

# Calving Ease

October 2015

By Sam Leadley of Attica Veterinary Associates



## Do Your Calves Have a Cushion?

- **Cushion = biological reserves that may be used against disease.**
- **Cushion comes from superior colostrum management.**
- **Cushion comes from superior nutrition.**
- **Cushion comes from low stress housing.**

### Biological Reserves

This term, biological reserves, may be defined by example. On one hand, we may have a month-old calf with a low level of biological reserves that has experienced a substandard rate of growth, has a rough hair coat and a low body condition (maybe we would say, “skinny” with ribs showing). On the other hand, the high biological reserves two-month old calf has experienced a superior rate of growth already doubling her birth weight, has a glossy smooth hair coat, and a 3.5-4.0 body score.

### Superior Colostrum Management

Recall that our calves start out their life as a newborn with close to no circulating antibodies. They have very few defenses against infections. That’s why there is so much emphasis these days about feeding newborns plenty of good quality clean colostrum ASAP after birth. Colostrum is the source of antibodies in the calf’s blood.

But how do maternal antibodies contribute to this cushion factor? First, they have the potential to reflect the “on-farm” pathogen profile. Those are the bacteria and viruses that mom has been exposed to in the months before her calf was born. When the young calf has bacterial exposure the antibodies from mom promptly recognize the foreign intruder. The army of white blood cells can be called out to defend the calf.

Second, the maternal antibodies stick around for a while – they are not “here today, gone tomorrow.” Their concentration is the highest shortly after birth. We consider their protection quite strong for at least the first week of life. This is not, however, permanent protection. All kinds of maternal antibodies do not persist for exactly the same length of time. On the average, however, their protection declines significantly after two weeks and is fairly low by a month of age.

### Superior Nutrition

Calves need lots of both energy and protein to grow. Some growth is visible – skin, bones and muscle. If we have a feeding program that provides plenty of milk or high quality milk replacer our calves get bigger – quickly. It is easy to see that three-week old calves are bigger than newborns.

Some growth we don't see – for example, the multiplication of immune cells in the gut, lymph nodes and circulating blood cells. These parts we cannot observe easily are essential for maintaining calf health.

It is good to remember that the rate of maturation of the immune system and all its parts matches the rate of physical growth. As the calf gets larger we know her immune system is maturing as well.

If our nutritional program fails to achieve physical growth (for example, three-week old calves are still the same size as when they were born) we may safely conclude that their immune system maturity will also be lacking. Thus, a nutritional program that provides plenty of energy and protein (seasonally appropriate as well) will not only have our calves getting bigger but their immune resources will be multiplying at the same rate.

Thus, the accumulating body stores of energy and the maturing immune system define the “cushion” that she can draw upon during a stress event (for example, cold wet weather, change in housing, exposure to parasites). It's also important to remember that if our calves get sick they use lots of energy and protein to fight off the illness and return to good health – they use up some of their “cushion.” Getting calves back on full feed after an illness event is essential to rebuilding the “cushion.”

## **Low Stress Housing**

In a stress-free world our calves would live in a pathogen-free environment at just the perfect temperature. No bacteria, viruses or parasites. And, just the right temperature so she does not have to use energy either to keep warm or cool herself.

Let's be realistic. Whether housed in hutches or in barns these stress-free conditions seldom exist. We settle for getting as low stress conditions as are practical for a dairy farm.

Some stress factors are usually beyond our immediate control. The daily weather and seasonal changes from month to month are two examples. If we have hutches and it rains for ten days in a row it's tough to maintain dry bedding. If it goes up to 50F at mid-day and drops to below 20F that night it's predictable that chilled calves will be stressed. If our calf barn has too few openings for adequate air exchange it can be hard to keep the ammonia smell down in cold weather.

Some stress factors can be managed. For example, we can lower the curtain on our calf barn on the side away from the wind on a warm winter day to promote better air exchange. Or, we can check our pen bedding using a “knee-drop” test and bed more if our knees get damp. Or, we can change our “regular” bedding routine from twice a week to include extra days if we get rain ten days in a row.

What does all of this have to do with the “cushion”? In general, the lower the stress from her housing environment the higher the proportion of the energy we feed is available for growth rather than being used for maintenance. We more likely to end up with calves with superior body condition and a strong immune system.

**Do your calves have a “cushion?”** Giving calves just enough care to keep them alive will not provide a cushion that can help them remain healthy when stress events happen or recover more promptly when ill. A good colostrum management program, good nutrition and low stress housing are likely to build the cushion for your calves.

If you know of someone that doesn't currently receive **Calving Ease** but would like to, tell them to **WRITE** to Calving Ease, 11047 River Road, Pavilion, NY 14525 or to **CALL** 585-591-2660 (Attica Vet Assoc. office) or **FAX** (585-591-2898) or **e-mail** [calvingease@rochester.rr.com](mailto:calvingease@rochester.rr.com) with Subscribe as the subject. Back issues may be accessed on the Internet at either [www.atticacows.com](http://www.atticacows.com) or [www.calfnotes.com](http://www.calfnotes.com) and clicking on the link, Calving Ease.

**Thanks to Attica Veterinary Associates, P.C. for their support of Calving Ease.**

**Remember to search for “Calves with Sam” blog for profit tips for calf rearing.**