



River Valley Veterinary Clinic

October 2017 Newsletter

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Feeding Calves Through the Winter

Updated from November 2015

As we head into the cold half of the year, it becomes especially important to remember that calves are being fed not just to keep them alive, but to grow and thrive! They need enough milk or milk replacer not just to meet their regular maintenance needs but also to meet or go beyond the desired growth rate. To determine that rate, look to where they should be at weaning: double their birth weight. An average Holstein calf that weighs 90lbs at birth should weigh 180lbs at the start of weaning 6 weeks later. To achieve this, she needs to gain 2lbs per day, no matter what time of the year it is, no matter what the temperature.

When a calf nurses from a cow, she will drink 16-24% of her body weight in milk per day spread over 6-10 feedings, which is about 1.7-2.5 gallons of milk per day. If offered milk free choice, she will drink 1.9-2.8 gallons/day which equates to 2-3 lbs milk solids per day. But offering fresh, warm milk free choice is impractical. So, the calf is limited to 2-3 feedings per day, but how much to feed is a never ending question. The answer is simple: it depends.

It depends on the age of the calf, her size and most importantly the weather. As all animals do, a calf will put the majority of the energy she acquires from eating toward staying alive (called maintenance energy) which includes maintaining a regular body temperature. Only after maintenance energy has been accounted for will the remaining energy from a calf's meal go toward growing. It then follows that the more energy she consumes, the more leftover there will be for growth after maintenance.

But the maintenance energy required varies, mostly in relation to the weather and environmental temperature. Every animal has an upper and lower critical temperature range, inside of which they are not using any energy to warm or cool themselves. If the temperature is above the upper critical temperature, the animal has to use energy to cool itself, which is why humans sweat and cows appreciate sprinkler and fan systems. Below the lower critical temperature, additional energy is required to create warmth, and for a calf, it means less energy is available for growth. While cows are comfortable in cooler weather, calves become cold quickly. Calves less than 3 weeks old begin using energy to stay warm at 59°F, and 30 day calves are cold at 50°F. At a certain temperature, 100% of the energy from feeding goes straight toward staying warm and alive, and there is nothing left for growth.

So much depends on what we do about the 5 C's of Calf Care: colostrum, comfort, cleanliness, consistency, and calories. The first is easy: with 4 quarts of good quality **colostrum** within 6 hours of birth, the calf's immune system will be able to fight infections so she can stay healthy and grow. **Comfort** is especially important in the winter. A calf needs deep, dry bedding so she can snuggle for warmth while her urine and manure sink away from her nose and mouth. A deeply bedded pen should have enough bedding that a calf's legs are generally not visible when she is lying down. With deep bedding, a calf can raise her surrounding temperature by 7°F. Calf jackets are excellent at providing additional warmth and should go on when temperatures go below the calves' lower critical temperature. However, calf jackets don't replace deep bedding and vice versa, so use both for maximum warmth.

Cleanliness comes into play here as well, because wet bedding loses 3 times more heat than dry, so it's imperative that calves have dry bedding to nest in. Bedding must be changed regularly, if not more frequently, in the winter. Leaving soiled bedding and only adding new bedding on top creates an environment that encourages disease both directly through contact with the dirty bedding and indirectly by increasing the humidity in the pen, which allows aerosolized infectious particles to linger.

Consistency is just what it sounds like: calves should be fed the same volume with the same amount of milk solids, at the same time and as close to body temperature as possible. Providing proper comfort, cleanliness and consistency during the winter does become more difficult, but since the added difficulties are predictable, we can plan now how to accommodate for them later, instead of scrambling to adjust.

Providing the correct **calories** is full of daunting choices: whole milk versus milk replacer, two or three feedings per day, and offering water and grain. But remember the goal: we are feeding them to not only stay alive, but to grow! And at 2 lbs/day. At this point, it becomes a math problem based on the calf's diet, weight and the environmental temperature. A 100lb calf fed 3 quarts of whole milk twice daily will be able to gain 1.6lbs/day at 60°F. However, the same calf can gain only 1lb/day when it's 30°F. That could mean only 1lb of growth per day or less from October through March or April, if extra steps aren't taken. In January or February, when it's often 0°F or below, the calf might gain 0.5lbs/day at most and possibly start losing weight. However, if she were to be fed an additional 3 quarts/day (3

quarts, three times daily), she could gain over 2lbs/day even at 30°F. It's difficult for a calf to gain any weight at 0°F, but she could still gain 1.77lbs/day with the additional feeding. While 3 quarts of whole milk, three times daily seems great, it's a lot of milk to provide. On the other side of the spectrum, feeding only 2 quarts/day is inadequate below 60°F; a calf could be starving for the entire time she is on milk.

Current research suggests a compromise of feeding calves 2 gallons of whole milk/day. This starts right on Day 1 with no need to increase the amount offered over a few days, which decreases confusion over which calves get what amount. If calf grain is offered in small amounts starting at Day 3, the calves getting 2 gallons/day are better prepared to make the switch to solid food more quickly when weaning time comes.

To increase the calories a calf receives in the winter, there are multiple approaches. With whole milk, add another feeding of the regular amount or add a quart to each of the existing feedings. The same can be done with milk replacer, or use a replacer with a higher fat content. If you plan on feeding more

replacer, a good rule of thumb is to increase the amount of replacer by 2% for every degree below 41°F.

Providing grain and water ensures additional calories, even if a calf eats only a handful every day. Starting Day 3 and older, offer a handful of fresh grain daily and a few pints of clean, warm water after feeding milk. Calf grain provides more calories than milk, and offering water immediately after feeding milk will increase the amount of grain a calf will consume. When it's below freezing, offer water for 30 minutes, three times daily. Free choice water at such a young age can result in water toxicity, so be conscientious about not offering more than the amount of milk in each meal.

The chart below includes examples of the daily weight gain of a 100 lb calf fed various diets at different temperatures. The combinations of variables are endless, so if your calf feeding program isn't in the chart, let us know and we'd be happy to do the calculations. We can work together to maximize your calves' weight gain this winter.

	Feeding Schedule	Environmental Temperature			
		0°F	30°F	50°F	60°F
Whole Milk Max.Avg. Daily Gain (lbs/day)	3 qts, 2x/day	0.52	1.00	1.31	1.6
	3 qts, 3x/day	1.77	2.17	2.44	2.69
	4 qts, 2x/day	1.37	1.79	2.07	2.33
Milk Replacer 20%/20% Max. Avg. Daily Gain (lbs/day)	3 qts, 2x/day	weight loss	0.5	0.84	1.15
	3 qts, 3x/day	1.13	1.57	1.85	2.12
	4qts, 2x/day	0.77	1.30	1.53	1.81

Attention Deer Hunters!

Since 2002, the prevalence of Chronic Wasting Disease (CWD) in Wisconsin has been increasing across age and sex classes. Prevalence has increased to over 30% in adult males, 15% in adult females and about 10% in yearling males and females. Sauk and nearby counties are known to have both wild and captive CWD positive deer, but testing is in decline. A recent study in Canada found that monkeys who ate CWD infected meat contracted CWD, raising the concern of whether humans could be at risk as well. To date, there have been no reported cases of CWD in humans but the CDC advises that no meat from CWD positive deer, elk or moose be consumed. CWD is caused by the infectious prion which is incredibly resilient and is always fatal. RVVC would like to encourage hunters to have all deer harvested tested for CWD. The DNR has free sampling kiosks throughout the state (nearby is at Prem Meats in Spring Green) or bring the head to RVVC-Plain, just call ahead to verify if a veterinarian is available. Tissue samples needed for testing are at the base of the skull and in the first hand-width of the neck. A deer can still be tested if it is going to have a shoulder mount. For more information, see the Wisconsin DNR website for details on testing, sample collection and additional information.

Save the Date!

Our customer appreciation day will be November 16th at the Plain clinic. There will be food, fun and door prizes! Look in next month's newsletter for more details.

Pardon Our Dust!

This week, October 2nd-6th our Reedsburg clinic is undergoing a renovation to expand our small animal capabilities! While we aren't seeing any routine small animal appointments or surgeries this week, the office will be staffed from 9am to 3pm daily if you need to pick up any medications or supplies. We'll be up and running again next week with a brand-new reception area and 2 exam rooms! Come check it out!