



ON FEED

A newsletter of Dakotaland Feeds

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Setting Up Cattle for Success

With spring calves weaned, it is now time to focus on next spring's calf crop. We can start now to set them up for success from here on out. Everything we do to the cow, we are also doing to the unborn calf and it will impact that calf its entire life.

The concept of fetal programming has been getting a lot of attention recently. The **basics of fetal programming are that events occurring while the fetus is in utero can impact the newborn for the duration of its life.** This holds true for all species. Maternal nutrition and environmental stress during gestation influence post-natal health and growth. Sometimes this is also called **generational nutrition** and refers to how nutrition now influences offspring later on.

With spring-calving cows having their lowest nutrient requirements right now, **it is still critical to meet their nutrient needs because the fetus will continue growing** and developing organ systems. Nutrient restriction at this point can negatively impact their current and future growth and health. Hopefully you are able to graze some crop residue even if we have some snow. However, you need to do some protein supplementation if you are grazing corn stalks in order to meet the cow's nutrient requirements. Stalks are very poor in protein and nearly void of mineral and vitamin nutrition, making it critical to supply those nutrients to the cows. Tubs are an easy method of supplying these additional nutrients. The 30-13 tubs supply the additional protein along with mineral and vitamin nutrition that your cows need during mid-gestation. The cows need to consume close to 1 lb/hd/d to get enough mineral to meet their needs, so if consumption is less than that, an additional loose mineral may be necessary. The tubs do not contain salt, so that needs to be provided separately. You could also supplement protein through cubes, distiller's grains, or alfalfa hay along with mineral and vitamin supplementation, depending on what works best for your operation.

The **additional protein that we supply to cows now allows the fetus to continue to grow and develop** properly and sets up the genetic expression of traits in that calf. The University of Nebraska has conducted studies on protein supplementation and results indicate that heifers out of protein-supplemented cows reach puberty at an earlier age, have higher pregnancy rates, and are more likely to calve in the first 21 days than heifers out of cows that did not receive protein supplementation. The lifelong implications are huge. If you provide protein supplement, that heifer is more likely to be more productive over her entire life since heifers that calve in the first 21 days are more likely to stay in the herd. The resulting impact of protein supplementation on longevity has importance whether you are keeping your own replacements or selling replacement heifers.

In a Nutshell:

- * **Fetal programming is an effect on the fetus prior to birth**
- * **We need to meet cows' nutrient requirements even when they are low**
- * **Heifers are impacted when their dams receive protein supplement**
- * **Steers perform better when cows receive supplement**
- * **Mineral nutrition of the cow influences calf health and performance**
- * **Carcass composition and weight is affected by maternal nutrition**
- * **Feeding Availa-4 to cows improves weaning weights and carcass weights**

Effect of maternal protein supplementation on heifer progeny performance		
	No Supp	Protein Supp
Weaning BW, lbs	492	511
Age at Puberty, days	365	352
Pregnant, %	83	90

Adapted from Funston, et al (2010)

SETTING UP CATTLE FOR SUCCESS

There are also implications for the steer offspring. When cows receive a protein supplement, their steer progeny are heavier at weaning, have greater ADG in the feedlot, hang a heavier carcass, and are more likely to grade Choice. If you have consistently had good luck with a certain producer's calves, it may just be that he takes exceptionally good care of his cows. The calves were set up to succeed from before they were born.

Research at Oregon State University has shown that **mineral nutrition of the cow prior to calving is also very influential in calf health and performance.** In their research, cows were fed Availa-4 trace minerals for the last trimester prior to calving or a control diet with no additional mineral. Results showed that calves born to cows receiving Availa-4 during their last trimester had substantially higher weaning weights, less morbidity during backgrounding, and heavier carcass weights at finishing than calves born to the cows that received no additional mineral (See table below). Keep in mind, these results were NOT because of a different mineral program fed to the calves themselves, but results from feeding Availa-4 to the cows prior to those calves being born. After the calves were born, all of them were managed the same. The pre-calving mineral nutrition positively impacted fetal development and postnatal growth and health. The conclusion from the study was that supplementing cows with Availa-4 in late gestation optimized the productivity of the calves born to those cows. The Ultimate Breeder minerals, Cow Balancer and Cow Supplement products and Stress Tubs all have the Availa-4 mineral package as a component of the mineral.

Effects of maternal mineral supplementation on calf growth and health.		
	Control	Availa-4
Weaning Weight, lbs	467	520
treated for BRD, %	42%	20%
Carcass Weight, lbs	901	943

Marques et al., 2016

We are well aware that economics in the cow-calf business have dramatically changed. But, this research provides evidence that you can go backwards when you cut corners and try to skip the mineral program. **We try to help you get the most for your money by using well-researched products that give you the best return on your dollar.** Availa-4 is a good investment and combining that with Rumensin and Diamond V Yeast Culture in a single pelleted product like Cow Balancer gives us a really good product in an effective delivery form to use in TMR for the cows.

We will continue to learn more about fetal programming as further research in this area is conducted. We know that the outcome we get with each animal is the result of both its genetics and environment, including nutrition. It will be valuable for all of us to learn more about how we can influence our future outcomes through better feeding.

Roxanne Knock, PhD

Thanksgiving Day comes, by statute, once a year; to the honest man it comes as frequently as the heart of gratitude will allow. ~Edward Sandford Martin

What do you need to be thinking about this time of year?

- ** Remember to HEAT TAPE lines on liquid systems-** this keeps the line fluid. C&R Supply has videos on how to maintain the John Blue pumps at <http://www.crsupply.com/index.php/products/liquid-feed/>
- * Administer booster vaccinations and implant your calves
- * Pregnancy check cows and cull opens or problem cows
- * Use a 5-day pulse of Aureomycin® at 1g/100 lbs of bodyweight in your calves to prevent respiratory disease
- * Get **30-13 tubs and salt** for grazing corn stalks
- * Inventory your projected feed resources and project your winter feed needs so you can plan accordingly
- * **Prepare for the upcoming Veterinary Feed Directive by talking with your feed representative and your vet!! Rules take effect January 1, 2017!!**