

The Latest Across the Plains

Unused Feed

“Those too lazy to plow in the right season will have no food at the harvest.” - Proverbs 20:4

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.

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.

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.
- ◆ Semen check bulls and make sure they are in adequate body condition.
- ◆ If you are in a high anaplasmosis area, begin talking to your vet now about a VFD.
- ◆ Target a BCS of 5.0-5.5 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 and vaccination program you will use on your calves.
- ◆ Have your synchronization and AI program plan laid out.

Battling Calf Scours

Scours. We all know the smell and distinguishable color and dread when it gets on our jeans or tracked into our pickups. But in all seriousness, scours are the enemy of every cattleman. According to veterinarians at the University of Nebraska, calf scours likely cause more financial burden to cow-calf producers than any other problems in their herd. The costs incurred can be direct (labor, treatment, lab fees, death loss, etc.) or indirect (less pounds weaned, lost performance, subsequent secondary infection such as respiratory disease, etc.) Some years we get lucky and don't seem to see it as bad as others. But getting ahead of it to prevent an outbreak, if possible, is always ideal. The morbidity and mortality rates of coccidiosis can be variable depending on several factors such as herd nutritional and immune status, crowding, weather, etc. However, even if mortality is low, damage to the small intestine can show up later in the calf's life.

To put it simply, scours is diarrhea that is associated with inflammation of the digestive tract. We see it in young calves within the first month of life, when their immune system is still naïve. Scours are a result of either infectious or noninfectious causes. Infectious causes are the re-

sult of one of several different species of bacteria or the combination of organisms like Rotavirus, Coronavirus, Coccidia, E. coli, Salmonella, to name a few. Noninfectious causes are typically related to management, such as nutritional deficiencies, poor environmental conditions, or poor management of newborns.

While diarrhea itself may seem relatively harmless, water makes up roughly 70% of a calf's weight at birth, and the rapid loss of that water from a calf's system can quickly cause dehydration. As the calf loses water, blood thickens, making it harder for the heart to deliver blood to tissues throughout the body. The intestinal inflammation can also compromise the integrity of the digestive tract and allow toxins to circulate in the body causing harm to vital organs. Under these conditions, calves can develop symptoms such as:

- Bright yellow or white feces
- Calves with sunken eyes
- Weight loss
- Depressed not nursing
- Fast/slow breathing
- Dirty tail from loose stools
- Fever
- Weakness
- Reduced skin turgor
- Collapse

One way to help prevent scours in calves is by focusing on the heifers and cows prior to calving. Shedding of the infectious agents is common in adult, pregnant cattle and can increase as they get closer to calving. The shedding is more common in heifers and after incidences of cold weather. Vaccinating heifers and cows with products like ScourGuard, Scour Bos, or Bovilis Guardian are great options to reduce the shedding in pregnant animals. This also provides the chance for antibodies of the most common causes of the neonatal diarrhea to be present in the dams milk thus passing on to their calves.

In addition to vaccinations, there are some management practices producers can implement throughout the year to help prevent scours:

1. Have heifers and cows in adequate body condition. This will set cows and heifers up to produce high-quality colostrum for their calves. Data from the USDA-ARS in Miles City, MT summarized the impacts of nutrition on calf health. Calves from cows on a higher plane of nutrition vs calves from cows on a lower plane of nutrition had reduced incidence of and death loss from scours (33% and 0%) vs (52% and 19%), respectively. These results suggest that cow nutrition has an impact on colostrum quality and quantity. At the end of the day, adequate nutrition cannot be stressed enough.
2. Cleaning manure from calving barns and pens and adding lime to kill the infectious microorganisms can also be beneficial.
3. If space allows, rotating calving pens or pastures year to year can further reduce the buildup of infectious agents.
4. If calves are born in a drylot and moisture is an issue, consider moving cows/calves to an empty crop field or pasture, even if for just a few days to avoid the muddy environment. Planning ahead and having a place in mind prior to calving will help prevent you from making a split decision later.
5. Move pairs soon after calving to dry, clean pens.

With that being said, sometimes calves can still contract scours even if we did everything in our power to prevent it. The best chance to successfully treat scours is to catch it early, before the calf be-

comes severely dehydrated. Watch for watery and yellow stool. Sulfur boluses are a quick and effective way to kill those harmful microorganisms in the digestive tract. If dehydration sets in, helping that calf replace lost electrolytes will also aid in combatting diarrhea. In severe or persistent cases, a veterinarian may be needed to administer intravenous fluids for treatment.

Scours can be a tough obstacle for the cow-calf producer, but thankfully we have several ways we can attempt to combat it this spring while calving. The integration of management strategies and paying close attention to detail will pay off the most in your scours prevention efforts. If you have any questions or concerns on how you can prevent scours in your calves or if you want to discuss additives to incorporate in your balancers, give us a call. Our consultants can help you explore ways to lessen the incidence of scours in your herd this spring.

Transfer of Nutrients from Cow to Calf: Impact of Cow Nutrition on Calf Performance Pre and Post Calving

Growing up on a cow/calf operation in Eastern Nebraska, we bought the mineral block from the local feed store and we used tubs on cornstalks. Like many operations our size, it was common for us to put the block or tub out and hope for the best. The latest research in cow-calf mineral and protein supplementation shows we can meet the needs of the cow and improve subsequent calf performance. This area of research, known as fetal programming, has developed over recent decades, and helped improve the bottom line of cow calf producers across the U.S.

Mineral Supplementation:

Actively growing forages are deficient in minerals but provide sufficient carbohydrate and protein nutrition to grazing cows and calves. Consequently, providing the best source of mineral varies with the quality of available forage. A well-balanced mineral program is important in beef cows during gestation, calving, and breeding. Insufficient mineral stores during gestation, for example, can have adverse effects on mineral status and cow performance during calving and breeding and proper transfer of nutrients from cow to calf.

I am often faced with the question of whether injectable trace minerals can replace a trace mineral program. While injectable trace minerals can improve mineral status short term, they do not provide any source of macro minerals such as salt, calcium, or phosphorus. Overall, the research investigating the use of injectable trace minerals shows little improvement relative to data from trials using free-choice salt minerals. Therefore, my response is that daily intake of trace minerals cannot be adequately replaced by an injection.

Both organic and inorganic trace minerals have their place. Marques et al. (2016) gave no mineral, gave an inorganic trace mineral, or gave an organic trace mineral during the last trimester of gestation. Relative to no mineral supplementation, calves had greater Cobalt (Co), Copper (Cu), and Zinc (Zn) concentrations in the liver at birth. Giving an organic trace mineral increased weaning weight by an additional 25 lbs., and those calves maintained a greater body weight during preconditioning and feedlot phases.

The use of organic Cu did increase pregnancy rate in the first cycle compared to cows fed an inorganic form of Cu (Muehlenbein et al. 2001). Cows fed an organic trace mineral were more likely to cycle and had greater conception rates to artificial insemination (AI) (Ahola et al., 2004). Exact mechanisms of mineral function are not fully understood, but antagonisms do occur. For example, excess dietary Calcium (Ca) can depress Manganese (Mn) utilization (McClure 1968) In addition, there is evidence that supplementation of organic trace minerals to cows affects the reproductive performance of subsequent

heifers in the herd. Heifers from cows fed an organic trace mineral have also been shown to reach puberty at an earlier age (Harvey et al. 2021).

Most mineral programs that we recommend use organic trace minerals in the last third of gestation and through breeding. The scientific evidence supports the use of organic trace minerals for both cow reproduction and calf performance, and the return on investment justifies their use.

Protein Supplementation

Supplementation of protein late in gestation has shown to improve subsequent calf performance. Martin et al. (2007) and Funston et al. (2010) looked at protein supplementation of cows on dormant winter range (Table 1). The cows that received protein supplementation (1 lb DM/d of a 42% CP cube) in the last 90 days of gestation produced heifers that had greater pregnancy rate in their first gestation. When cows were supplemented during the last third of gestation the steer calves that were born had greater DMI, ADG, HCW, and in some cases marbling than calves from cows that did not receive supplementation (Larson et al., 2009 and Stalker et al., 2006, 2007). Like mineral supplementation, protein supplementation provides for more adequate nutrient transfer through the placenta. The development of fat, muscle, and protein cells in utero is limited by the nutrition of the cow. It is easy to justify no supplementation to the cow because little differences in birth weight will be observed. The growth and performance of that calf will be greatly affected by protein and mineral supplementation of the cow both before and after calving.

Table 1. Effect of protein supplementation during the last third of gestation of cows grazing dormant range. Adapted from Summers and Funston (2013).

	Stalker et al. (2007)		Stalker et al. (2006)		Larson et al. (2009)	
	Dietary treatment					
	NS	SUP	NS	SUP	NS	SUP
Weaning BW	463 ^a	489 ^b	463 ^a	476 ^b	514 ^a	529 ^b
DMI, lb/d	24.6 ^a	26.6 ^b	18.7	18.8	19.8 ^a	20.3 ^b
ADG, lb/d	3.53	3.7	3.46	3.44	3.66	3.75
Feed:gain	6.97	7.19	5.41	5.46	5.37	5.38
HCW, lb	765 ^a	805 ^b	800	814	805 ^a	822 ^b
Marbling score	449	461	467	479	445 ^a	492 ^b

An important aspect of supplementation is how it is delivered. Typically, large corporations that produce generic minerals or cooked molasses tubs provide products that work for a majority of cattle. However, it's not uncommon to see minerals with too much phosphorus, not enough selenium, and little to no salt. This does little to limit intake, so typically the 0.75 to 1.0 lb of estimated daily intake of a protein tub is lower than what cows actually consume.

In Table 2 I have briefly shown the cost per animal per day of a tub, DDGS and loose mineral supplement, or some loose meal formulas we have made. This will vary greatly by region and feed prices, but this table shows the difference in cost. Providing loose mineral with cake or another dry protein

Table 2. Cost comparison of pressed molasses tub, free choice meal, or cake delivery

	TUB	MINERAL + DGS (cake)		RANGE MINERAL
	\$120/Tub	Free Choice Mineral	DDGS	SBM/DDGS/Biuret
Cost Per Ton, \$	\$1,200.00	\$1,200.00	\$315.00	\$650.00
Intake, lbs./day	1.5	0.25	1.25	1.5
Cost/hd/day, \$	\$0.900	\$0.347		\$0.325
Protein supplied, lbs.	0.45	0.44		0.60

source is most economical. This does not include the cost of delivering that feed two or three times a week, but typically the depreciation on equipment and labor required does not change since cattle need to be checked several times a week regardless of supplementation.

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