

Effective Communication Leads to Success in Family Businesses



By Ryan Leiterman, D.V.M.

Many farms are family businesses. Husbands and wives often work side by side with their children and their spouses. Running a business with family members can provide a very satisfying work environment with many benefits. Along with the benefits come added challenges of communicating the ideas and feelings of each family member in an open and respectful manner.

The benefits of being involved in a family owned business are many. Decisions can often be made very efficiently. Families can discuss ideas about a concept or project in the morning and with consensus, begin working on the project that same day. Being in control of your business is another benefit of family operations. Most family farms are not at the mercy of investment groups or a board of directors to make decisions regarding their future for them. Many farms have the benefit of different generations working together. The wisdom and advice from those with the most experience can be shared with younger members. In turn, the ingenuity from younger generations can bring renewed energy and ideas that help invigorate and improve the operation.

Trust and cooperation are essential in a family run farm, as the success of the farming operation impacts all those involved. Children see the trials and tribulations their parents go through first hand and come to understand the skills and dedication needed for the operation to be successful. Farm families take great pride in watching the farm grow and flourish as each new generation lends their support and talent to the effort.



For all of the benefits of working in a family business to be realized, the members of the farm family must also be aware of the importance of good communication. Conducting productive meetings in a setting that provides a comfortable venue where all involved can express their opinion is key. Below is a list of useful strategies a family run business can incorporate to facilitate effective communication between members.

1. Schedule Routine Meetings.

Life on a farm is busy! All too often, decisions regarding important topics are either put off or quickly discussed in passing because there is "never any time" to

(Continued on page 2)

IN THIS ISSUE:

Effective Communication Leads To Success In Family Businesses

1

Turning Hidden Challenges Into Opportunity

3

Jack Frost Nipping At Your Beak

6

Cold Weather Care For Horses

10

The Importance Of The Liver In Dairy Cows

14

EFFECTIVE COMMUNICATION LEADS TO SUCCESS IN FAMILY BUSINESSES

(CONTINUED FROM COVER)

meet. By scheduling a routine meeting time every month, it allows family members a dedicated time to discuss the issues at hand and forces everyone to make time in their busy schedules.

2. Make Time to Meet During the Day.

It is easy to work all day to take care of the day's chores and then find the only time to meet is at night after work. Working late can cut into both family and personal lives. Setting aside time during the day to meet will also allow other professionals (i.e. veterinarians, nutritionists, accountants) to attend your meetings.

3. Build a Team.

Depending on your farm's needs, build a team of professionals that can meet with your family to address specific topics within their areas of expertise. Including your accountant, veterinarian, nutritionist, agronomist, etc. can make the meetings more productive and will help provide an outside, third party opinion to mediate any topics where there is a family dispute.

4. Utilize Email Correspondence.

Not every small decision needs to be written down, but on occasion, it is useful to summarize meeting minutes or write a "meeting recap" email and send it out to everyone involved. This becomes useful six months later when the email can be referenced to verify a particular decision on a topic that may have been forgotten.

5. Stay Committed!

Assign someone the task of scheduling the monthly meetings and making sure that they are done every month. It is easy to implement a new idea, like monthly meetings to facilitate communication, only to have 4 or 5 meetings before the idea fades because "we got busy".

In conclusion, being part of a family run business can provide wonderful opportunities that cannot be found working for an outside employer. With those benefits come unique communication challenges. Taking time to schedule routine meetings will help foster communication and cohesiveness; ultimately making being involved in a family business more productive and enjoyable.



Turning Hidden Challenges into Opportunity on a Dairy Farm



By Teresa Marker, B.S.

As a nutritionist for Crystal Creek®, I get to work with many types of dairy production models (i.e. conventional, organic, grazing). In working with these different dairy production styles, I see that

they all share some common challenges. The good news is that there is opportunity to address these challenges and subsequently improve both the health of the animals and the profitability of the farm. Many of these challenges are not obvious and may require some investigation to find out if they are affecting your farm. The biggest areas of opportunity I see on dairy farms include:

1. Colostrum management in newborn calves.
2. Subclinical ketosis in fresh cows.
3. Improving first lactation heifer milk production.
4. Addressing feed quality concerns due to mycotoxins.

Because of the prevalence of these issues in the industry, Crystal Creek® has developed successful models addressing these challenges.

1. Colostrum Management In Newborn Calves

What will I see with my calves if my current colostrum management strategy needs improvement?

The single largest factor impacting a calf's first month of life is the delivery of colostrum at birth. Calves that do not receive adequate colostrum as a newborn will often times exhibit the following:

- Increased frequency of sickness such as scours, pneumonia or navel infections
- Reduced average daily gain and feed efficiency
- Generalized lack of thriftiness that can carry through into the post weaned period

What tests can I use to determine if colostrum management is an issue on my farm?

When a newborn calf receives colostrum, it can absorb the proteins and protective antibodies in that colostrum effectively for the first 8-12 hours of life. Your herd's veterinarian can collect blood samples from calves that are older than 24 hours of age, and less than 7 days of age, to measure how much protein and antibodies were absorbed from the colostrum. A minimum of twelve calves should be sampled and tested to have enough data to evaluate the effectiveness of your colostrum management program. If three or more of the twelve calves have test results at, or below, 5.4 g/dl, this indicates that the calves are not absorbing enough antibodies from the colostrum to adequately protect them from disease and illness. When calves do not absorb enough antibodies from their colostrum it is called Failure of Passive Transfer.

Tests indicate that I have Failure of Passive Transfer issues with my calves. What can I do to improve this issue?

Test the colostrum from every fresh animal with a digital refractometer to get a % Brix reading. The dairy industry is now recommending feeding newborn calves 200 grams of IgG's (antibodies) within 6 hours after birth by giving them a minimum of 4 quarts of colostrum. Feeding 4 quarts of colostrum with a % Brix reading of 23 or greater will ensure that each calf receives 200 grams of IgG's. Feeding the proper amount and quality of colostrum will help prevent scours and pneumonia and subsequently, help improve average daily gain and even milk production in the first and second lactation. If there is not enough colostrum produced by an animal, there are colostrum supplements, such as Genesis Plus™, that will help make sure that adequate levels of antibodies are available to the calf.

2. Subclinical Ketosis in Fresh Cows and Heifers

What will I see with my fresh cows and heifers if there is subclinical ketosis occurring in my herd?

Recent research from the University of Wisconsin's School of Veterinary Medicine proves that

(CONTINUED ON PAGE 4)

roughly 40-45% of transition cows experience subclinical ketosis in the first 30 days in milk. Cows experiencing subclinical ketosis will often exhibit decreased feed intake, decreased milk production and subsequent poor reproduction later in lactation. Don't be fooled if you have a low DA rate; many herds with a DA rate of less than 1% still suffer from subclinical ketosis. Each case of subclinical ketosis costs roughly \$330¹ in decreased milk production and treatment costs.

What tests can I use to determine if subclinical ketosis is an issue on my farm?

The digital ketosis Nova Vet Meter, along with BHBA strips, can help test cows in your herd that are 5-25 days in milk and will be useful in identifying cows with ketosis that have no other clinical symptoms. The meter uses a drop of the cow's blood, commonly collected from the tail vein to test for ketosis. To learn more about various ketosis testing methods, read Dr. Leitterman's article "The Who, What, When, Where, Why And How Of Ketosis In Dairy Cows" in the August 2014 newsletter or in our online "Articles" tab on our website. If the meter is reading 1.1 or above, that cow has ketosis and should be treated for ketosis using Super Boost™ and Cow Quench™. Testing at least twice in the first month of lactation is recommended so that no cow is missed. Pull blood samples from a minimum of twelve fresh cows and heifers that are between 5-25 DIM. The UW-Madison - School of Veterinary Medicine recommends a goal of less than 10% of tested cows between 5-25 DIM be above 1.1; more than 10% indicates that subclinical ketosis is negatively affecting the profitability of your farm.

Blood testing for ketosis shows that subclinical ketosis is an issue on my farm, what should I do?

Having a protocol to monitor fresh cow health is key in reducing the ketosis rate in your herd. As previously indicated, if the meter is reading 1.1 or above, that cow has ketosis and should be treated for ketosis using Super Boost™ and Cow Quench™. Testing at least twice in the first month of lactation is recommended so that no cow is missed. Having a treatment protocol is important, but the real long term solution is digging into why the subclinical ketosis is occurring in the first place. Is there enough bunk space for the pre and post fresh cows? Current recommendations are 30 inches of linear bunk space for each pre and post fresh cow; even more space if the cows eat in a

post and rail setting as competition from dominant cows can reduce functional bunk space for lower ranking animals. Is the dry cow ration balanced and being fed accurately? Is a fresh cow monitoring program implemented? Looking for transition cow bottle necks, like those just mentioned, are an important part of improving transitions and reducing the incidence of subclinical ketosis.

3. Improving First Lactation Heifer Milk Production

What will I see if my heifers are not transitioning into lactation smoothly?

A heifer struggling to transition will often times have increased disease rates (ketosis, uterine infection, mastitis, pneumonia, lameness) lower feed intake and subsequent lower milk production.

How can I evaluate heifer performance in my herd?

One useful tool is to compare your heifer peak milk to your adult cow peak milk. Heifers that are transitioning into lactation smoothly will typically have a peak milk value that is 73-78% of the adult cow peak milk value. DHIA testing is most commonly used to collect this data. If your heifer's peak milk is over 80% of the adult cow's peak milk, it suggests that the adult cow herd production could be improved.

My heifer peak milk production is below 73% of my adult cow peak milk value; indicating my heifer transition can be improved. How do I start improving their peak milk?

First calf heifer performance can be related to colostrum management, previous nutrition, and animal handling. Research has shown that the quality and quantity of colostrum can impact how much milk is produced in the first lactation. Many studies show that first calf heifers will milk 1,200 more pounds of milk in her first lactation when given 4 quarts of quality colostrum at birth. Working with a nutritionist to properly balance rations for all ages is necessary. Heifers are not usually managed as tightly as the milking herd, but make sure a nutritionist is balancing rations for your heifer groups and that the rations are being fed. I recently ran into a herd that had a custom raiser for their heifers and it was discovered that the heifers were not being fed properly. This affected the herd's first lactation performance and they ultimately decided to bring back all the animals to the home farm and

feed the heifers themselves. This producer and I tracked peak milk over the previous years and found the custom raisers were not doing their job. After bringing the animals back to the farm, they have been able to see an improvement in the first lactation peak milk by 10 pounds. Having a sound nutrition program for young stock will also help improve breeding so that heifers can become a part of the lactating herd between 23 and 25 months.

4. Addressing Feed Quality Concerns Due to Mycotoxins

What will I see if my cows are exposed to mycotoxins in their feed?

Cows exposed to mycotoxins will display a wide array of behavior. They may have: excessive free choice mineral intake, increased somatic cell count, reduced dry matter feed intake, lowered production, erratic heat cycles, poor reproductive performance and signs of nutrient deficiencies or generalized ill health.

What tests can I use to tell if there are mycotoxins in my feed?

If you suspect mycotoxins in your feed, start by taking a sample of the TMR and have it screened for the four main mycotoxins (aflatoxin, vomitoxin, zearalenone, and T-2). Crystal Creek® recommends the mycotoxin screening test offered at Dairyland Labs. If you would like to test through Dairyland Labs, please contact Crystal Creek® to get a pre-paid forage sample envelope and sample card. Once you have the card and pre-paid mailing envelope, take

a sample of the TMR and place it in a quart sized bag. Place the bag in the refrigerator so the sample is cold prior to sending it in the mail. To fill out the sample card, include your name, address, payment information for the sample, email and/or fax number and sample description. The most common TMR mycotoxin test ran is the TLC four toxin package. After refrigerating the sample, place the sample card, sample and payment in the envelope and mail to Dairyland Labs. You can normally expect to see test results in one week to ten days.

Tests indicate that mycotoxins are present in my feed. What are my options?

If mycotoxins are an issue, feed Fuse 207™. Fuse 207™ is a very effective mold and mycotoxin binder that will help tie up most of the mycotoxins. One exception is vomitoxin which is very hard to bind because of its molecular structure and requires Crystal Creek's Mycotex™ to be added to the feed, in addition to Fuse 207™.

In conclusion, there are many challenges, and subsequent opportunities, that dairy producers face on a daily basis. Animal health issues can be tackled effectively by using a team approach. The staff at Crystal Creek® strives to educate our producers in an effort to make them more successful and profitable. Please feel free to contact us with any challenges you are facing and let our team of professionals help.

Resources:

¹ UW-Madison School of Veterinary Medicine Research.

² 9/27/07 Version. Fact Sheet - Cowside Blood BHBA Testing with a Hand-Held "Ketometer".



Jack Frost Nipping At Your Beak



By Julie Wadzinski, B.S.

When cold weather sets in, poultry need diet modifications, appropriate water access, and properly maintained litter to stay healthy, warm and productive. “Cold Stress” is a phrase not spoken enough

in the poultry industry. For the backyard flocks, adding heat lamps as supplemental heat is often considered the end of the story. When it comes to managing cold stress in birds, there is more to consider. Cold impacts animals differently. For example, a cow’s rumen is a heating vat that assists in keeping her warm. Poultry do not have the same type of digestion as a cow and rely on increased calories from feed to keep warm.

Cold stress starts when the temperature begins dropping below 70° F. At this temperature a chicken’s feed intake will start to increase. An average mature layer will eat approximately 114 g/day as a baseline, and as the temperature changes you will find this intake also changes. Predictably, the intake during cold weather will increase by 1 gram of feed per bird for each degree C (1.8° F) below 70° F. In the Midwest, we can easily find several -10°F days which means a mature layer will be eating an additional 8.2 grams of feed per day. This equates to an increased feed intake of 7%. With this increase in feed intake comes an increase in dietary protein, calcium and sodium. A 10% increase in sodium, calcium and protein can impact the bird’s GI tract. Too much sodium and protein will make the bird’s manure very loose. Couple this with the additional stress on the kidneys from calcium and a perfect storm is created for



Frostbite

Chart 1

Increased Feed Intake Required Due to Cold Stress (For Mature Commercial Layers in Pounds per Day)			
Temperature (° F)	Flock of 25	Flock of 50	Flock of 100
70°	6.28 lbs.	12.57 lbs.	25.13 lbs.
60°	6.83 lbs.	13.69 lbs.	27.34 lbs.
50°	7.11 lbs.	14.22 lbs.	28.44 lbs.
40°	7.39 lbs.	14.77 lbs.	29.54 lbs.

wet litter and kidney failure. This cascades into a domino effect. The birds will be consuming and excreting more water, potentially causing an increase in frostbite, Bumblefoot and pneumonia.

Water access is a tricky topic when it freezes over. You want to provide your birds with plenty of water to ease the pressure on the kidneys caused by extra calcium from the increased feed intake. The wrong kind of waterer can increase the likelihood of frostbite on the wattles of your birds. Single comb breeds are already susceptible to frostbite because of the smaller surface area of their combs and wattles. To conserve heat the birds will reduce blood flow to the exterior tissues of the comb and wattle. Add water exposure to this situation



Bumblefoot by maintaining dry, comfortable bedding is less invasive and healthier for your birds.



Bumblefoot

and the tissue damage can intensify. Selecting waterers that minimize spillage to the litter and minimize exposure of the combs and wattles of your birds, will make birds more comfortable when the temperature drops. This means adjusting water pressure of nipple drinkers and selecting bell waterers with smaller dishes to minimize the space available for the wattles to dip into the water.

Managing bedding material is crucial in the winter because of its contribution to various health concerns. Wet bedding under a heat lamp, along with the increased ammonia present in chicken waste, creates perfect conditions for respiratory distress. Damp conditions contribute to foot issues such as Bumblefoot. Similar to how an oyster makes a pearl, a bird will surround any material that breaks through the pad of their feet with keratin. This defensive mechanism causes a painful sore making the birds limp. The only way to treat Bumblefoot is to surgically remove the keratin “kernel” from the foot. Preventing

Crystal Creek® has the products and knowledge to help you with the added management challenges of raising poultry in winter. The high nutrient quality of Poultry-Pro® Mineral and Family Flock® Complete Feed will help maintain production even when the temperature drops below zero. The addition of Crystal Pellets™ to feed during subzero temps will help support the immune system and reduce the negative impacts of “cold stress.” Adding a moisture barrier to the combs and wattles can minimize the impact of frostbite especially on the wattles. Udder Fancy™ is a product that has been used in the dairy industry to minimize the propensity of frostbite on teats and will work just as effectively on wattles. If you do find that your birds have raspy breathing and mucous secretions on the beak, Power Powder™ and Pul-Mate™ have been used to effectively reduce coughing and sneezing in birds.

Utilizing diet modifications, ensuring access to an appropriate winter water source and providing clean, dry litter will minimize stress on your birds this winter. The knowledgeable staff at Crystal Creek® is here to help you adjust your ration for subzero temperatures and assist in other recommendations that will help keep Jack Frost from nipping at your feathered friend’s beak this winter.

Source: Frostbite- <http://www.backyardchickens.com/t/942359/comb-frostbite-please-help>

Source: Bumblefoot-<http://www.backyardchickens.com/a/bumblefoot-how-to-treat-your-chickens-with-surgery-graphic-pics>

“Ask the Vet/Ask the Nutritionist”

“Every winter we have a number of animals who come in with chapped or cracked teats. We would like to prevent this but we don’t know how? Is there anything we can use to keep the cold weather from wrecking our cow’s teats?”

~ Chapped in Michigan ~

Winter poses many challenges for cattle and producers in general. Here at Crystal Creek® we have a number of products to help you prevent some of the most common problems seen with winter udder care.

The combination of cold temperatures and low humidity sets the stage for potential chapping and splitting of teat ends. Using a teat dip additive like Udder Velvet™ can help prevent many teat condition issues. Udder Velvet™ can be added to your current dip at a low, economical inclusion rate that will support the prevention (and healing) of chapping and irritation. Implementing a teat dip additive before cold weather arrives can help condition and soften the teats, preventing many issues from occurring when frigid temperatures begin.

If you are using a pre-dip solution it is important to practice proper wiping techniques that ensure the teat end is clean and dry (not just the base and sides). To make sure the pre-dip is thoroughly removed, place a dry towel in the palm of your hand and approach the teat end from below. After making firm contact with the teat end/orifice, grasp the teat at the base, while continuing to slide your hand downward with a rotating motion. This technique makes

sure the complete teat is clean and dry.

When chapping and splitting does occur, the use of Udder Fancy™ can help heal teat tissue and restore skin condition. The components found in Udder Fancy™ also reduce the risk of frostbite and frozen teat ends by acting as a barrier against the environment. The essential oils and beeswax in this salve provide a moisturizing, healing effect to repair damaged tissue in a very efficient manner while acting as a shield against moisture, wind and extreme cold.

Choosing a teat dip that has effective germicidal properties while supporting udder health is crucial. Keeping somatic cell counts down while nurturing tissue at a cellular level should be the goal of any udder care program. It is recommended to use a dip with a higher emollient level and lower freezing point during winter months to protect your cows. Make sure you are using a quality dip that provides all the benefits needed to keep udder health at its peak performance. Call Crystal Creek® today to speak to one of our friendly staff about what udder care options are right for you in your fight against Old Man Winter.

Lorrie Meister, CVT
Livestock Specialist

Please submit your animal health or nutrition questions in writing to:



Crystal Creek®
Ask the Vet/Nutritionist
1600 Roundhouse Road
Spooner, WI 54801

OR

askthetvet@crystalcreeknatural.com

Crystal Creek® Welcomes New Employees

Erik Brettingen has joined the Crystal Creek® team as a Livestock Nutritionist.

Erik graduated from the University of Wisconsin-River Falls in 2015 with a Bachelor of Science degree in Animal Science. Erik has always enjoyed working with animals and is very excited to join the Crystal Creek® team to put his interests to work helping producers with their animal nutrition needs. Erik grew up on a small family farm in northwestern Wisconsin. While Erik is passionate about all

agricultural practices and methods, he is most experienced with grazing farms. Erik has been involved with intensive rotational grazing practices and enjoys problem solving and critical thinking to help clients solve issues and advance their operations.

In his spare time Erik enjoys fishing, camping, canoeing, and other outdoor activities with family and friends. Erik is looking forward to working with producers and clients to help them with their livestock and production needs.



Erik Brettingen



Kaylee Viney

Crystal Creek® welcomes Kaylee Viney to their team of professionals as a Livestock Specialist.

Kaylee graduated from Fox Valley Technical College in May of 2015 with an Associates Degree in Agriculture Business & Science Technology with an emphasis in dairy science. Before coming to Crystal Creek®, Kaylee worked on a number of dairy facilities with different management protocols; from milking in a stanchion

facility to working in a parlor set up. Kaylee's enthusiasm for agriculture led her to become a member of the Fox Valley Technical College's Dairy Judging team.

In Kaylee's spare time you can find her with her horse, Austin. She enjoys spending time on the trails with friends, in the arena competing in barrel racing events and sharing her passion for Rodeo. Kaylee is eager to begin working with Crystal Creek® clients and customers.

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- POWER POWDER™ CALF CAPSULES AND BULK POWDER

Cold Weather Care For Horses



By Kaylee Viney
Livestock Specialist

When cold weather strikes what will your horse be telling you? Cold weather can be hard on horses and it is important that they are ready for the rigors of winter. Proper body condition and weight are crucial going into the cold weather season. The following article will provide cold weather feeding tips to maintaining your horse's weight and overall health. Implementing these tips will allow more enjoyment for you and your horse during the snow covered season.

Establishing a Baseline Body Weight:

Establishing a baseline body weight is important in tracking health changes and adjusting your horse's feeding program. The best way to determine your horse's current weight is by using a body weight tape. A body weight tape is a flexible fabric strip,

resembling a tape measure, that is calibrated to estimate a horse's weight. To use a weight tape you start by taking measurements 1) around the girth behind the withers and 2) from the point of shoulder to point of buttock. Insert these measurements into the formula given with the weight tape, which is specifically calibrated for horses, to accurately estimate body weight. (See Figure 1.) Weight tapes can be found for many species of livestock, so make sure to have a weight tape labeled for equine use. Weight tapes can be purchased at most farm supply stores or vet clinics. The establishment of a baseline weight is helpful in monitoring body condition from season to season and year to year. It also provides guidance for nutritional changes to be made during times of heavy work. It is best to measure at a time of year when the horse has minimal changes to their diet, work load and other stressors. Fall is an ideal time to establish a baseline weight because most horses will be done with field work or their high stress show season. It is important to measure your horse before winter weather sets in.

Figure 1: How to Obtain a Baseline Weight

$$\text{Adult Horse Estimated Body Weight (lbs.)} = \frac{\text{Heart Girth (inches)} \times \text{Heart Girth (inches)} \times \text{Body Length (inches)}}{330}$$

Example Calculation:

Heart Girth = 76 inches

Body Length = 67 inches

$$\frac{\text{Heart Girth (76in)} \times \text{Heart Girth (76in)} \times \text{Body Length (67in)}}{330} = 1,172 \text{ lbs Estimated Body Weight}$$

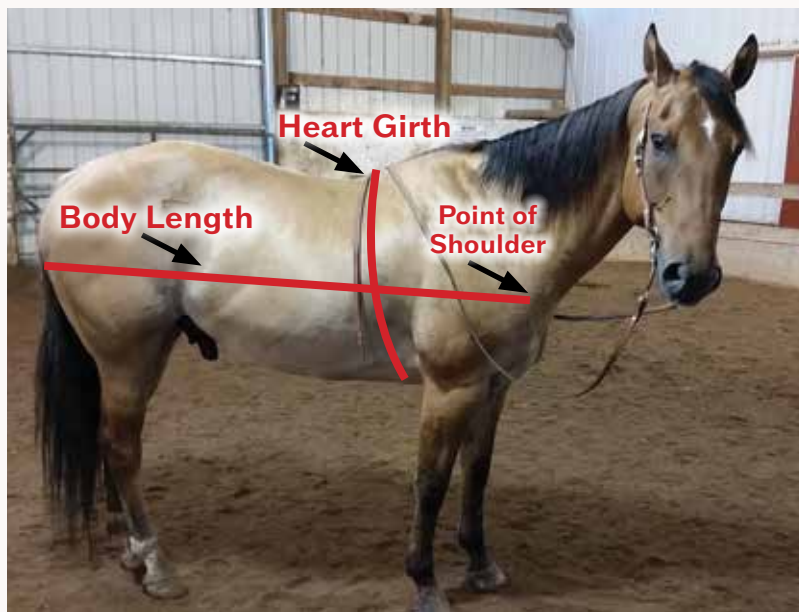


Figure 2: Calorie Requirements Necessary to Maintain Body Weight

Body Weight (lb)	Low Activity	Moderate Activity	Performance/Work Activity
900	12.4 Mcals	13.6 Mcals	16.3 Mcals
1000	13.7 Mcals	15.1 Mcals	18.1 Mcals
1100	15.1 Mcals	16.6 Mcals	19.9 Mcals
1200	16.5 Mcals	18.1 Mcals	21.8 Mcals
1300	17.9 Mcals	19.6 Mcals	23.6 Mcals
1400	19.2 Mcals	21.1 Mcals	25.4 Mcals
1500	20.6 Mcals	22.7 Mcals	27.2 Mcals
1600	22.0 Mcals	24.2 Mcals	29.0 Mcals
1700	23.4 Mcals	25.7 Mcals	30.8 Mcals
1800	24.7 Mcals	27.2 Mcals	32.6 Mcals

Caloric Intake Requirements:

Every animal species has a caloric intake requirement for maintenance of health. The caloric requirement in horses is measured in megacalories (Mcals). 1Mcal = 1000 calories. As shown in Figure 2, the caloric requirements necessary to maintain body weight are based on baseline weight and exercise level. However, when the temperature drops below the lower critical temperature of 5°F (-15°C), the caloric requirements increase 20% for every 14°F drop in temperature. Figure 3 shows the additional Mcals needed per day based on an 1,100 pound horse with a moderate activity level. For example: in order to maintain condition on an 1,100 pound horse with moderate activity in temperatures of -10°F or lower, you must add the calories pictured in Figure 3 (+3.3 Mcals) to the horse's megacalorie requirements pictured in Figure 2 (16.4Mcals) = 19.7Mcals total. See Figure 4 to compare how different feed ingredients vary in their calorie density. This chart can be used to estimate how many calories your horse is receiving each day and gives you an idea on how to increase the calories fed during cold weather. Horses need these additional calories to maintain body function and stay warm. Just like humans, horses in colder temperatures begin to shiver, which is a reflexive response to help maintain their core body temperature. By using the vast majority

Figure 3: Effects of Calorie Requirements Based on Temperature

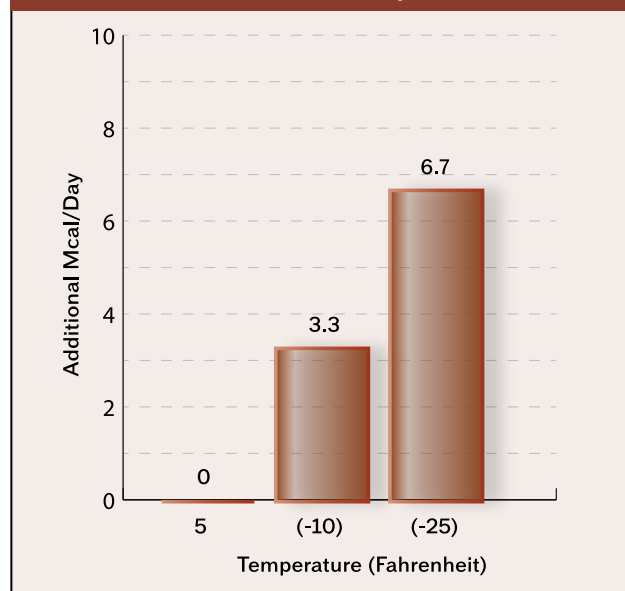


Figure 4: Calorie Density in Various Feedstuffs

Feed Type	Calories per Pound	Mcals per Pound
Spring Grass Pasture	1,480	1.48
Orchard Grass Hay	880	0.88
Alfalfa Hay	1200	1.20
Timothy Hay	880	0.88
Corn	1,745	1.745
Premium Oats	1,450	1.45
Beet Pulp	1,070	1.07

of their dietary energy to maintain their body heat, it is more difficult for horses to support proper health during cold weather. If the horse's daily caloric intake is not increased during cold weather, a significant amount of body weight can be lost in a short amount of time; leading to potential health problems.

(CONTINUED ON PAGE 12)

Don't Forget the Forage and Minerals:

Along with balancing the dietary energy (Mcal) it is important to ensure the proper amount of quality forage in the ration. For example, an 1,100 pound horse has a forage requirement of 2% of its body weight per day (22 pounds). As the winter months continue, energy demands increase. Over mature hays will not supply sufficient energy and are high in undigestible fiber. It is therefore important to use sufficient quantities of highly digestible hay. Forage digestion helps horses regulate their body temperature and stay warm. The breakdown of fiber in the horse's digestive tract, through the fermentation process, results in heat generation. The more efficient the fiber digestion, the more heat production there is which aids in maintaining core body temperature. Efficient digestion is key in allowing horses to absorb essential nutrients necessary in maintaining proper health and body condition. Make sure you carefully weigh your forage and grain mix by using a scale. Grains and forages should be measured in pounds, not "flakes" or "scoops" which are inconsistent measurements for caloric requirements. Weighing in pounds will determine the actual amount of calories being fed.

To give your horse a strong nutritional foundation feed Crystal Advantage® equine minerals. Crystal Advantage® equine minerals are formulated with highly bioavailable polysaccharide chelated trace minerals and are available in granular or pelleted form. When using Crystal Advantage® equine minerals along with basic grains such as corn and/or oats, there is no need to supplement with other additives. If you are looking for a strategic equine nutrition supplement to support your horse during stressful times (heat, cold, travel or exercise) Crystal Advantage® Digestive Support is the product to use. The naturally derived ingredients in Crystal Advantage® Digestive Support have been scientifically proven to stimulate the immune system along the gastrointestinal tract, decrease inflammation, promote nutrient absorption in the lower gastrointestinal tract and stop/reverse gastric ulcer formation in laboratory models.



Water Intake Supports Feed Intake:

In all species of livestock, abundant access to clean fresh water is necessary to support feed intake. During winter months, waterers can become frozen; reducing access to water. Not having a proper water supply increases the incidence of colic due to dehydration and inconsistent feed intake. If your animals are dehydrated, make sure to bring them into a shelter and provide a bucket of warm water with electrolytes. If they don't drink and

you see signs of colic (such as minimal feces, kicking at their side, or wanting to lie down and not get up) contact your veterinarian. Dehydration can be avoided by regularly de-icing all water tanks or investing in heated water buckets or automatic waterers.

Over Blanketing:

Over blanketing horses is another common cause of dehydration. If your horse is body clipped, or sensitive to colder weather, you can invest in a winter blanket to protect them from the cold. Never over-lap or pile multiple blankets on horses. Winter blankets are nice to have on hand if necessary but horses are bred with coats that are able to withstand freezing temperatures. Too many blankets can cause horses to overheat and become dehydrated. When purchasing a winter blanket for your horse, make sure it is waterproof to ensure moisture does not get trapped between the coat of the animal and the blanket; causing your horse to get chilled.

With cold weather coming soon make sure you have used a weight tape to measure your horse's baseline weight. As the days shorten and temperature drops, be prepared to adjust your horse's feeding program to maintain their body condition and overall health. For additional information on equine nutrition visit our website www.crystalcreeknatural.com and click on the "Articles" tab or contact one of the helpful Crystal Creek® Nutritionists or Livestock Specialists by calling 1-888-376-6777.

Source:

Figure 2. Nutrient Requirements of Horses:
Sixth Revised Edition (2007)

Figure 4: Nutrient Requirements of Beef Cattle (2000)
Advances in Equine Nutrition IV

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The Importance of the Liver in Dairy Cows



By Dr. John Popp, PhD.
Crystal Creek® Livestock
Nutritionist / Owner of
Big Bear Genetics

As I was researching the topic of liver function in healthy dairy cattle, I realized that the great majority of information available dealt with the metabolic diseases of the liver. It was almost impossible to find information that just discussed the function

of the liver and how to keep it healthy. The intention of this article is to focus on what makes a liver healthy, not on the doom and gloom of hepatic lipadosis, fatty liver or ketosis, which is what we hear about the most.

A healthy liver in a dairy cow serves many important functions: Glucose production/synthesis, detoxification of ammonia and production of antibodies. Rumen microbes metabolize starches supplied by the feed ration into the volatile fatty acids, lactate and propionate, which are converted into glucose (fuel to run the body) via the liver. With onset of lactation, a cow's energy requirement is tripled. High demands for glucose are for both milk synthesis and also reproductive performance. A cow in early lactation producing 80 pounds of milk needs a supply of 6 lbs of glucose per day just for milk production. As you can imagine, this is a huge job for the liver... so it has to be healthy. To complicate the situation, dry matter intake of the cow is usually insufficient at this time as well. When a cow is off feed (negative energy balance) and is not getting an ample supply of glucose from the ration, the cow's body will start utilizing fat as the next available energy source. It is the liver that converts this fat into a useable energy source for the cow. If the liver is compromised or overwhelmed and cannot "clear" or metabolize fat coming in, it will become infiltrated with fat. This fatty liver condition can potentially turn into subclinical or clinical ketosis. When the liver reaches this state, it cannot do the job it is assigned to do; one defense



Healthy liver

mechanism is a reduction in milk production in an attempt to reduce the metabolic energy demand. The picture above shows a healthy liver with a deep, purple color vs. a fatty liver with a pale, yellow color as a result of fat infiltration.

Management and Prevention

Taking a proactive role in managing the cow's dry and early lactation period, will increase





Fatty liver

the possibility of a healthy, functioning liver. Here is a checklist of things to observe/ manage in order to ensure liver health:

1. Properly balance the dry cow and early lactation rations. This is the most important step in keeping the liver healthy and preventing ketosis or fatty liver. Fatty infiltration of the liver can occur as early as two weeks before calving.

2. Maintain body condition of dry cows during the dry period – cows should not be gaining or losing weight.
3. Monitor dry matter intake.
4. Monitor feed refusals and check for moldy feeds closely.
5. Manage the bunk to prevent overcrowding. This will ensure access to good quality feed at all times.
6. Minimize social group disruptions during transition. Limit pen moves to 3 or less during the transition period.

Maintaining good liver health in fresh/early lactation animals is the key to a smooth, trouble free transition. It is important to monitor cows for proper liver function post partum and with the onset of lactation. A well-recognized and practical indicator of liver health is the measurement of beta-hydroxy-butyric acid (BHBA). Levels of BHBA are elevated when liver fat oxidation is incomplete due to fat infiltration of liver tissue. Cows with BHBA levels greater than or equal to 1.1 mmol/l are indicative of a herd's prevalence for subclinical ketosis. If you find yourself faced with clinical or subclinical ketosis in your herd, several very informative articles by Dr. Leiterman and Teresa Marker, Livestock Nutritionist, can be accessed via the Crystal Creek® website at www.crystalcreeknatural.com under the "Article" tab in the Dairy section. You may also reference Teresa Marker's article on page 3 in this newsletter: "Turning Hidden Challenges into Opportunity on a Dairy Farm" that discusses subclinical ketosis in fresh cows and heifers.

The liver has a huge role to play in the health of your transition cows. If you implement the above steps, you should find a reduction in liver related disorders in your herd. With liver disorders at a minimum, you will find the transition of your cows in the dry cow and early lactation cow period much less stressful for you and your cows.





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