

ONLINE ORDERING NOW AVAILABLE

crystalcreeknatural.com



FAST • EASY • SECURE



Find products by product name or through a search by species

Questions can be emailed to our knowledgeable staff through this option

Be sure to view our "Specials & Promotions" page to bring even more added value to your operation

Check out our "Articles" page for newsletter archives and informative, educational articles

We are pleased to announce the launch of our new and improved website crystalcreeknatural.com where you can view our product line, read newsletter articles, and meet our skilled team. The site has been redesigned with a clean new look that will facilitate a quick ordering process that is available 24/7. Our goal is to make your life easier and we are excited to provide a website with the features and content that fill that need. Feel free to contact us with your questions and feedback at info@crystalcreeknatural.com.

IN THIS ISSUE:

Profitability Is Nothing To "Kid" About

2

Don't Play Catch Up: Early Ketosis Detection And Treatment

4

Management Of Intensive Grazing On Alfalfa Based Pasture

6

The Who, What, When, Where, Why And How Of Ketosis

8

Improving Horse Performance Through Smart Nutrition

12

Looking At Dairy Nutrition From A Different Angle

14

Profitability Is Nothing To “Kid” About



By Julie Wadzinski, B.S.

Maximizing profitability is an important goal in any business. When it comes to a goat farm (meat or dairy) there are three major factors that impact profitability: feed costs, percent kid crop, and market prices. Although producers have very little control over market price fluctuations, they can manage feed costs and the herd's fertility to maximize profit potential.

Reducing Feed Costs With Strategic Deworming

The largest operational expense in any goat operation is feed cost. Improving feed efficiency is one of the best ways to manage this expense. Feed efficiency can be improved through controlling internal parasites and by implementing a highly bioavailable mineral program.

Deworming is often an overlooked component of profitability in goat operations. Because of the grazing and browsing nature of goats, their prehensile lips allow them to eat closer to the ground; exposing them to greater numbers of parasite larvae. Of the internal parasites, the one that is most economically devastating, especially in the Midwest, is *Haemonchus contortus*, also known as the Barber Pole worm. *Haemonchus* is problematic for several reasons. The first is that few dewormers have significant efficacy against *Haemonchus*. It is also problematic because of its blood-sucking nature which can rapidly degrade animal health. Research has revealed that in the average herd, 20% of the animals will carry 70-80% of the parasite burden. An animal heavily burdened with *Haemonchus* can lose 10% of its blood volume to these parasites in a single day; causing the animal to become anemic.¹

A producer can reduce the expense of routine deworming while at the same time minimize the opportunity of parasitic resistance by learning how to use and implement the FAMACHA® test. The FAMACHA® test uses a color chart that evaluates the color of the goat's inner eye lid to help monitor for anemia caused by the Barber Pole Worm. This allows producers to single out the animals most heavily burdened with *Haemonchus*. By



identifying and deworming the 20% of the flock with the majority of the parasite burden, producers can slow the development of resistance, while also reducing the expense of deworming.

It is important to provide the animals that are identified as being anemic with strategic nutritional support. At Crystal Creek®, we define strategic nutrition as: concentrated nutrition delivered for a short time period. Crystal Creek® has developed a highly concentrated nutritional support specifically designed for small ruminants challenged by heavy parasite loads, called Prevail™. Convenient to administer, in a capsule form, Prevail™ can also be mixed into the feed or top dressed. For larger herds, where individual administration is not ideal, Pivot-FL™ can be mixed into the feed for 2 days to achieve a similar effect.

Besides negatively impacting animal health, internal parasites also reduce feed efficiency by causing damage to intestinal lining. With a decrease in functional intestinal surface it becomes even more important to feed the highly bioavailable nutrients found in Crystal Creek® 2:1 Goat Mineral. By raising the bioavailability of trace minerals, feed efficiency can be maintained even though the functioning intestinal surface area may be decreased. Adequate trace mineral levels are critical to creating and maintaining a highly functional immune system and are vital in the recovery from parasitism. In some cases, a quality mineral is not enough to get an animal over the effects of a heavy parasite load. Having other nutrients such as protein, fiber, and carbohydrates in the context of a balanced diet are essential to provide these challenged animals with the long term nutrition they need to recover from the effects of parasitism.

Improving Fertility with Advanced Nutrition

There are many circumstances besides bouts of parasites where basal, long term nutrition such as a balanced ration, and strategic nutrition can be paired together to aid stressed animals.

Strategic nutritional tools, coupled with a strong basal nutrition program are a beneficial combination in supporting optimal reproduction. Whether the operation is seasonal, or on an accelerated breeding program to kid year round, breeding is often a stressful time. Crystal Pellets™ is a highly effective strategic nutritional supplement that contains ingredients that can block the negative effects of cortisol (a stress related hormone) on the animal. Excessive cortisol levels in the body have been shown to compromise reproduction by delaying estrus, decreasing embryo quality, and reducing fertility in both bucks and does.

Crystal Pellets™ combined with Crystal Creek® Mineral has been shown to significantly improve embryo quality in super-ovulation programs in both dairy and beef cattle. Embryo quality in goats is crucial for achieving a high percent kid crop. The strategic nutrition combination of Crystal Pellets™ and Crystal Creek's® highly bioavailable minerals are beneficial in both accelerated breeding programs and seasonal breeding programs, where high conception rates and vigorous kids are crucial to your bottom line.

Crystal Pellet's™ ability to support the immune system and digestive function is also applicable to recently fresh does as it ensures a smoother transition into lactation. The easier the transition, the better the production level regardless if you are measuring production by pounds of milk or weaning weight.

If your goat farm has a meat or dairy emphasis, Crystal Creek® has both the expertise and products needed to help you create a more efficient feed program that will help lower input costs. Call and talk to one of Crystal Creek's® knowledgeable staff or visit our website, www.crystalcreeknatural.com, today!

Hepworth et. Al, "Managing Internal Parasitism in Sheep and Goats." Web. 04 April 2014
< <https://www.extension.purdue.edu/extmedia/AS/As-573-w.pdf>>

Mendell, Mac. "Economics of Goat Raising." Web. 04 April 2014
< <http://www.ansc.purdue.edu/goat/factsheet/economics.htm>>

Scarfe, David A. *United Caprine News*, February 1993, Volume No. 10.

Crystal Creek® Welcomes Lorrie Meister



Crystal Creek® is proud to welcome Lorrie Meister as a Livestock Specialist to our team of professionals. Lorrie graduated from Madison Area Technical College with an Associate's Degree in Veterinary Technology. She has worked as a Certified Veterinary Technician in large and mixed animal practice for the last 15 years and has a strong agriculture and animal science background. She was born and raised on a dairy farm in northwestern Wisconsin and was active in 4-H, FFA and various other animal associations growing up. Lorrie's professional areas of interest include Preventative Care, Dairy Reproduction, Calf Raising, Diagnostic Trouble Shooting, and Customer Service.

Lorrie pursued a career in veterinary medicine because of a prominent desire to help animals and the people connected to them. She enjoys helping producers solve problems in an efficient manner, focusing on implementing measures that ensure optimal animal welfare with producer profitability in mind. Lorrie has a history of work experience that ranges from assisting in treatments of animals on farm (bolusing, drenching, surgical assistance), to doing in-house laboratory testing (milk culturing, ELISA testing, and blood analysis) and has always been a strong promoter of sustainable agriculture.

In her spare time Lorrie enjoys kayaking, camping, reading and horseback riding. She is excited to be a part of the Crystal Creek® team and is looking forward to working with clients and customers to help them with their livestock and operational needs.

Don't Play Catch Up: Early Ketosis Detection And Treatment



By Teresa Hanson, B.S.

In my last newsletter article, I reviewed two herds on the Crystal Creek® Dairy Nutrition Model and profiled the positive economic impact we had on each farm's bottom line. These herds have continued to refine team protocols, making

them even more successful and profitable. Herd B's goal was to average 80# of milk per head per day and they have now reached their goal. This herd was experiencing high subclinical ketosis rates among their fresh cows as a result of handling and management. Rather than adding costly ingredients to the ration, we explored fresh cow management as a way to increase milk production.

According to Dr. Oetzel at the University of Wisconsin-Madison, ketosis can affect up to 45% of cows under 30 days in milk. Ketosis is the buildup of ketone bodies in a cow's bloodstream as a result of either a carbohydrate deficiency or an inadequate carbohydrate metabolism. The cow's body senses that it is low on blood glucose (energy) so it breaks down fat as an alternative energy source further producing ketone bodies. This underlying issue can decrease profitability and milk production as well as increase the possibility of other health problems in early lactation.

Cows that are most susceptible to ketosis include: cows that were lame in the fresh or dry cow period, fat or skinny cows in the dry period, cows that had twins and cows that had a retained placenta. Research has shown that cows with retained placentas are sixteen times more likely to have ketosis than cows that don't have a retained placenta.

Our team strategy was to identify cows with ketosis and then develop a routine screening process for fresh cows. Fresh cows should be observed every day on a regular schedule. Assessing their appetite, udder fill, rumen fill, manure consistency and overall health can create a screening process that does not have to be time intensive. Urine strips and ketosis meters can also be used to determine BHBA levels in the cow. Please refer to Dr. Leiterman's article on page 8 to learn more about different testing

options. Once fresh cows have been identified as being ketotic, Crystal Creek® recommends they receive an oral treatment of 10 oz. of Cow Quench™ and 2 Super Boost™ boluses each day for 3 days.

Research has shown that cows with retained placentas are sixteen times more likely to have ketosis than cows that don't have a retained placenta.

Bunk space, stall space and crowding also need to be taken into consideration when looking at your fresh cow management. Each cow should have a minimum of 30" of bunk space. If you have a freestall with 24" headlocks, only fill to 80% of capacity. Each animal should be able to eat at the same time. Holsteins should have a minimum stall length of nine feet. If animals are housed in a bedded pack, there should be 100 square feet of resting area per cow.

Implementing a ketosis screening and treatment strategy should minimize the impact of ketosis on your herd. The strategy we implemented with Herd B included a transition cow protocol for every cow that freshened. A specific pen was created for fresh cows to aid in the daily screening process. Dr. Leiterman and I went to the farm to test for BHBA levels using the Precision Xtra meter shortly after the fresh cows were put into the new pen. At that time, we showed the producer proper fresh pen screening techniques. Our initial testing, before implementing the fresh pen screening process or treatment protocols, showed 50% ketosis in the fresh cows. Prior to our initial test, the producer did not believe their fresh cows had a ketosis problem. The producer continued to screen the fresh cows and treat on a daily basis. Nothing in the ration was changed. The second test 6 weeks later showed 9% ketosis and the third test showed 16% ketosis 6 weeks after the second test (this included two cows with retained placentas). The creation of the fresh pen and daily screening helped to decrease ketosis in this herd. Not only did ketosis decrease in this herd, milk production increased.

Below, is a graph of the rolling herd average according to DHIA records.

As you can see, rolling herd average increased almost 2000#/cow in less than 6 months. We have achieved this herd's goal of 80# of milk simply by reducing this herd's incidence of subclinical ketosis. Again, the ration was not changed during this time. The ketosis level in this herd will continue to be monitored.

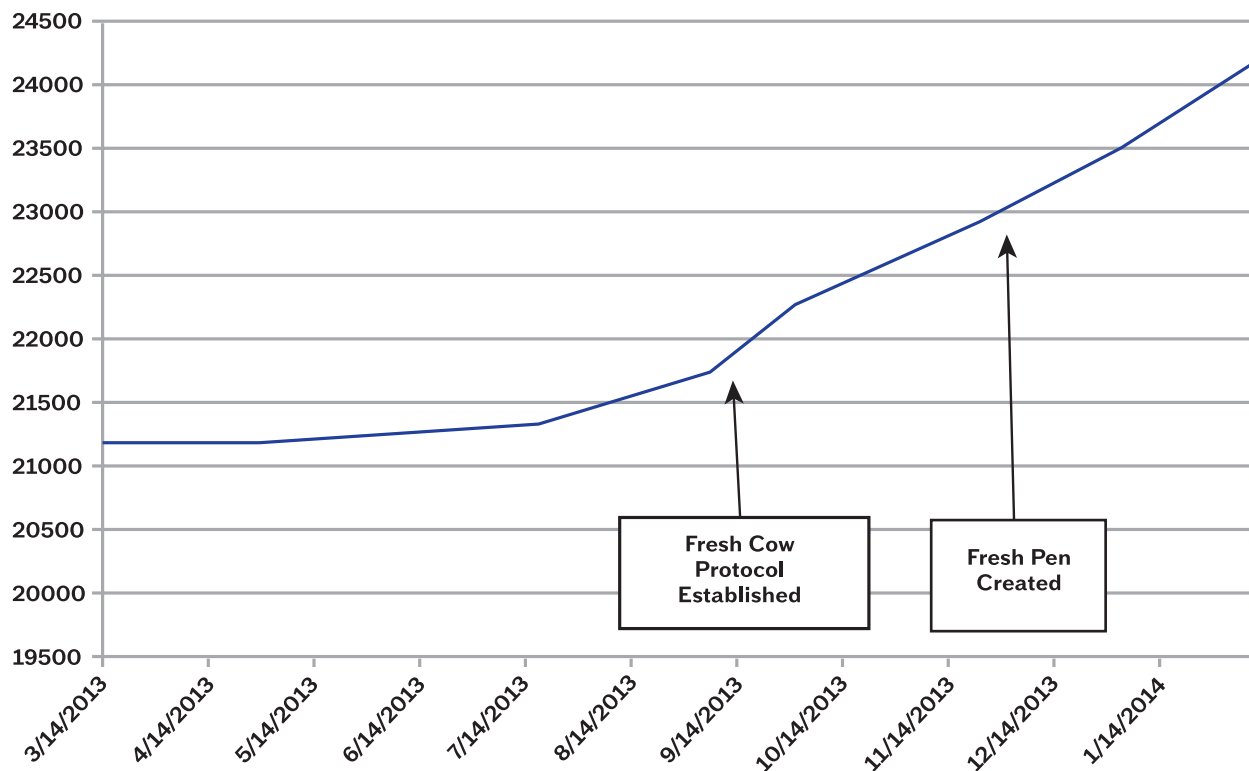
Assessing ketosis in your herd will help to reduce involuntary culling early in lactation, decrease post-partum health issues, improve reproduction and increase milk yield. Fresh cow screening can increase your profitability with a potential average net return of \$170/cow. Don't let fresh cows with ketosis slip through the cracks. Finding and treating ketotic cows in a more efficient manner will lead to a more profitable lactation. Call Crystal Creek® to discuss options for your herd on increasing your farm's profitability.

References:

Nordlund, Ken. "Fresh Cow Programs: The Key Factors to Prevent Poor Transitioning Cows." *Transition Cows*. N.p., n.d. Web. 02 May 2014.



ROLLING HERD AVERAGE - - DHIA



Management Of Intensive Grazing On Alfalfa Based Pasture



By Dr. John Popp, PhD.

The fear of bloat has prevented many grazers from introducing alfalfa to pasture based systems. Alfalfa can provide a superior yield of highly nutritious feed at a low cost because of its capability to fix atmospheric nitrogen.

There are other bloat free legumes, but none yield as high or have the quality of alfalfa. Alfalfa can be used successfully in grazing systems; it just requires astute management. Many farmers graze alfalfa successfully and have done so for years. There are some important factors to consider when managing an alfalfa based pasture system and this article aims to discuss factors necessary for a successful alfalfa-grazing program.

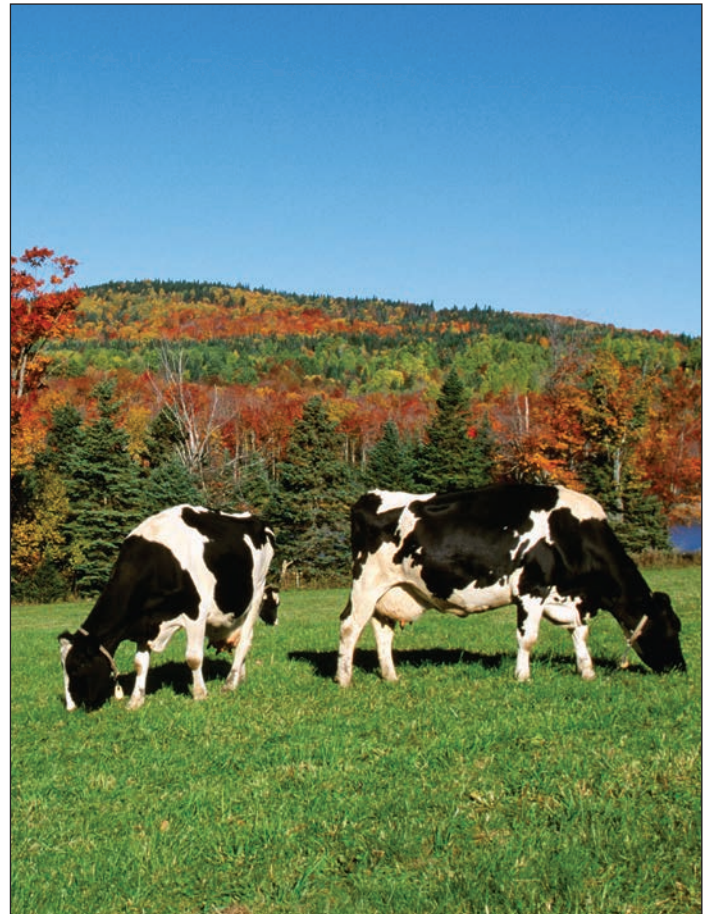
Management to reduce the incidence of frothy bloat really means trying to balance the amount of leaf vs. stem material cattle are consuming. When only lush leaf material is offered, the situation can be dangerous. Typically the lushest and least fibrous material is available one to three days after weather transitions from cool to hot as plants grow very rapidly. It also appears that higher risk is in the morning when there is dew on plants. Other times of risk are when summer day length is at its maximum or following a frost in the fall.

Strip grazing so that animals will consume middle and lower portions of the plant is a successful technique to manage bloat when grazing alfalfa. Offering alternative forage aside from just alfalfa also works. This may mean having some grass based pasture available during high-risk periods. Once alfalfa is 20 to 30% bloom the risk diminishes greatly, however quality can then also be limiting. Grazing alfalfa continuously can be risky, as young plants start re-growing within a pasture and cattle may select for those. Other methods of managing bloat during periods of danger are to cut the plant material and allow it to wilt for twenty four hours and then allow animals to consume it. Cattle should be moved in the afternoon with a full stomach after the dew has receded from plants. Never move cattle into a lush alfalfa pasture when they are hungry. Do not overgraze a paddock

before moving onto a lush new pasture as this will create large nutritional swings and increase bloat risk. Understand that even if you 'waste' 50% of alfalfa, it still provides better nutrition than grass and fixes free nitrogen. If your farm is not organically managed, there are products available to put in watering systems that reduce the risk of frothy bloat for animals on alfalfa pasture.

In conclusion, when managed appropriately, alfalfa based pastures can provide a high plane of nutrition, and be implemented successfully as part of your farm's grazing plan.

Popp, J. D., McCaughey, W. P., Cohen, R. D. H., McAllister, T. A. and Majak, W. 2000. Enhancing pasture productivity with alfalfa: A review. *Can. J. Plant Sci.* 80: 513-519.



“Ask the Vet and Ask the Nutritionist”

Normally, when I test my ensiled forages the results come back very high in quality. The last test I sampled had heat damaged protein, extremely low sugar, and low overall quality. What could have happened?

This is not an uncommon question, and you are not alone. Most farmers do an excellent job of cutting at optimum maturity, getting feeds harvested in a timely manner, and into storage facilities that do a good job protecting their feedstuffs. They normally have good success until they see a test come back like the one that you described. The reason is that the feed did not ferment properly. There was excessive heat produced, which damaged the protein, making it less digestible. Sugar level is negatively affected because the sugar is used up in an inefficient fermentation.

Crystal Creek® recommends Inoc-U-Lock™ on your harvested feedstuffs to ensure a reliable and thorough fermentation. The benefits more than pay for the cost of application, and are as follows:

1. **Reduced Dry Matter Loss:** Research shows a decrease in dry matter lost through fermentation of at least 4% (normal dry matter loss is typically 8-12%).
2. **Increased Available Protein/Energy:** Because fermentation occurs quickly and efficiently, there is lower risk of heat damage to protein and overuse of carbohydrates by fermentation bacteria.
3. **Improved Face Quality/Bunk Life At Feedout:** With the use of *P. freudenreichii* bacteria in Inoc-U-Lock™ there is less risk of spoilage and heating when feeds are exposed to air at feedout.
4. **Profitable Animal Performance:** Higher quality feeds equate to less reliance on supplements to balance your ration. Your animals will perform better and make your farm more profitable.

As a Crystal Creek® Nutritionist I can see that feedstuffs put up with Inoc-U-Lock™ commonly test and feed better. Thank you for your question!

- Brian Hoffelt, B.S., Nutritionist

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

Crystal Creek®
“Ask the Vet/Nutritionist”

1600 Roundhouse Road
Spooner, WI 54801

OR

askthevet@crystalcreeknatural.com



The Who, What, When, Where, Why And How Of Ketosis In Dairy Cows



By Ryan Leiterman, D.V.M.

What is ketosis?

Cows with ketosis are suffering from low blood sugar at the cellular level. When a cow's body senses that it is low on blood sugar (glucose or energy), the liver breaks down body fat to form non-esterified fatty acids (NEFAs) as an alternative energy source. NEFA's are further broken down by the liver to create ketone bodies. Ketosis is the build-up of these ketone bodies in the blood stream.

Who is at the greatest risk of developing ketosis?

Cows experiencing a compromised dry or transition period are at higher risk of developing ketosis. There are five categories of dairy cows that that can be deemed "high risk".



They are cows that:

1. Either gained or lost body condition during the dry period
2. Were lame at any point in the dry period or transition period, even if the lameness was successfully resolved prior to calving
3. Calved with twins
4. Have a retained placenta
5. Freshened in with milk fever

When are cows most likely to develop ketosis?

The majority of ketosis cases (93% to be precise¹) occur between 5 and 30 days in milk. Many cases of ketosis are subclinical, meaning that the cow does not look outwardly sick (off feed, depressed production, lethargic, etc.) but is suffering from ketosis. Research from the University of Wisconsin-Madison predicts that 40-45% of dairy cows develop ketosis within the first 30 days of milk². The majority of ketosis cases are subclinical and are undiagnosed by the producers, leading to milk production suppression and poor reproduction. One case of subclinical ketosis can result in a net profit loss of \$330².






Why do cows develop ketosis?

Cows develop ketosis as a result of either 1) a carbohydrate deficiency or 2) inadequate carbohydrate metabolism. Some producers comment, "My cows have ketosis, my ration must need more energy." NO! Cows can be on a perfectly formulated ration and still develop ketosis. The ration is fine, the cows need to EAT MORE of the ration to increase their daily energy intake through an increased dry matter intake (DMI).

Most cows develop ketosis because their DMI is suppressed as a result of overcrowding, poor bunk management, inadequate feed volume and empty bunk syndrome, lameness, etc. DMI suppression leads to a functional carbohydrate deficiency. If your herd is struggling with excessive ketosis levels don't ask for more energy in the ration...ask how to get your cows to eat more total dry matter.

The liver of a cow converts the energy derived

KETOSIS DETECTION TOOLS

					
	KetoCheck Powder	Keto Stix Urine Strips	Keto-Test Strips	PortaBHB Ketone Milk Strips	Precision Xtra Blood Meter
SAMPLE	Fresh Milk*	Urine	Fresh Milk	Fresh Milk	Blood
SIZE	20 or 50 grams	100 strips	20 strips	25 or 100 strips	10 strips
COST PER BOTTLE	\$10 - \$20	\$35	\$50	\$45 - \$110	\$30
COST PER TEST	\$1.00	\$0.35	\$2.50	\$1.80	\$2.50 per strip*
ACCURACY	33% (-)	80% (++)	84% (++)	Unkown	94% (+++)
RESULT DISPLAY	Color Change	Color Change	Color Change	Color Change	Digital Reading (1.2 and above = ketosis)
EASE OF USE	Easy, just need milk	Moderate, need urine	Easy, just need milk	Easy, just need milk	Moderate, need blood
ADDITIONAL INFO	*Can also be used with urine or plasma	Dr. Ryan's Top Pick for accuracy, economy and ease of use	Strips require refrigeration		Meter costs an additional \$40 to buy
					*Test strips may be subject to backorder

from their feed into blood glucose which the cow uses to maintain body functions. If a cow gains or loses body condition during the dry period her liver will become impacted, making it inefficient at creating blood glucose. The cow may be eating a well balanced ration and have appropriate DMI, but the liver cannot efficiently create blood glucose from the feedstuffs due to its fat impaction. Fatty liver leads to inadequate carbohydrate metabolism and subsequent ketosis.

How do I test for ketosis?

The first step in stopping the profit loss associated with ketosis is FINDING THE COWS THAT HAVE

KETOSIS! Remember, many cases are subclinical and the cows may not look outwardly sick. There are five different ketosis detection tools you can use on your farm. Each ketosis screening test has its own set of pros and cons. The decision about which screening test to use should be critically evaluated. The chart above compares each ketosis detection method. Pay particular attention to accuracy and cost per test when comparing the different products.

(CONTINUED ON PAGE 10)

THE WHO, WHAT, WHEN, WHERE, WHY AND HOW OF KETOSIS IN DAIRY COWS

(CONTINUED FROM PAGE 9)

Do not rely on your ability to smell ketone bodies on a cow's breath. By the time a producer can smell ketosis on a cow's breath, she is severely ketotic. Use the screening tools in the chart provided to find the cows with subclinical ketosis and treat them promptly.

Where do I treat? In the vein or orally?

Research has proven that oral energy treatment has numerous benefits over IV glucose. The Crystal Creek® ketosis protocol is a total daily dose of 10 oz of Cow Quench™ and 4 Super Boost™ boluses. That treatment can be halved and given once in the morning and once in the evening or can be given all at once. Research evaluating smaller doses of oral energy (like Cow Quench™) twice a day vs larger doses once daily showed no difference in recovery rates. Once vs twice daily treatments is a matter of producer preference as they are equally effective. Treatment should continue until the ketosis is resolved by a negative screening test (listed in the chart provided).

Oral energy supplementation is preferred over IV because it raises the blood glucose levels more gently over time and is less likely to lead to a blood glucose spike and subsequent "crash" afterwards.

If IV dextrose is used, use only 250 ml (half a bottle) once a day. Using more than 250 ml will rapidly spike the blood glucose levels and invoke a compensatory

mechanism to rapidly decrease the blood sugar levels within 12 hours. Rapidly raising blood glucose levels from excessive IV dextrose will cause the satiety center of the brain, the part responsible for causing cows to eat, to shut down and will lead to decreased dry matter intake; further exacerbating the ketosis. Cows exhibiting clinical signs of nervous ketosis should be treated with 250 ml of dextrose IV.

In conclusion, ketosis is a costly and prevalent disease in the dairy industry. Screening for and treating ketosis will keep your cows healthier and help make them more profitable. For additional information regarding ketosis, check out the Crystal Creek® website at www.crystalcreeknatural.com under the ARTICLES tab on the top, right-hand side. There you will find an online library of our newsletters. Read Teresa Hanson's April 2013 article "The Cost of Two Five Gallon Pails: \$8; Their Impact on Herd Health and Profitability: Priceless" for information on preventing ketosis on a herd wide level.

The Crystal Creek® staff is knowledgeable on implementing ketosis monitoring and treatment strategies. Feel free to call and discuss ketosis in greater detail. We can help you to explore how the information in this article can be applied on your dairy to reduce the profit loss associated with subclinical ketosis.

¹ University of Wisconsin- School of Veterinary Medicine's Food Animal Production Course Notes

² K.G. Gohary, et al. Economic considerations for subclinical ketosis in lactating dairy cattle. 46th annual American Association of Bovine Practitioners proceedings.



AUGUST 2014 SPECIAL!

VETERINARY DAIRY LINIMENT™

Save 10% *IN ADDITION TO*
Normal Volume Discounts!



SEPTEMBER 2014 SPECIALS!

SWIFT START® CALF & HEIFER MINERAL

SWIFT START® CALF PELLETS

DOUBLE the Mixed Pallet Discount
on **Swift Start® Calf & Heifer Mineral**
and **Swift Start® Calf Pellets**.

*Mixed Pallet Program qualifications apply



OCTOBER 2014 SPECIALS!

HIGH QUALITY TINCTURES

Made with certified organic alcohol and
certified organic botanicals

SAVE 10% on all Crystal Creek® Tinctures



NOVEMBER 2014 SPECIALS!

PIVOT FL™

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** (\$10/box discount
+ \$13 per box existing volume discount)

Pail: **\$2/pail discount**



HEIFER PRIDE™ \$10/bag discount & \$2/pail discount

DECEMBER 2014 SPECIALS!

CALF PRODUCTS

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



• CALF SHIELD®

• CALF 180®

• PRIMARY CARE®

• REPLENA-LYTES®

• PRO-VITA-ZYME™

• GENESIS PLUS™

• CALF MILK MATE™

• BRIGHT START™

• SUPER BOOST™
CALF CAPSULES
AND BULK POWDER

• CHECK™ CALF
CAPSULES AND
BULK POWDER

• POWER POWDER™
CALF CAPSULES
AND BULK POWDER

Improving Horse Performance Through Smart Nutrition



By Dan Leiterman

Horses are tremendous athletes; and as such have high nutritional requirements. For horses that are expected to work or compete for a living, there are advanced nutritional tools that can help keep them performing at their very best. A nutritional

program that focuses on improving endurance and providing rapid post-exercise recovery, while also supporting a strong immune function and overall vitality is paramount for any performance horse.

Crystal Creek® has taken these advanced nutritional concepts and designed a program that brings the most biologically sound and efficient nutrition principles to the equine industry. The Crystal Advantage® line of equine minerals come in two forms. The pelleted mineral is available in 25 and 50 lb bags while the granular mineral is available in a 10 lb pail and 50 lb bag.

Advanced Nutrition Concept #1:

Use only the most bio-available, easily digestible mineral sources.

Our Crystal Advantage® Equine Pelleted and Granular Minerals are formulated using only the highest quality vitamins and minerals. Our minerals contain:

A Cleaned Phosphorus Source.

Phosphorus is very important to many body functions, but especially for optimum feed efficiency. Crystal Advantage® products are formulated with cleaned phosphorus sources to reduce levels of contaminants such as iron, fluoride and aluminum that can reduce phosphorus and other nutrient utilization in the body.

Polysaccharide Chelated Trace Minerals.

Crystal Advantage® Equine Pelleted Mineral and Granular Mineral are both fully formulated with polysaccharide chelated trace minerals which are nearly 100% bio-available. The chelation process protects the minerals and prepares them for better absorption in the lower gastrointestinal tract. Cheaper, more common sources of trace minerals such as sulfates and oxides are typically less than 50% bio-available. Look on your feed

label and see if your horse feed contains cheap, poor quality trace minerals such as, zinc oxide, zinc sulfate, manganese oxide, manganese sulfate, copper oxide or copper sulfate.

100% Selenium Yeast.

Crystal Advantage® products use only 100% selenium yeast which is 85% available to the horse. Other lower quality products will use a cheap selenium source such as sodium selenite which is at best 25% available.

Strong Vitamin Fortification.

Crystal Advantage® minerals provide significant levels of vitamins A, D and E to meet the fat soluble vitamin requirements for even the most athletic horse. Crystal Advantage® minerals also provide high levels of water soluble vitamins such as biotin for healthy hoof wall strength and to speed the repair of cracked and damaged hooves.

Quality Protein.

Crystal Advantage® Equine Pelleted Mineral provides only high quality sources of protein for muscle support and development.

Advanced Nutrition Concept #2:

High quality ingredients are often the most economical to feed.

High quality, highly bio-available ingredients like those used in the Crystal Advantage® line of equine supplements provide the most efficient nutrient delivery. The cost of any nutrition program should be based on the cost per unit of nutrient that is absorbed by the horse, not based on just the price per bag.

For example, which feed do you think would provide the most economical nutrition to your horse?

A \$20.00 bag of equine mineral that is formulated with ingredients that are 10% available, or a \$40.00 bag of mineral with ingredients that are over 95% available to the horse? Although the \$20 bag of mineral is cheaper, 90% of the nutrients in the bag ARE NOT ABSORBED BY THE HORSE!!

Armed with some basic information on ingredient quality (provided in concept #1 of this article), a

consumer can be more aware of ingredient value and use that information to make a more educated decision regarding their horse's nutrition.

Advanced Nutrition Concept #3:
Feeding a high quality ration daily will eliminate the need for expensive supplemental products.

Crystal Advantage® Pelleted and Granular Minerals are highly fortified with the finest quality ingredients so that you can build a strong basal diet for your horse. You will not need to feed additional levels of vitamin E, biotin, zinc or b-complex vitamins when using the Crystal Advantage® line of mineral products.



Crystal Advantage® Equine Pelleted Mineral Feeding Directions:

Top Dress Rates (1100 lb. horse):

An 8 oz. measuring cup level full contains approximately 6 oz. of Crystal Advantage® Pelleted Mineral.

Maintenance	2 oz./hd./day
Light Work	4 oz./hd./day
Moderate Work	6 oz./hd./day
Heavy/Intense Work	8 to 10 oz./hd./day
Lactating Mares	6 to 10 oz./hd./day
Growing Foals	1/2 oz. per 100 lbs. of body weight
Breeding Stallions	6 oz./hd./day

Mixed With Grain:

Typical 12% Crude Protein Grain Mix

	<u>lbs./Ton</u>	<u>% Inclusion Rate</u>
Shelled Corn	900	45.0
Oats	750	37.5
Crystal Advantage® Pelleted Mineral	250	12.5
Liquid Molasses	<u>100</u>	<u>5.0</u>
	2,000 lbs.	100 %



If you are interested in a high quality equine nutrition program that supports

- Improved endurance
- Faster post-exercise muscle recovery
- Stronger immune function
- Better hoof health
- Reduced need for additional nutrition packs
- Feeding Flexibility - top dress or mix into grain
- A broad range of equine applications; working, performance, pleasure, growing foals, breeding stock
- Lower feed cost

then the Crystal Advantage® nutrition program is designed for you and your horses. For more information on our complete equine nutritional products, or for more grain mix options, call Crystal Creek® at 1-800-376-6777.

Looking At Dairy Nutrition From A Different Angle



By Brian Hoffelt, B.S.

As a Crystal Creek® nutritionist, I have the opportunity to look at rations that other companies in the industry have balanced. These rations typically have a few pitfalls in common. I find that the industry usually feeds excessive bypass nutrition and doesn't properly support

the cow's rumen for optimum rumen fiber digestion. University research and data that is showcased in major industry publications generally supports this way of feeding a cow, so the industry follows. When you look at nutrition with a critical eye and evaluate the biology of a cow, it is hard to understand why cattle are fed this way. The simple fact is that a dairy cow has a rumen, her digestive system is designed to ferment forage, and will do so very efficiently if the ration supports rumen

fiber fermentation. This is one key point of difference that sets the Crystal Creek® Dairy Nutrition Model (CCDNM) apart from common feeding programs.

In April of 2013, I started a family owned organic farm in Stanley, WI on the CCDNM. The farmer was frustrated because he had been told, that as an organic farmer, he could only expect to have a tank average of 50 to 60 lbs. He knew that there was money left on the table with his previous nutrition program, so he decided to look to Crystal Creek® for direction. Herd health, body condition and profitability were all areas to improve upon with this herd, so we decided to move forward with a strategic plan. The following is an example of what can happen to an operation when we switch gears from a ration that focuses on bypass nutrition, to a focus on supporting enhanced rumen function.



When we initiated the CCDNM strategy, we knew that this project was going to take some time, because of the significant difference between the two nutrition programs. Over the first 6 months we were able to slowly change the ration to a more rumen friendly point as the cows showed us positive response. We relied on the main on-farm ingredients for improved rumen function including soluble protein, sugar, and a more rumen friendly mineral formulation. When basal ingredients are in the correct balance, we typically see that the rumen becomes a more efficient location for fiber fermentation and the microbial population in that rumen flourishes. As microbial populations in the rumen increase, the cow receives more dietary protein from the higher level of available microbial protein that leaves the rumen and is absorbed in the lower digestive tract. Because of this added efficiency we were able to take the ration Crude Protein down from a 17% to a 16.5%. The cows also moved up on Dry Matter Intake (DMI) from 51.25 lbs to 55.5 lbs. As DMI increased and the cows were able to utilize more forage in the diet, the ration became more efficient, and the herd's production came up nicely from its typical 58 lb standard, to 71 lbs. Milk production continues to improve.

A year into this team project, we continue to see improvement in the herd. We have made a lot of forward progress with the cows, and we are continuing to work together as a team to move the herd closer to the targeted goals. Our current project is to focus on transition cows. Some cows are not peaking like they should at 60 days in milk. By graphing individual cow's production curves we are able to determine which cows might have sub-clinical ketosis. Once sub-clinical ketosis is identified, we can put a strategy in place to treat high risk cows before it negatively impacts health and production. We continue to focus on a preventative strategy with the dry cow ration as well.

This herd is an example of what can happen if a sound nutrition strategy is put in place and there is a good team effort between the producer and nutritionist. By setting goals and working on the CCDNM nutrition project together, we were able to improve profitability by \$20,440 on 50 cows in the first year alone. The

HERD RESPONSE		
	Previous Ration 4-22-13	Crystal Creek® Ration 2-28-14
Milk Production	58	71
Milk Butterfat	4.12	4.00
Milk Protein	2.85	3.10
Somatic Cell Count	100,000	120,000
Milk Urea Nitrogen	11	10
Body Condition Score	Poor	Good
Dry Matter Intake	51.25	55.5
Hairy Warts	10 of 50 = 20%	1 of 50 = 2%

TOTAL RATION PROFITABILITY		
	Previous Ration 4-22-13	Crystal Creek® Ration 2-28-14
Total Ration Cost/head/day	\$8.01	\$10.79
Ration Cost/50 head/day	\$400.50	\$539.50
Total Ration Cost/Year	\$146,182.50	\$196,917.50
Ration Cost Difference		-\$50,735
Additional Milk Income (\$30/cwt Organic Milk Price)		\$71,175
Added Income Over Feed Cost / 50 Cows		+\$20,440
Added Profit/head/year		+\$408.80

farmer was able to purchase a new TMR mixer with the added profit that he made using the CCDNM; a tool that has allowed more flexibility in feedstuff management (hay/balage), and has additionally helped to support increased bottom line profit.

Examples like this herd make being a Livestock Nutritionist at Crystal Creek® very rewarding. Crystal Creek®'s unique approach to dairy nutrition works to consistently improve profitability for our clients. Call today to see how the Crystal Creek® Dairy Nutrition Model could be applied to your herd.



1600 Roundhouse Rd., Spooner, WI 54801

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

VETERINARY DAIRY LINIMENT™ CONTRAST THERAPY



WARM soothing
comfort
followed by
COOL lingering
relief!

**Visit Us At
World Dairy Expo 2014!**

Visit Crystal Creek® at Trade Center Booth
#893 and receive a FREE Sample of
VETERINARY DAIRY LINIMENT™

