



# Beef Briefs

## The Latest Information On Beef Cattle Nutrition



### Mineral Matters

By: Pedro Nogueira

In this issue of Beef Briefs, Jack McCoubrey gives us an excellent article about cow-calf situation in general and a testimony about his own farm, with a great emphasis on aspects like the importance of a short calving period, last trimester of gestation nutrition and its relation with calf's health, and good mineral program and its relation with conception, herd health and performance. We gathered some extra information on these topics to reinforce Jack's opinions.

#### Short Calving Periods

Jack refers that in his own operation he achieved more calves and heavier calves in a compacted period, and more pounds of calf to sell. This is exactly true and we used some numbers from a publication from the University of Arkansas, to demonstrate it. The author, Tom Troxel, says that long calving seasons (more than 90 days) result in a wide range in age of calves at weaning time, and if a single weaning date is used, younger calves wean at a lighter weight. It's a simple matter of adding the days. If the calves are born for example from January until end of May, and then are weaned in September, those born in January will have 270 days and those born end of May will have 120 days. This has two implications:



- On one hand the calf crop is not uniform, which may complicate marketing of these animals. Total pounds sold will also be lower than when calving season is shorter;
- On the other hand, the heavier animals at some point will start to compete with their mothers for the forage resources and/or supplement, so adjustments in stocking rate and/or levels of feed may be necessary to ensure optimum performance.

The following figure and table (from Tom Troxel: "Long Calving Seasons: Problems and Solutions"), clarify these ideas with some numbers:

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#### Inside this Issue

#### Mineral Matters

By: Pedro Nogueira & Jack McCoubrey

## GREAT NEWS!

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***Special thanks go out to  
our HACCP team:***

***Jarrett Palen,  
Bill Wuerth, Harry Towle  
and Jason Becker***

**Keep up the good work!**



Volume 4, Issue 1  
April 2011

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Figure 1.

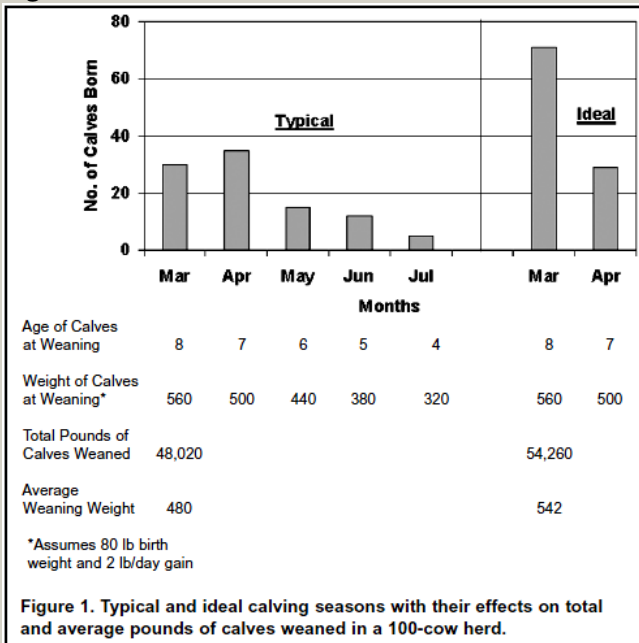


Table 1.

Time of Birth by 20-Day Intervals	Weaning Weight (lb)	ADG (lb)
First 20 days	443	1.76
Second 20 days	432	1.75
Third 20 days	416	1.78
Fourth 20 days	409	1.77
Fifth 20 days	405	1.67
Sixth 20 days	375	1.59

Data in Table 1 show that calves born early in the calving period will be heaviest at weaning and have the highest average daily gain (ADG). Therefore, to increase weaning weights and total pounds of beef weaned, producers should consider shortening calving season by shortening breeding seasons.

Figure 1. Compares a 5 month calving season (named “Typical”) with an “Ideal” 2 months calving season. Since all calves in the “ideal” calving season of 60 days are older, they are, of course, heavier at weaning. In a 100-cow herd situation, this translates into an extra 6,240 pounds of beef weaned or an extra 62 pounds per calf. If the average weaning weight of 480 pounds in the 5 month season is assumed, this is the same as having an extra 13 calves for the shortened breeding period (6,240 ÷ 480)!

### Nutrition on the last trimester of gestation and calf’s health

Pre-calving period, 50 to 60 days immediately before calving, is the most critical period of the year. Cows must reach or preferably maintain body condition score 5 or 6 (1 to 9 scale, 9 = fattest) during this period to have healthy calves and breed back quickly. Energy and protein needs increase by 20% or more compared to gestation. Foetal growth is rapid. The calf may gain 60 lbs during pre-calving, and the placenta is also growing. Along with foetal and placental growth, cows are preparing for lactation. The last period of gestation is important in several ways: not only it impacts colostrum quality, but it may also affect the outcome of labour. As for colostrum quality, Table 2 illustrates this point, relating body condition of the cow with the concentration of immunoglobulin levels in colostrum. We can see that as body condition at calving increases from 3 to 6, calf serum immunoglobulin level increases. As immunoglobulins are fundamental for fighting infectious agents, calves that suck colostrum with higher content of Ig, will have a higher chance of survival. Underfeeding late-gestation cows can lead to more weak calves and stillbirths, mostly due to prolonged labour. Weak calves are more likely to get sick and die, and they have decreased performance.

On the other hand, Dr. Christine B. Navarre, extension veterinarian from Louisiana University, explains that cows can only respond to a vaccine if they have proper energy, protein and mineral levels in the diet. If a cow isn’t taking in enough protein to maintain her body condition, she can’t make antibodies, which are protein, and put them in her colostrum for her calf. Therefore, vaccinating cows to protect calves through colostrum will only work with proper cow nutrition. Calf vaccine response is also poor in calves that don’t get adequate colostrum. So even if vaccines are administered, calves will still get sick and possibly die. The outcome means fewer and lighter calves at weaning.



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**Table 2. Effect of cow condition at calving on calf serum immunoglobulin level.**

Cow Body Condition Score					
	3	4	5	6	P-Value
Calf serum IgM (mg/dl)	146	157	193	304	.05
Calf serum IgG (mg/dl)	1998	2179	2310	2349	.23

Adapted from Odde, 1997, Proceedings Bovine Connection to Profit

**Mineral nutrition, conception, herd health and performance.**

As Jack says `MINERAL MATTERS`! Minerals play a vital role in forage digestion, reproductive performance, the immune system, and the development of bones, muscle, and teeth. Sub clinical trace mineral deficiencies occur more frequently than recognized by most livestock producers. This may be a larger problem than an acute mineral deficiency, because the beef producer does not see specific symptoms that are characteristic of a trace mineral deficiency. With a sub clinical deficiency, the animal grows or reproduces at a reduced rate, uses feed less efficiently and operates with a depressed immune system. In Alberta, several "Farming for the Future" projects have demonstrated 20 to 36 lb (9 – 16 kg) increases in weight gain in yearlings on pasture through trace mineral supplementation. It is interesting to note that reduced growth rates were not seen as a problem in these herds.

Improvements in reproductive performance of cows and heifers have also been observed with adequate trace element supplementation. More cows conceiving earlier in the breeding season resulting in increased weaning weights and fewer open cows have been common observations. Also, studies done with heifers, comparing no supplementation to supplementation with Cu, Zn, Mn, Fe and Mg, showed the following results (Table 3) (Paterson and Engle, 2005).

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# MINERAL MATTERS!

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Measurement	No Mineral Supplement	Cu, Zn, Mn, Fe and Mg Supplementation
Infections (bacteria isolated from cervix & uterus), %	25	5
Ovarian activity (mature follicles 30-80 days after calving)	20	35
Embryonic mortality (palpated embryonic depression 35-55 d post-insemination, %)	20	0
Incidence of endometrial scarring, %	58	10

### Conclusion

As Jack puts it in his notes there are several things that are important for a successful cow-calf operation. Complete herd health programs along with bull power are some of those things. They should be backed up with good nutrition to meet the nutritional requirements of the different types of animals on the farm. An important part of nutrition is a good mineral program, based on minerals that not only the animals actually eat, but that complement the forages on the farm and provide plenty of fortification to keep animals healthy or, in someone else's words, MINERAL MATTERS!

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# MINERAL MATTERS!



By: Jack McCoubrey

Well, it's been winter since December 7th, and many a foot of snow, but, other than a few road closures and time off for the kids from school, it has been a healthy winter for beef cattle. We have had many sunny days, although cool temperatures, there is something about the sun that seems to be healthy for cattle, and cows especially love laying out on sunny days.

I was hard at the calving from December 11th, and as of the last day of January, I had 45 on the ground, this, compared to 24 last year on the same day, we had 8 left to calve. The girls have performed well, this is during the first 42 days of breeding, we'll catch this last 8 this coming year, I am confident they will be also in the 42 days of my calving period.

And what a change a year can make, with record high crop prices, and crop yields, Ontario croppers have done well. We in the beef sector have not been left behind, cow/calf guys have experienced near record calf prices, \$200-250/hd advantage from year ago prices, and seems that it has not ended yet. Finishing prices need to move higher to match up with replacement calf prices and the increased feeding cost due to the higher corn/commodity prices. Here is how we match up with last year on Mar 30th;

	6 wt str	Mar Feeders	CME Corn	CME Beans	CME CDN \$	OCA Rail	Cows	US Dress'd
2010	1.12-1.26	1.10	3.45	9.41	.98	1.50	50-58	\$1.58
2011	1.39-1.63	1.34	6.63	13.72	1.02.9	1.85	60-77	\$2.00

Meaning, maintaining and selecting, developing, breeding replacement heifers and getting them into production, takes 3 years. While at the same time, the offering of record prices for feeder heifers will have an impact on retention of those replacement heifers for breeding, there is without question, a BEEF COW CRISIS!

Many have heard me say in the past, "buy more cows", in fact it was 2 years ago in this exact KENPAL BEEF BRIEF that I mentioned the story of me cashing my RRSP's to be able to keep my cows and maybe add a few here and there, while wife Janet questioned me on my economic decisions. So, with my optimism of "BETTER DAYS



AHEAD", they have finally arrived my friends, it has been a long time coming, and we surely wondered if these days would ever come, they are now here, and I predict to stay for numerous years. While my once 25 cowherd has now become a 55 cowherd, timely and surely glad to be a part of the Ontario Beef Industry, the road has had many detours and road closures, I proclaim us to be in those "BETTER DAYS, that were always AHEAD"!

As I mentioned previously I had 45 calves as of the end of January, 21 more than on the same date last year, we did start calving earlier, while achieving more calves in a shorter period. There is an amazing story to my calving period since 2008. In late spring 2007 we had a bull lose his bullets, started shooting blanks, this involved 11 cows, they calved the last week of March and the first week of April in 2008, to date 9 of those cows have moved into the 42 day calving interval of 2011, one cow still calves March and the other

cow took a ride. We have moved some of these cows 100 days in 3 calf crops, our #54 cow, she calves 25/03/08, then calves a set of twins 25/01/10 and delivers another set of twins on 23/12/10, 4 calves in one year, she's a work horse.

#524, she calves 05/04/08, delivers this year 07/01/11. Our #29, she calves 22/03/08, then 23/01/10 and then 02/01/11, the others have similar records, while I have moved the whole herd's calving dates forward.

I continue to be amazed as to how these cows have recovered. Being a mineral salesman, I can credit a good mineral program, while I do know, the KENPAL mineral had a part, it also takes good genetics, it takes selection for fertility, it takes good nutrition, not just for a short period, this is required all year long, a good herd health program, and can't be done without BULL POWER.

- So what have we achieved with a shortened calving period, more calves and heavier calves in a compacted period, and in the end more pounds of calf to sell, and at really good prices. My arithmetic was not honours, but if I can have a calf within the first 2 heat cycles, compared to being outside that period by 21 days or even 42 days, at current calf prices, the lost poundage will cost me dearly. Let's take 650 calves at \$1.50/lb, 21 days at 2.5 lbs per day, this is 52.5 lbs, this lighter calf brings in \$78.75 less, if the cow misses and is 42 days late, the costs is \$157.50. Take these figures and calculate on a larger number of calves, the decreased income is substantial. If you have 25 calves in that 42 day late category, the lost income would buy you another bull at \$4000.
- Bull power, nutrition, herd health and genetics are the factors. We have the ability to address each of these, but in the past few years as we suffered through low calf prices and yearly financial losses, we looked at an additional bull as an expense we did not need, we looked at using half the required mineral as the other half was an expense that we felt was not needed. Now, with current high calf prices and years ahead of predicted profitability, what we looked at as an expense previous years, we now need to look as opportunity for additional income. All the tools in place, fine tune the cow herd, allow MAMA the ability to produce, 'she's money in the bank'!
- MINERAL MATTERS, and as I travel country roads to visit with producers and discuss their programs and operations, it is clear to me, MINERAL MATTERS!
- Those that have a fine tuned breeding program with high conception rates are checking their mineral feeders. Those that have few health issues, right from calving time through to maturity, are checking their mineral feeders. These producers strive for less early age calf issues, less weaning stress sickness, maintaining a high degree of disease immunity, this during the time MAMA is pregnant, and calving with high quality colostrum. This is where it all starts, that first suck, that first tummy full of highly fortified colostrum, this extends to a healthy calf's life. This cannot happen without an adequate nutritional program, maintain body condition, thin cows are a wreck waiting to happen, my cows are always in a condition that when I look at them, I like what I see. If you're thinking that you have to have your cows lean so they'll calve out easier, this may not be true, they need to be in good physical condition, strong muscled, prepared to react physically at the precise time of calving, while having on board colostrum that is well fortified with all the goodness that will result in a calf this is energetic, intelligent and healthy from the get go. In summary, from my own experiences and observations;
- MINERAL MATTERS.
- A good mineral management program can influence conception, herd health and performance.
- A complete herd health program is a must.
- Meeting the nutritional requirements of the cow, bull, replacement heifers and calves is a must to achieve rewards at the end of the day.
- Maintaining nutritional health is an investment, not an expense.
- The best mineral management program is 365 days, yes, 365 days.
- For 24 years, I have used Kenpal Beef Nurse Cow mineral, and during that time, have never bought a bag or block of salt.
- **MINERAL MATTERS!**

