CRYSTAL CREEK NEWSLETTER
DECEMBER 2022

# Working With Mother Nature... Heifer Maturity Matters

By Dan Leiterman

Not every seemingly good idea spawned with good intentions by dedicated professionals turns out to be an effective, practical solution. The case in point discussed here; What is the proper age for a dairy heifer to freshen at? Research presented at the 4-State Nutrition Conference this year, and reviewed in this article, shows that the industry's efforts to freshen dairy heifers at 22 months of age vs. 24 months of age is detrimental to the lifetime productivity of the cow and to the farmer's profitability.

As with any idea, it is critical to ask questions about whether or not it aligns with key fundamental dairy principles, i.e. biological, physical, and chemical effects of pushing Mother Nature and its resulting economic impact on the herd.

## *Perceived Incentives/Reasons for Breeding Dairy Heifers Earlier*

On the surface, there were a number of reasons cited that seemed logical at the time to pursue a strategy of breeding dairy heifers at an earlier age. Some of these key reasons were to begin milk production earlier, to reduce heifer inventory and to reduce heifer feed and production costs. This study showed that if the cull rate in a herd was 30%, 35% or 40% the heifer inventory needed to be approximately 15% higher for freshening heifers at 24 months of age vs. 21 months of age. The issue of maintaining herd size with an aggressive heifer breeding program however is a band-aid to a much larger underlying problem on many dairy herds of 'poor herd maturity'. Breeding heifers before they are biologically mature enough to be bred reduces their milk production for life, reduces longevity in the

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herd and consequently their lifetime productivity and profitability for the producer. When utilizing this strategy, the die is cast for life and there is little that can be done to change this, despite aggressive nutritional strategies.

## *Age and Bodyweight at Calving Impacts Production and Maturity*

1. Age at Freshening Impacts Milk Production:
   a. 1st lactation: Calving age of 24 months vs. 21 months showed a production of 21,100 lb. vs. 20,300 lb. respectively in 1st lactation.
   b. 2nd lactation: The milk production difference between 1st lactation and 2nd lactation Holsteins at 5 weeks of lactation is normally 30 lb. Consequently, if the first lactation is reduced due to lower bodyweight at freshening it will continue to lower milk production into the 2nd lactation.
   c. 3rd lactation: The milk production difference between 2nd and 3rd lactation in Holsteins at 5 weeks of lactation is typically 8 to 10 lb. 3rd lactation is directly linked to 1st lactation production. If 1st lactation production is lower due to early bred and lighter weight heifers, then the 3rd lactation production will also be lower.
   d. Studies also showed that the lower production in the 2nd and 3rd lactation due to reduced production in the 1st lactation, caused by early breeding and light bodyweight heifers, appears to be independent of the level of milk production or milking frequency.
2. Body Weight at Freshening and Post-Calving Impacts Milk Production:
   a. Older heifers freshening with heavier bodyweight have more milk production potential than lighter, earlier bred heifers. Heifers that are 60 lb. heavier at freshening result in producing a 3 to 4 lb. increase for the whole herd average.
   b. Research showed that heifers with 1,211 to 1,320 lb. post-calving bodyweight had 1,200 lb. more milk production potential vs. 1,100 lb. post-calving bodyweight heifers.

## *Age at Calving Impacts Cow Longevity in the Herd*

This study referenced research that showed weight at calving impacts cow survival and disease occurrence. For example, heifers calving with body weights of 1,100 to 1,200 lb. vs. 1,200 – 1,300 lb. had a 6% lower survival rate and significantly higher rates of metritis.

The bottom line message with this research is, “the herd cannot outperform production level set by 1st lactation”. Consequently, if heifers freshen before 24 months of age, milk production and herd longevity are significantly reduced and pushing more nutrition will not change this situation. The strategy of freshening heifers at an early age proves to be unwise and in conflict with basic principles of good dairy cow management. Breeding heifers before they are biologically ready limits the production and profitability of not only the heifers, but of the entire herd for life.

Even more importantly, the nutrition and management concepts that focus heavily on rolling herd average and not on lifetime production of a cow is the root cause of much of this misdirected strategy. Optimum milk production comes from cows that mature properly and their production during their 4th, 5th and 6th lactations. Trying to make immature cows perform like mature cows is incompatible with the basic principles of sustainable and profitable dairy production.

Give us a call at Crystal Creek® to put your herd on a sustainable nutrition and management program. We are here to help you reach your business goals.

## SWIFT START®

# CALF & HEIFER PROGRAM

The goal of any dairy calf raiser is to have a healthy, productive, replacement heifer that is a profitable addition to their milking line. The Crystal Creek® Swift Start® Calf & Heifer Program consists of a line of milk replacers, texturized calf feeds, calf pellets and mineral formulated with industry leading technology and manufactured with the highest quality ingredients available. University research has proven time and time again that the way calves are fed and raised during the pre-wean period will affect their performance later in life.

Calves on the Swift Start® calf feeding program have more uniform bodyweights and a smoother transition into weaning. Heifers on the Swift Start® calf feeding program have significantly higher reproduction rates resulting in heifers being ready to perform, meaning less time on feed and more milk profit. The Swift Start® calf feeding program continues to outperform others while delivering an increase in total profit to the producer. Call Crystal Creek® today to improve your herd profitability by feeding your calves with the Crystal Creek® Swift Start® Calf & Heifer Program. We are confident you will be glad you called.


**Swift Start®**
**Calf Milk Replacer**
Supports healthier, more productive calves at a lower cost of production.


**Swift Start®**
**Texturized Calf Feeds**
Available in Starter or Grower formulas.


**Swift Start®**
**Calf Pellets**
A highly fortified pelleted supplement that can be used to formulate calf and heifer rations.


**Swift Start®**
**Calf & Heifer Mineral**
Provides macro minerals, trace minerals, selenium, vitamins and salt for all stages of growth.

# The Virtue of Patience

*Dr. Darren Zimmerman has recently joined the Crystal Creek® team and is further advancing his veterinary skills through an additional knowledge of animal nutrition. Crystal Creek® is excited to be working with Dr. Zimmerman as he becomes more familiar with the Crystal Creek® sustainable approach to livestock nutrition.*

By Darren Zimmerman, D.V.M.

*"Patience is not the ability to wait, but the ability to keep a good attitude while waiting." - Unknown*

When I was first out of vet school, I felt that I had all the knowledge and energy in the world. Unfortunately, clients saw a green, untested kid with a lot of "new" ideas. I quickly learned that "teaching an old dog new tricks" requires patience and persistence; and, if there is one thing farmers know, it's persistence. Farmers can be a stubborn lot (I say this as someone who married a farmer and is, himself, a farmer). Changing their minds and ways of doing things requires a lot of patience and persistence. Patience can be hard to come by, especially when you have all the knowledge and energy in the world to impart. So many times when something seemed simple and obvious to me, it was difficult to see things from their perspective. I needed to remember that they also had their knowledge and weren't always looking to adapt and change their world. I learned the value of slow steps and gradual change.

Besides accepting gradual change, I also learned the value of listening and being open to someone else's ideas. If everyone is telling you to change something, the common denominator in that equation is you. It can be hard to see, understand, and accept that; however, leading someone to that understanding, and seeing that change, is so worth the time and effort. I remember advising numerous clients on various issues, and their answer was often, "Everyone is telling me that"...yet they didn't realize they were the thing that needed to change. Eventually, my attitude changed. Trying to force all your knowledge on someone is frustrating on both ends. Accepting that real, meaningful change cannot come overnight has been of tremendous value to me. Accepting that patience and persistence when teaching is the thing that leads to meaningful change made my life, and theirs, much better. Learning to

Photo by Keenan Constance: Pexels.com

*"The key to everything is patience. You get the chicken by hatching the egg, not smashing it" - Arnold H. Glasow*

accept that fact with graciousness and gratitude took even longer, but was worth every minute.

Now all these years have passed, and I suddenly realize that I am one of those old dogs. I have chosen to pursue a new career path and there is so much to learn. I have indeed learned patience throughout the years, but a part of me still wants to know everything right now. Patience requires practice. I thought that practice was over and that I had it mastered. Now, I am experiencing challenges with my world changing. I am frustrated that things are so different when I thought I had it all figured out. I have to re-evaluate many of these things that have always worked for me. People I love and respect are telling me to be patient and I will be rewarded. I am slowly realizing the common denominator in the equation is me. I now see others being patient with me as they try to teach me all these new tricks. Also, understanding how things have come full circle in my life, I have discovered how important and difficult humility and gratitude can be. I am grateful to be given this new, exciting chance to learn new tricks from knowledgeable, patient people and clients. I am grateful they know real, meaningful change won't happen in me overnight. I hope to be able to accept that fact soon, myself. Patience still requires practice. I am having to relearn that all over again. I guess being the common denominator can be hard. Math is hard!

I also know that a sense of humor to go along with the humility, can help change your life. I hope to still be able to provide fresh eyes and a different perspective to this new chapter. We all live in a "right now" world, and it can be difficult to maintain a good attitude about it. Accepting that this is not generally how the world has ever worked can be difficult. Adapting an "attitude of gratitude," and changing your feelings about "right now" can have an amazing, positive impact on your life. I have also realized patience isn't necessarily "just a virtue." It's an attitude that can make your whole life different and so much better. Sometimes, when things are too overwhelming, and you are paralyzed by everything being too much, all you have to do is: STOP, take a breath, look around, and don't do anything except be grateful for where you are. Sometimes gratitude is what patience looks like. This old dog may still have the ability to learn new tricks after all. Who knows, he may still have a few of his own "new tricks" up his sleeve too.

# The ROI of Calf Barn Ventilation

By Alex Austin, B.S.

One of the top expenses for a dairy is raising replacement heifers. Since it can take approximately two years before a heifer enters the milking herd, heifer raising is often viewed as a cost rather than an investment. While producers may consider cutting corners on heifer care as an attempt to save money, that approach can often lead to greater financial loss in the form of additional medical treatments, increased farm labor, and poor animal performance. Future milk production potential should also be considered. Studies have shown that calves who receive proper care during the pre- and post-weaning periods, become better producing cows. A better producing cow means a faster return on investment and increased profit. Investing in practices that will help provide a healthy environment for calves to be raised in will result in more productive animals once maturity is reached. There are many variables of calf care, from different feeding programs to housing styles. This article will focus on the cost, and the return on investment, of proper air quality provided by positive pressure calf barn ventilation systems.

## *The Economic Impact of Calfhood Pneumonia*

In order to evaluate the economic impact of calfhood pneumonia, a farm's average pneumonia case cost, and frequency of occurrence, need to be determined. It is important to note that for this evaluation, we will only be considering pneumonia cases that are caused by environmental factors (which can be addressed by improving air quality). Pneumonia can also be caused by contagious sources. For more information on the differences between environmental and contagious pneumonia, refer to the August 2020 issue of the Crystal Creek® Newsletter, "Calfhood Pneumonia: When Is It Related to Ventilation and When Is It Something Different?" by Dr. Ryan Leiterman. To help simplify the number of variables that can be involved in calf barn ventilation evaluations, this article will focus on one aspect that a positive pressure tube ventilation system provides: the economic impact of environmental calfhood pneumonia in pre-weaned calves.

First, an economic loss per case of calfhood pneumonia must be established. Dr. Kevin Dhuyvetter, along with Dr. Michael Overton,

conducted a study on 23 herds which included a total of 104,000 calves. Their study suggested a potential cost ranging from $212 to $237 per pneumonia case. Another study done by Texas A&M found heifers that experienced respiratory disease not only took longer to enter the milking herd, but also produced 2.4 lb. of milk less than heifers that did not experience respiratory disease. Similar studies have found ranges of 125 lb. to over 400 lb. less milk produced in first lactation for heifers that experienced pneumonia. When considering potential milk production loss alone, the economic loss can range from $25 to over $100 per heifer depending on current milk price.

The Dairy Calf & Heifer Association Gold Standards target a respiratory disease rate occurrence of <10% in pre-weaned calves. In May 2020, the Dairy Calf & Heifer Association (DCHA) webinar featuring Dr. Kevin Dhuyvetter presented information from a study with Dr. Dhuyvetter and Dr. Overton which found the average occurrence of pneumonia was 37.2% during the first 150 to 200 days of life. This occurance is well above the recommended DCHA standard of <10%. For the purposes of this article's projections, a pneumonia rate of 35% will be used.

Using the approximate cost and level of occurrences previously mentioned, this article will now apply these factors to a real-life example which demonstrates the return on investment for a FLAP DUCT® calf barn ventilation system. It is important to note that a properly sized and placed positive pressure ventilation tube with appropriate air speeds will provide more benefits than just improved air quality. Heat abatement in the summer, relief from fly pressure during warmer seasons and even keeping bedding drier are all additional assets of a properly designed ventilation system. Each one of these factors can have an economic impact on calf health and performance above and beyond the calculations in this article.

**Figure 1** shows an example barn of 40'x100'. The barn can house 40 calves in individual pens with 20 pens on each side. In this cost analysis, a 28" x 84' FLAP DUCT® positive pressure ventilation tube is placed over each row, resulting in a total system cost of $10,541.90.

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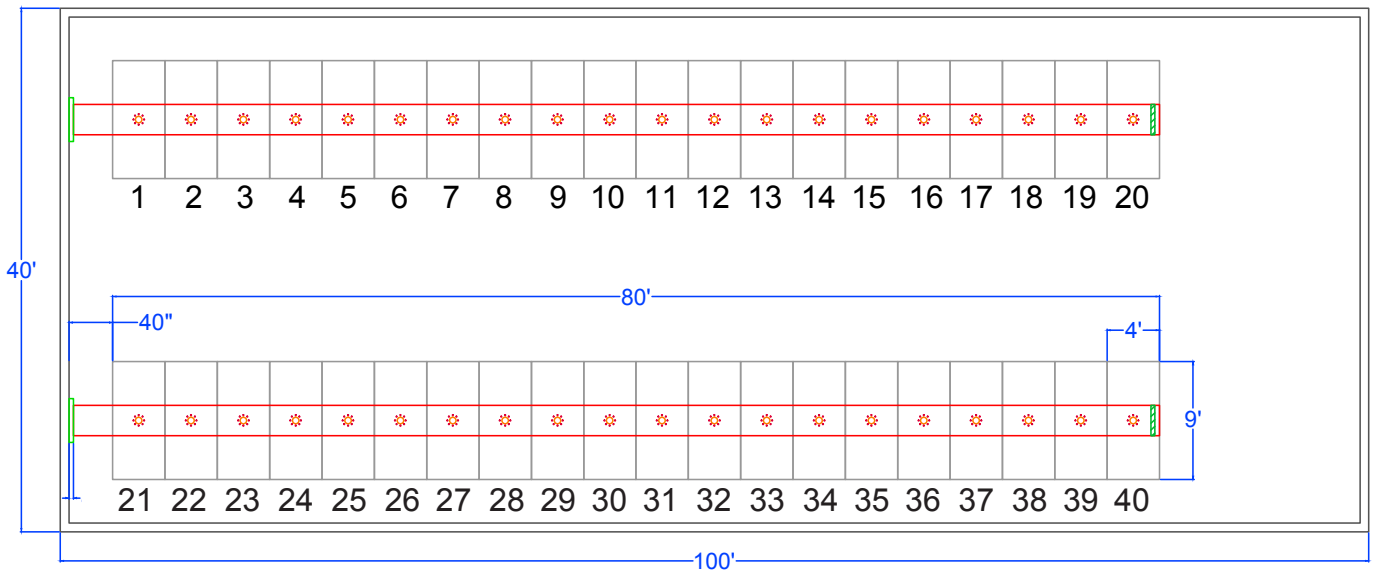
***Figure 1*** **EXAMPLE CALF BARN**



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## *Proving the Return on Investment*

By installing a properly designed ventilation system that meets ventilation requirements for all four seasons, this example will assume pneumonia rates were reduced to the DCHA Gold Standards of <10%. Calves in this barn have a 60 day weaning age. If calves remain in these pens for approximately a week after weaning, before transitioning to a post weaned barn, they will be housed in these pens approximately 67 days. This allows for 5.4 groups of calves to be housed in this facility in 1 year.

40 calves/group x 5.4 groups/year = 216 calves/year

**In the case of a 35% respiratory disease occurrence being reduced to a 10% respiratory disease occurrence:** reducing the rate of pneumonia to the DCHA Gold Standard of 10% results in 54 calves not needing to be treated for pneumonia in one year, with a savings of $150.00 per calf.

216 calves raised x 35% pneumonia occurrence = 75.6 calves with pneumonia

216 calves raised x 10% pneumonia occurrence = 21.6 calves with pneumonia

75.6 -21.6 calves = 54 calves not needing pneumonia treatment at a treatment cost of $150.00 /calf =

**$8,100.00 SAVINGS**

If the total cost of the FLAP DUCT® is divided by the total cost savings per year from the reduction in environmental pneumonia cases, the FLAP DUCT® system will take a total of 1.3 years to pay for itself.

$10,541.90 investment ÷ $8,100.00 savings/year =

**1.3 years for the ventilation system to pay for itself**

## *Other Pneumonia Occurrence Rates*

Calf raisers that install a ventilation system may not all see a pneumonia rate drop to an occurrence of <10%, but any rate of reduction is a cost savings. To show the return on investment in other scenarios, the same calculations that were applied to a pneumonia rate decrease from 35% to 10% will now be applied to a 25%, 20% and 15% pneumonia rate occurrence.

**In the case of a reduction from a 35% respiratory disease occurrence to a 25% respiratory disease occurrence:** results in 21.6 calves not needing to be treated for pneumonia in one year, with a savings of $150.00 per calf.

21.6 calves not needing pneumonia treatment at a treatment cost of $150.00 /calf =

**$3,240.00 SAVINGS**

$10,541.90 investment ÷ $3,240.00 savings/year =

**3.25 years for the ventilation system to pay for itself**

**In the case of a reduction from a 35% respiratory disease occurrence to a 20% respiratory disease occurrence:** results in 32.4 calves not needing to be treated for pneumonia in one year, with a savings of $150.00 per calf.

32.4 calves not needing pneumonia treatment at a cost of $150.00/calf =

**$4,860.00 SAVINGS**

$10,541.90 investment ÷ $4,860.00 savings/year =

**2.17 years for the ventilation system to pay for itself**

**In the case of a reduction from a 35% respiratory disease occurrence to a 15% respiratory disease occurrence:**
results in 43.2 calves not needing to be treated for pneumonia in one year, with a savings of $150.00 per calf.

43.2 calves not needing pneumonia treatment at a cost of $150.00/calf =

**$6,480.00 SAVINGS**

$10,541.90 investment ÷ $6,480.00 savings/year =

**1.63 years for the ventilation system to pay for itself**

The FLAP DUCT® ventilation system has currently been in barns for well over 10 years. It is important to remember this estimated return on investment was calculated with respect to only one aspect or benefit of the FLAP DUCT® system. The savings incurred in this one year time frame could be even greater in subsequent years as time progresses. A properly designed ventilation system will address fly pressure, heat stress, bedding moisture, and more. All things in addition to improved air quality and will provide an even faster ROI.

No matter what type of pen style or calf barn housing set up you have, the FLAP DUCT® system can deliver consistent, fresh air to your calves. Before considering cutting costs on a ventilation system that is undersized or that underperforms, consider the bigger picture and the long term impact it will have. To learn more about how the FLAP DUCT® calf barn ventilation system can work in your barn, visit www.crystalcreeknatural.com.

*References available upon request.*

# An Interview: Bill Ciolkosz Discusses His Journey to Build a Quality Calf Barn

By Cassy Golburg, B.A.
Livestock Specialist

In the fall of 2021, Bill Ciolkosz added a new calf barn to his operation, along with a Crystal Creek® FLAP DUCT® calf barn ventilation system. Bill is a fourth-generation farmer in Thorp, WI. The land he farms has been in his family for over a hundred years. In a recent interview with Crystal Creek®, Bill discussed the reasoning behind the features he chose for his new calf barn facility and how he decided the FLAP DUCT® ventilation system was the right choice for his calves.

***Question: "What led you to consider building a calf barn over using outdoor hutches?"***

**Answer:** "Having raised calves in outdoor hutches before, the calves did well initially, but once they were moved into group pens, their progress stalled. They went to a new barn with 10-12 calves per pen, and they just hit a wall. From two to three months old, they stood still. It took them about four or five months before they started looking good again. It was too much change at once. We needed to do something to ease that change."

Weather was also a factor, with both the summer heat and the rain and snow during winter, being a concern. Ciolkosz kept the calves on 18 inches of sand, but still worried about keeping them cool. During the winter, extra bedding needed to be used to keep the calves dry from the rain and snow when in the outdoor hutches.

***Question: "What were the most important features you wanted to include in the calf barn?"***

**Answer**: "I toured different barns and went online and looked at about 25 barns. Talking with people who have had the barns for awhile, you start to see what you like and what you don't like. That gave me the idea to move the calves three feet away from the wall. Once we had that space, we could build a walkway to be able to bed from the back of the pen."

While doing his research, Ciolkosz decided he wanted to give the calves the ability to socialize once they were a couple weeks old. He looked into pens where the panels can be pulled and decided that his calves could benefit from being in groups of three or four at a few weeks of age. The calf barn he built allows calves to be in individual pens at birth and then have the panels pulled to allow

group penning with socialization. While the calves are allowed to be in a group, they still have their own feeding pail to help keep conditions sanitary.

Ciolkosz also did research on the Crystal Creek® FLAP DUCT® ventilation system, talking to people who already installed the system and watching videos online. "The neatest thing was I gave a plan for the barn and Crystal Creek® custom made the tube for the barn. This isn't a tube shoved in a barn where you then hope for the best, this is more: let's make this thing work for you. It isn't for everybody's barn, it's specifically made for my barn."

Ciolkosz moved calves into the barn in October of 2021 and said "There has been very little stress on the calves, which makes weaning and transitioning easier. The FLAP DUCT® ventilation system is key. This past winter there was no draft, no pneumonia, which saved on treatment costs." (For further information on input costs and the potential savings a FLAP DUCT® calf barn ventilation system can provide, see the article "The ROI of Calf Barn Ventilation" on page 6).

***Question: "What advice would you give to someone considering building a calf barn?"***

**Answer:** "Don't be afraid to ask questions. Find the guys that will be honest with you. If you do enough research you can nail it down pretty close. Focus on the animal's needs when building the barn. It's not there for looks, it's not there for building quality. It's there for the animal. Do everything right for the animal. Build so that the animal is comfortable and can transition well. Build for your purpose."

Another piece of advice Ciolkosz offered was to build with the next step in mind. Originally, he wanted to build for older animals and work his way down to the calf barn, but decided it would be more beneficial to both the animal, and to his operation, to start with the calves. "We built everything to get to six months. Then to eight months, and eight months to a year. Start from the bottom and work your way up. Build in the sequence you need," he said.

***Question: "How did you deal with cost concerns regarding the calf barn?"***

**Answer:** "Talking with other calf raisers and seeing how healthy their calves were. In our situation, what we were doing was not working. If I'm going to do something, I'm going to do it right or not at all. If you're going to do it right sometimes it's going to cost money."

When asked what things he would definitely do again, Ciolkosz said there were a group of things that are key to the barn being successful like having 4x9 stalls, hay feeders, waterers and the FLAP DUCT® calf barn ventilation system installed. Crystal Creek® would like to thank Bill Ciolkosz for taking the time to answer these questions and hope other calf raisers can benefit from this article. To learn more about the FLAP DUCT® system, call 1-888-376-6777 to speak to one of our knowledgeable ventilation specialists.

# Biologically Appropriate Calf Feeding

By Erik Brettingen, B.S.

The performance and production ability of a cow is determined by the quality of nutrition and health management they receive as a calf. Since calf raising is expensive, it is important to determine the most efficient and effective feeding method available. Calves are biologically designed to thrive on milk for the first portion of their life, and are able to gain weight very efficiently during this time. Feeding increased levels of milk, or milk replacer, can be the best way to increase calf growth rates early in life. Feeding adequate calories from milk helps achieve growth rates of 1.7 to 2 lb. per calf per day. These are the growth rates needed to double birth weight at weaning, which should be a performance goal for all calf raisers. Achieving these rates is an expensive process, and because of that, producers may look for cheaper ways to raise calves by weaning early (less than 56 days), feeding decreased quantities of milk or milk replacer, and/or trying to drive calves on to an inexpensive calf grain starter within just a few days of life. Accelerated milk feeding, with enough days on milk and moderate intake of a properly formulated calf starter, can be key to maximizing calf growth, health, and setting the stage for a productive life as a cow upon entering the milking herd.

## *Milk for Early Weight Gain*

Calves are not functioning ruminants at birth. For roughly the first two weeks of life, calves are essentially monogastric animals. During this time, the abomasum is the one functional compartment of the calf's stomach, being efficient at digesting nutrients from milk or milk replacer. While the calf's rumen and digestive system develops, they are slow to consume grain and do not absorb nutrients from starches and vegetable proteins easily. **Figure 1** outlines the number of calories provided to calves with the correlated different rates of gain. These numbers are based off a 100 lb. Holstein calf that is under normal thermoneutral conditions (meaning there were no additional energy needs to account for due to heat or cold stress). Whole milk contains roughly 2,400 calories per gallon. Milk replacer powder provides calves around 2,200 calories per gallon. **Figure 1** shows that calves need to be provided a minimum of 2 gallons of milk or milk replacer daily to achieve biologically possible growth rates that near 2 lb. of weight gain per day.

***Figure 1***

| Weight Gain of Calf (lb./day) | Calories Consumed/day |
|---|---|
| 0.44 | 2,350 |
| 0.88 | 2,890 |
| 1.32 | 3,480 |
| 1.76 | 4,130 |
| 2.20 | 4,800 |

**Figure 2** illustrates two different calf feeding scenarios: a restricted diet and a biologically appropriate diet. Both diets were entered in the calf model of the Nutritional Dynamic System (NDS) Ration Modeling Software which predicts calf growth performance. With the restricted diet, calves are being fed one gallon of milk per day (two quarts per feeding, twice a day). Even with a calf starter intake of up to 0.75 lb./hd./day at as early as 10 days of age, the calves in the restricted group are only estimated to gain 0.5 lb. per day.

***Figure 2***

| DIET STRATEGY | Restricted Diet | Biologically Appropriate Diet |
|---|---|---|
| MILK AMOUNT CONSUMED PER DAY | 4 quarts | 8 quarts |
| CALF STARTER AMOUNT CONSUMED PER DAY | 0.75 lb. | 0.25 lb. |
| PROJECTED DAILY CALF WEIGHT GAIN | 0.50 lb. | 1.80 lb. |

In the biologically appropriate diet, calves are consuming 2 gallons of milk per day (four quarts per feeding, twice a day) and driving onto grain a bit slower, eating only 0.25 lb./hd./day. The increased milk intake, even with a lower starter intake, yields greater target weight gains of 1.8 lb./hd./day for these calves.

Calves show that receiving increased milk quantities early in life is the most biologically appropriate feeding strategy that reflects their natural behavior. Calves have a natural ambition to drink large quantities of milk. In one study, the behaviors and performance of two groups of calves were compared. One group received milk fed to 10% of their body weight (roughly one gallon per day) and one group was able to drink milk ad libitum. The ad libitum fed group of calves drank 89% more milk than the control fed calves during the pre-wean period. This increase in milk intake produced a 63% increase in weight gain compared to the control group. The ad libitum calves also only ate 16% as much starter feed and 17% as much hay as the limit fed group. This difference in starter and hay consumption evened out very quickly between the groups after weaning and no post-weaning weight gain difference was seen. This allowed the ad libitum calves to maintain their growth advantage through the post-wean period. Studies like this prove that given the opportunity, calves can and will consume large quantities of milk resulting in effective weight gains early in life.

## *A Different Take on Calf Grain*

While calves gain weight very well on milk, they do need to transition onto dry feed to achieve rumen development. While some sources recommend encouraging calves on to starter around day three, Crystal Creek® advises waiting until between two to three weeks of age. At this point, the calf is much more capable of producing the digestive enzymes

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## *Biologically Appropriate Calf Feeding*

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needed to break down the starches, fiber, and sugars in calf grain. These fermentable carbohydrates in calf starter are what promote volatile fatty acid formation in the rumen of the calf. These volatile fatty acids, especially butyric and propionic acid, stimulate ruminal papillae growth. The formulation of the calf starter plays a very important role in intake levels and calf performance. We often think about acidosis in mature cows, but rarely is it talked about with young calves. Many starters rely heavily on corn starch in processed forms to increase energy levels in the starter. These fine-ground, fully pelleted, or steam flaked corn-based calf starters often times contain very fermentable starch that makes up 35-45% of the feeds dry matter. This can be a recipe for digestive issues and acidosis in young calves with developing rumens. Crystal Creek® takes a different approach to calf starter, again focusing on a biologically appropriate formula. Crystal Creek® utilizes texturized calf feeds with coarse cracked or whole grains and low to moderate starch levels. This unique formulation with high levels of very digestible neutral detergent fiber (NDF) provides energy to the calf with more fiber and less starch, lessening the risk for acidosis and increasing starter intake. This increased starter intake aimed at fiber digestion helps to smooth the transition of weaning and promote feed and forage intake after weaning.

It is important to remember that water not only plays a role in hydration and supporting basic bodily functions, but it also drives calf starter/feed intake which in turn will help promote rumen development. Calves should have access to a fresh, clean water supply especially during extreme heat and extreme cold weather temperatures.

Calves are the future of the dairy herd. The nutrition and care calves receive during their first two years of life will directly impact their performance when entering the milking herd. Calves fed higher levels of milk or milk replacer and a properly formulated calf starter will gain weight more rapidly and achieve better rumen development. Healthy calves grow to be productive cows that improve the profitability on a dairy. To learn more about how Crystal Creek® can help your calves with a biologically appropriate calf raising program, call 1-888-376-6777 and ask to speak to one of our knowledgeable representatives.

## December 2022

### CALF PRODUCTS

**10% OFF The Following Calf Products**
**(Normal Volume Discounts Apply)**

- BRIGHT START™
- SUPER BOOST™ CALF CAPSULES AND BULK POWDER
- CHECK™ CALF CAPSULES AND BULK POWDER
- POWER POWDER™ CALF CAPSULES AND BULK POWDER



- CALF SHIELD®
- CALF 180®
- PRIMARY CARE®
- REPLENA-LYTES®
- PRO-VITA-ZYME™
- GENESIS PLUS™
- CALF MILK MATE™

## January 2023

**10% OFF Udder Care Products (Normal Volume Discounts Apply)**


- VETERINARY DAIRY LINIMENT™
- UDDER FANCY™
- UDDER VELVET™
- TEAT SAVER II™
- TEAT SAVER CONCENTRATE™
- LINI-RUB™
- COMFORT BOLUS™

## February 2023


**Save 10% on**
**HABISTAT LIQUID OR HABISTAT TABLETS**

## March 2023


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**SAVE 10%**
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## April 2023

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**1-3 boxes:** **$10/box discount**
**4-9 boxes:** **$18/box discount**
*($10/box discount + $8 per box existing volume discount)*
**10+ boxes:** **$23/box discount**
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### HEIFER PRIDE™

**$10/bag discount**
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CRYSTAL CREEK®

*1600 Roundhouse Rd., Spooner, WI 54801*

***Sustainable and Effective Livestock Nutrition Programs for Today's Progressive Producer!***

# Cold Weather Udder Care Products


**Veterinary Dairy Liniment™**
Combines the proven benefits of both warming and cooling therapy for challenged muscle tissue and edema relief.


**Teat Saver II™**
A gentle iodine teat dip to support optimum teat condition.

**Teat Saver™ Concentrate**
A chlorhexidine teat dip that conditions and protects teats from chapping.


**Udder Velvet™**
A botanical teat dip additive to support healthy teat condition.

**Comfort Bolus™**
Supports optimum performance of livestock during challenges.


**Lini-Rub™**
A soothing massage liniment.

**Udder Fancy™**
A naturally soothing, topical salve to promote healthy tissue.