds contribute the highest percentage of the diet. These feeds are, in fact, good sources of most of the required minerals. The values in Table 1 are the requirements (NRC, 1986) of most major minerals for beef cows.

TABLE 1
MINERAL REQUIREMENTS OF BEEF COWS

Mineral	for Lactating Cows	for Pregnant Cows	for Growing Cattle
Calcium (%)	0.45	0.30	0.45
Phosphorus (%)	0.20	0.20	0.30
Potassium (%)	0.70	0.60	0.60
Magnesium (%)	0.20	0.12	0.10
Sodium (%)	0.10	0.08	0.08
Copper (ppm)	10	10	10
Selenium (ppm)	0.20	0.20	0.20

NRC. (1986)

TABLE 2
CALCIUM AND PHOSPHORUS IN A PENNSYLVANIA PASTURE

Mineral	Avg. Amount ¹	Range
Calcium (%)	0.47	0.35-0.97
Phosphorus (%)	0.32	0.21-0.44

¹Average of 46 samples from May-October, 2006 in an orchardgrass/alfalfa pasture in Centre County, PA; Comerford et al. (2005).

The results of Table 2 indicate the pasture tested would be a suitable source for both calcium and phosphorus for most classes of cattle. The most important issues for mineral nutrition for grazing cattle are the need for additional sodium in many locations. The lack of selenium in many soils in the Northeast, and the reduction of magnesium in lush, fast-growing pastures in early spring may require additional supplementation of these necessary nutrients. Many times trace-mineralized salt blocks are an insufficient source of the necessary minerals other than salt.

CALCIUM

Calcium is the most abundant mineral in the body, and is an integral part bone and nerve tissue. Most well-managed pastures will have adequate calcium, and legumes will have more calcium than grasses (alfalfa can contain 1% calcium or more.) Grains and weathered forages will be low in calcium.

The most important feature of calcium nutrition is the ratio of calcium to phosphorus. The ideal Ca:P ratio is 1.5 to 2.0:1.0. If the ration is inverted and phosphorus exceeds calcium, absorption of calcium in the digestive tract is reduced, and the animal will metabolize calcium and phosphorus from bone. This can result in less bone growth, brittle bones, and “water belly” or kidney stones. Given the amounts and ratio of Ca:P for the pasture in Table 2, the amount and the ratio are correct, so no additional calcium is needed. For a more mature, poorly managed pasture, this may not be the case and additional calcium would be needed as part of a mineral mixture. A good source of calcium is limestone.

PHOSPHORUS

Phosphorus is found in many parts of the animal's body, and is an important part of energy transfer. Deficiencies of phosphorus have long been associated with reproductive problems with cattle, and in many cases phosphorus was overfed as a hedge against these problems (Fluharty, 2005). However, recent research with dairy cattle has shown (Wu, 2000; Dou, 2002) that reproduction is not compromised if the adequate amount and ratio of phosphorus is added to the diet. Excess phosphorus in the diet is excreted through feces, and overfeeding has become a major issue for phosphorus-based nutrient management. For beef cows, phosphorus requirements are relatively low, and, like calcium, are met with well-managed pastures. Phosphorus in forages is also depleted with increased maturity of plants, drought conditions, and winter grazing. Because of a higher cost than other macro-nutrients, phosphorus can be fed at varying rates based on forage quality and availability.

POTASSIUM

Most forages are adequate to excessive in potassium content, and the needs of grazing cattle are generally met. One possible result of excessive potassium is usually associated with grazing legumes in grass-legume pastures or in grasses in early spring, is a reduction in magnesium intake that results in grass tetany.

MAGNESIUM

Magnesium is an important mineral for grazing cattle because of the association with grass tetany. Grass tetany is usually seen in cattle in the early spring when there is lush grass growth and cool, wet weather and is caused by a deficiency of magnesium to the cattle. The disease is characterized by a staggering gait, nervousness, and death of the animal. It usually occurs in older cows, and death can result in a matter of hours after the onset of symptoms. Producers who observe these symptoms should call a vet immediately to administer magnesium intravenously. It is important to provide a magnesium supplement in a free-choice mineral mixture during periods of high potential for grass tetany. Magnesium oxide and Epsom salts are two sources of magnesium for these mixtures, palatability is extremely low therefore for adequate consumption magnesium sources must be mixed with dried molasses, salt, ground corn or water to make sure there is adequate intake. Proper liming of pastures is also a hedge against magnesium deficiency.

SELENIUM

Many soils in the Northeast are deficient in selenium, and this can result in white muscle disease and reductions of disease immunity in calves. Many producers in the region routinely administer selenium injections to newborn calves. Selenium can be a part of a free-choice mineral mixture, but a commercially-prepared mix is probably more desirable. Excessive selenium is dangerous to animals and the environment. The amount of selenium needed in a mixture is so small (0.2 parts per million/cow/day) that proper mixing may not be achieved in small batches made at home. A commercially-available selenium source for home mixes usually contains about 0.06% selenium and can be used to formulate a mineral mixture (see Wahlberg, 1997, "Arithmetic and Minerals", Virginia Tech University.)

OTHER MINERAL ISSUES

Distillers grains and corn gluten feeds have high levels of sulfur and this must be accounted for in formulating rations. Sulfur and copper in water is additive with amounts found in feeds. Organic and chelated minerals have been widely tested, but there are no consistent results to indicate these forms of minerals will be more beneficial than the mineralized forms. Additionally sheep are extremely sensitive to copper. If sheep and cattle are managed together in similar fields the copper level in mineral supplement will need to be limited to an acceptable level for sheep.

As mentioned earlier to control mineral costs and overfeeding forage and soil testing along with fecal testing should be completed prior to supplementing minerals. Admittedly liver biopsies provide the most accurate reflection of mineral absorption. However the challenge with collecting samples and the cost of conducting the analysis may be prohibitive to using these sampling techniques.

Penn State Extension

GETTING READY FOR THE NEXT COLD SNAP

PROTEIN INTAKE INCREASES OVER 100 PERCENT BY CATTLE WHEN TEMPS DROP BELOW 22 DEGREES.

Temperatures have been pretty nice for this time of year; however, we are predicted to get some extreme cold. Cows tend to lose their acclimation to cold weather when we have a series of nice thermoneutral days.

BODY CONDITION

Condition of cows and their hair coat can play a large part in their tolerance to colder conditions. Cows in good body condition, those with body condition scores of 5 to 6, with good thick winter hair coats have a lower critical temperature around 32° Fahrenheit. Thin cows with thinner hair coat are at more risk with lower critical temperatures of around 40° F, while cows with wet haircoat have lower critical temperature of 59° F. For each degree below the lower critical

temperature energy requirements increase by 1%. With wind chills down to expected to get below 0° F, maintenance energy requirements will increase by up to 30 to 40%.

When cows get below their lower critical temperature and get into cold stress, they can adapt by increasing feed consumption to increase their basal metabolic rate and increase heat of fermentation. Research indicates cattle consume 105% to 110% of predicted intake when temperatures drop below 22 degrees F and up to 125% of predicted intake when temperatures drop below 5 degrees.

COLD STRESS

When acute cold stress occurs from a storm front moving in quickly cows can have a 50% cut in intake through grazing behavior changes and water intake decreases. So along with the increase in maintenance energy requirements the temperature reductions, decreased intake puts them in even more of an energy deficiency. For wind chills of minus-20 degrees or lower, feed intake may be reduced because cattle are reluctant to leave sheltered areas.

Cold-weather recommendations include:

- Make sure cattle have access to as much hay as they want to eat. Ruminal fermentation helps keep the animals warm.
- If increasing concentrate supplementation rates to help offset energy deficiencies it is best to provide feed concentrate supplements every day.
- Feed cattle beside or in a grove of trees or some other windbreak that is large enough for all the animals gathered. The better the windbreak, the lower the animal's cold stress.
- If there is no natural windbreak available near a water source, a quick and simple one can be made by placing a line of round bales of straw or low-quality hay where cattle can bed down.
- Ensure cattle have unrestricted access to unfrozen water. If water intake is limited, hay intake is reduced and ruminal fermentation is affected.
- Feed cattle relatively close to their water source. The farther away the water source, the longer they will wait to get a drink.
- Unrolling low-quality hay as bedding will provide some relief from the extreme temperatures.

Beef Magazine

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MEET DENNY SELLS – AUGUSTACO-OP RUMINANT NUTRITIONIST



Denny is a native of Overton County, Tennessee. While growing up he was very active in both of his grandparent's farming operations. He had two uncles in the Dairy business, which sparked his interest and love of dairy and livestock production. While a freshman in high school, Denny's family moved to eastern North Carolina where he became involved in 4-H and FFA. He participated in numerous activities including livestock and dairy judging contests.

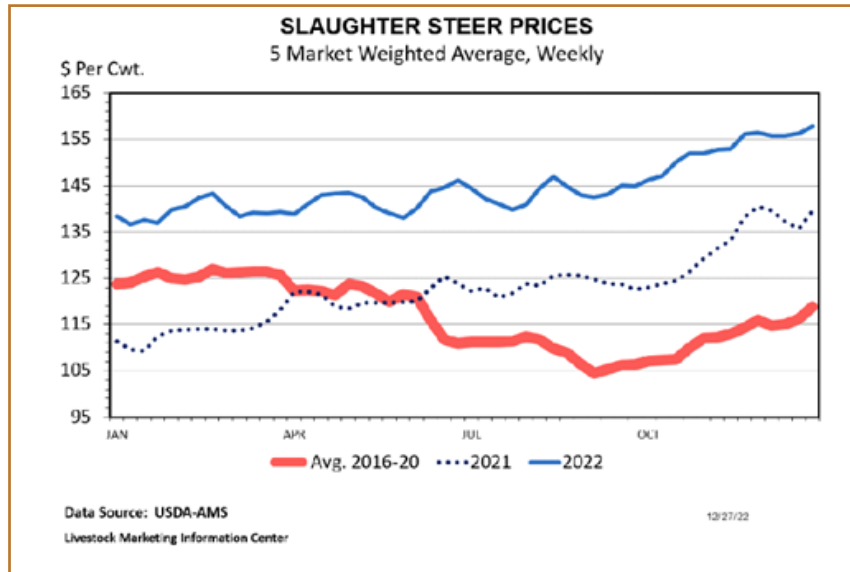
Denny attended North Carolina State University in Raleigh, NC and earned a degree in Animal Science. While in college, Denny worked at the university dairy research farm for 3 ½ years and was active in Alpha Gamma Rho fraternity. He was also a member of the livestock and poultry judging teams.

After graduation, Denny worked on a large swine operation in eastern NC and managed the sow herds. The operation also had a 300-cow beef herd of which ~ 100 head were registered Angus. He had several responsibilities helping the owner manage the registered cattle. In the mid 90's, Denny decided to move back to Tennessee and pursue a career working with beef and dairy producers in the Southeast and Mid-Atlantic region. Denny and his wife, Tonya, have two daughters that live and work in Nashville.

To contact Denny customers may reach him at DSells@AugustaCoop.com or (540) 885-1265

3 QUESTIONS FOR THE 2023 BEEF CATTLE MARKET

Last week, Josh Maples from Mississippi State University provided an overview of the 2023 cattle market. While he discussed the challenge of high grain prices, he largely wrote about a general optimism stemming from tighter cattle supplies as we start this new year. Without a doubt, most market fundamentals point to a considerably stronger cattle market across all sectors this year. This article will briefly discuss three questions that will be answered by the markets between now and spring.



HOW STRONG WILL FED CATTLE PRICES BE?

If the cattle market had a pulse, that pulse would be cash cattle trade. Even in a feeder cattle state like Kentucky, one cannot downplay the significance of the fed cattle markets. They set the tone for the overall cattle market and deferred live cattle futures drive feeder cattle values through price expectations. Certainly, there are some risk factors that could impact beef demand this year, but there is little doubt that beef production will be down a great deal from 2022. As I write this, fed cattle prices are in the upper \$150's, but the April CME® futures contract exceeds \$160. The higher the fed cattle market gets this spring, the more optimism there will be through the rest of the year.

HOW MUCH SMALLER IS THIS BEEF COW HERD?

There is no doubt the beef cow herd shrank last year and the 2023 calf crop is going to be much smaller. It's really just a question of how much smaller the calf crop will be. Beef cow slaughter ran more than 10% higher last year and more heifers entered the beef supply chain. Culling was running very high as well – including the first quarter. So, we will likely see impacts on calf numbers this spring and fall. USDA will release their estimate of beef cattle inventory later this month, but it is hard to imagine that this calf crop won't be at least 3% smaller than last year's.

HOW FAR WILL THIS SPRING CALF MARKET RUN?

The calf market improved in 2022, but higher production costs kept most cow-calf operators from fully enjoying the price improvement. Reduced fall pasture growth and poor wheat grazing conditions also prevented the fall calf market from reaching levels it would have seen otherwise. As we move into spring, the impacts of expensive feed will be somewhat overshadowed by grazing opportunities. In truth, the calf market has improved quite a bit since fall. However, with fall 2023 CME® feeder cattle futures well above \$2 per lb, we are likely to see calf price levels that we have not seen since 2015 once we start seeing some spring pasture growth.

Beef Magazine

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 Egg Production: High
 Best Kept: Free Range or Confined
 Large in size. Hardy in winter. Docile and friendly.

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 Egg Size/Color: Large - Extra Large/Brown
 Egg Production: High
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EVENTS / CALENDAR

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Hear from Purina and local veterinarians about the latest industry trends and science. RSVP required by February 5th.

RSVP Link: <https://equineanddial1.rsvpify.com>



AGRONOMY CUSTOMER APPRECIATION DAY

Friday, February 10 | 11 AM - 2 PM

Augusta Expo Building #2

277 Expo Road, Fishersville, VA 22939

Additional information: **RSVP** to Staci Alger by January 31 at (540) 885-1265 x 253 or SAlger@AugustaCoop.com

BEDFORD AGRONOMY & FEED DIVISION MEETINGS

Thursday, February 16 | 6 PM – 8 PM

The Traveller Event Venue | 3763 Peaks Road, Bedford, VA 24523

Additional information: Producer related meeting, offering door prizes, food, educational material & much more.

Dinner served at 6 PM. **RSVP** required to Mikala Liptrap at (540) 430-3169 or MLiptrap@AugustaCoop.com

RSVP Link: <https://BedfordAgronomy.rsvpify.com>



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Wednesday, February 22 | 4 PM – 8 PM

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Saturday, March 18

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RSVP required by March 20th.

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