CRYSTAL CREEK NEWSLETTER

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AUGUST 2016

FLIP DUCT®: A Truly Unique, Easy-To-Use Calf Barn Ventilation System

By Ryan Leiterman, D.V.M.

Proper calf barn ventilation is more than just having fans in the barn. Crystal Creek® has the equipment and expertise to bring creative, effective calf barn ventilation solutions to any calf raising operation.

No two Crystal Creek® designs are the same…that's because each calf barn is unique and every calf raiser has goals specific to their operation. We listen and work with you to develop a complete ventilation plan that meets your specifications. Every calf barn design is customized to the individual producer's needs. We take the time to understand the goals of each calf raiser and design a system that will deliver results.

Exploring options and providing solutions that our customers are comfortable with is our job. Every design we create comes with a complete Ventilation Proposal which details how to install the system, how the system will function and an overall project budget.

On the next few pages we will be exploring the revolutionary new ventilation design called FLIP DUCT®. FLIP DUCT® is the biggest innovation to hit calf barn ventilation in the last 10 years. FLIP DUCT® is a single duct system that works in ALL SEASONS! The key difference between conventional systems and FLIP DUCT® can be seen in the manufacturing process. Learn why this patent pending technology is so amazing and learn how it can work on your farm. (See pages 2-5).

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Currently, every calf barn ventilation system on the market has a key limitation: single season use.

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Many of these systems use low-output fans connected to small diameter ducts to deliver low volume, slow air for winter ventilation. They work well for winter but lack the ventilation power needed for warmer weather conditions.

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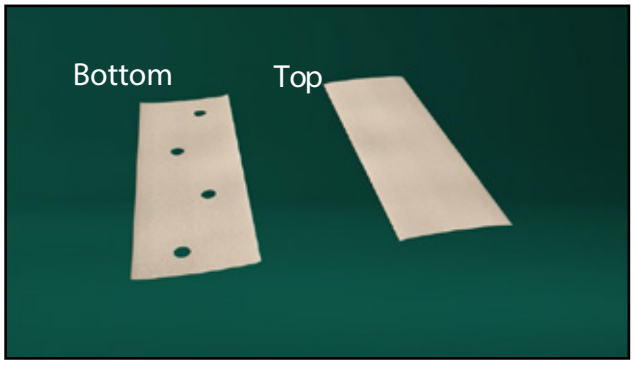

Conventional fabric ducts are made by sewing together two flexible fabric sheets.

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The bottom sheet contains holes, allowing air to be discharged onto calves once the duct is inflated.

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This single-duct system combines a cold-weather duct with a warm-weather duct, providing proper calf barn ventilation all year round.

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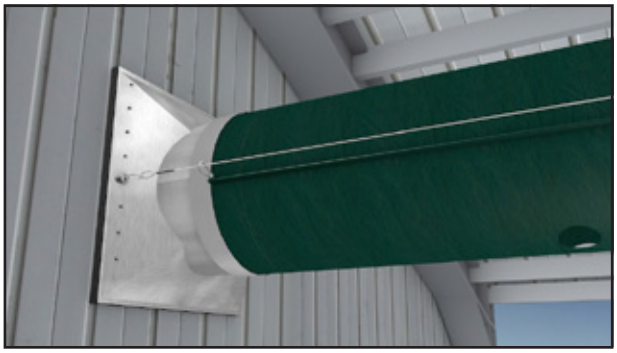

Let's look at how easy it is to install FLIP DUCT® and then see it in action. Two horizontal cables span the length of the barn and attach to eye bolts at each end. FLIP DUCT's lightweight, inflatable material easily slips over the barn's ventilation fan shroud. A clamp secures it to the fan.

3

Some farms are now adding high-output fans connected to large ducts to deliver more ventilation power during warm weather. These systems work well, yet require more fans, ducts, controllers, and electricity – resulting in increased costs for a system used only 3 to 4 months each year.

4

FLIP DUCT®

THE KEY DIFFERENCE

These limitations were the inspiration for FLIP DUCT®, the only single-duct ventilation system engineered for both warm and cold weather seasons. The key difference between FLIP DUCT® and conventional systems can be seen in the manufacturing process.

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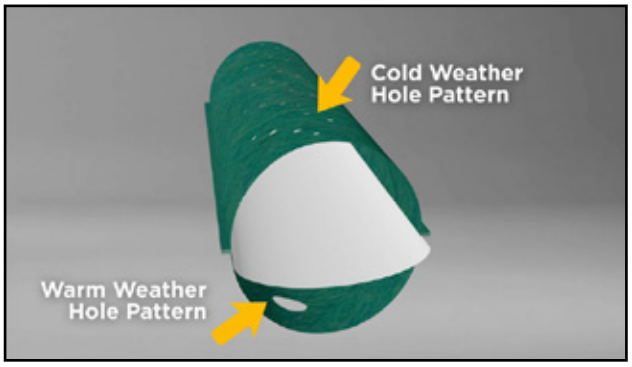

FLIP DUCT® is manufactured with a patent-pending internal membrane sewn into the middle of the duct. The membrane allows a cold weather hole pattern to be placed on one side of the duct and a warm weather hole pattern on the opposite side.

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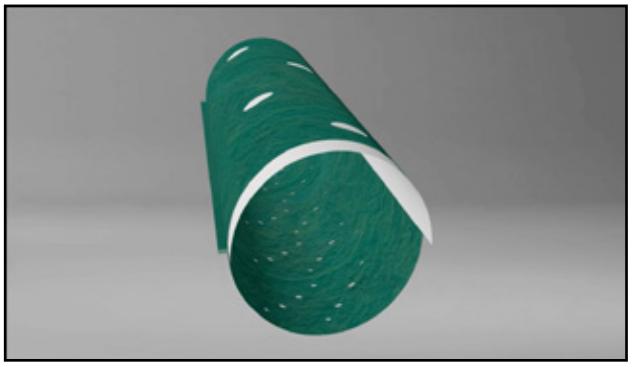

Duct rotation enables you to position the seasonally appropriate hole pattern downward, to discharge fresh air toward the calves.

11

Metal snaps securely sewn into the sides of FLIP DUCT® attach to the cables at 3 and 9 o'clock. Vertical cables suspended from the barn roof attach to the horizontal cables, preventing sag.
FLIP DUCT® can be designed to perform at any height or location in the barn.

12

Hole patterns are customized to each barn's unique pen layout.

(Continued on Page 4)

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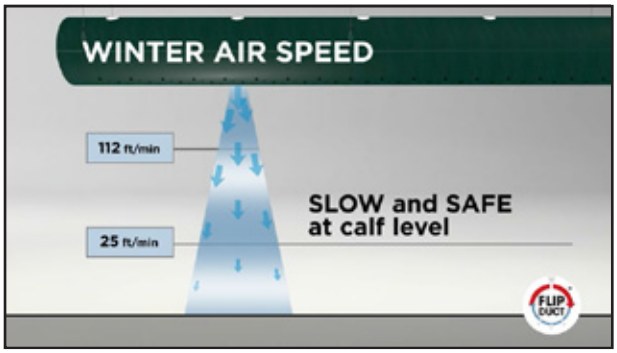

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In cold weather, a variable-speed fan set to low pushes air through the series of small diameter holes at the bottom of the duct, gently delivering slow, non-drafty fresh air to calves. When warm weather arrives, simply rotate FLIP DUCT®.

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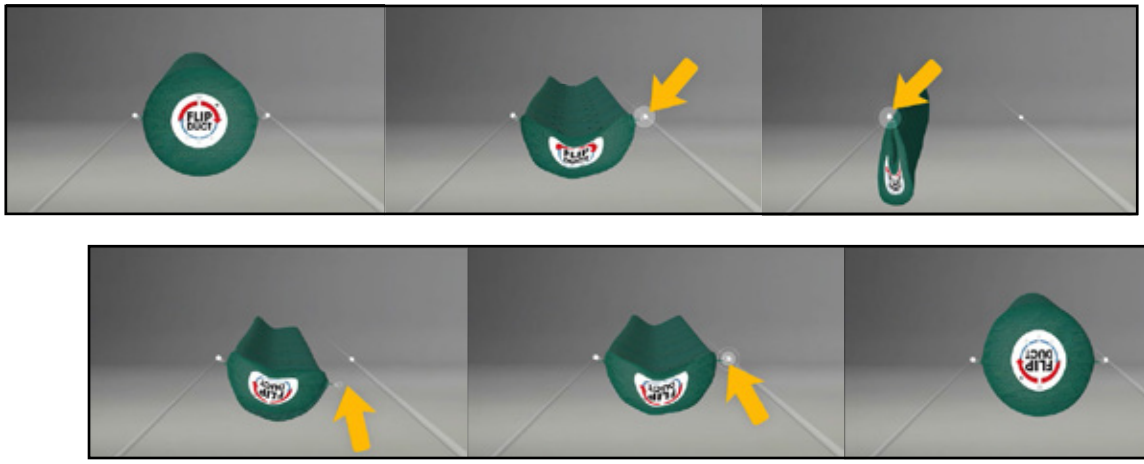

Next, unclip the series of metal snaps, securely sewn into the tube, from the cable at 3 o'clock, and re-clip them to the cable at 9 o'clock. Unclip the snaps originally at 9 o'clock, and re-clip them to the cable at 3 o'clock.

19

In this position, air flows only through the series of large-diameter holes at the bottom, allowing high-speed air to shower calves with cooling comfort,

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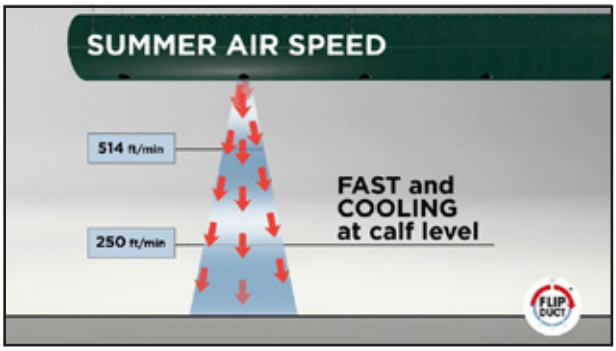

while simultaneously blowing away annoying flies and helping to keep bedding dry.

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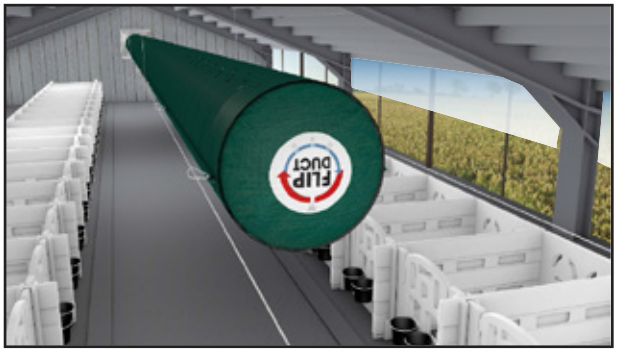

One person can flip a 100-foot length of tube in approximately 10 minutes. Here's how.

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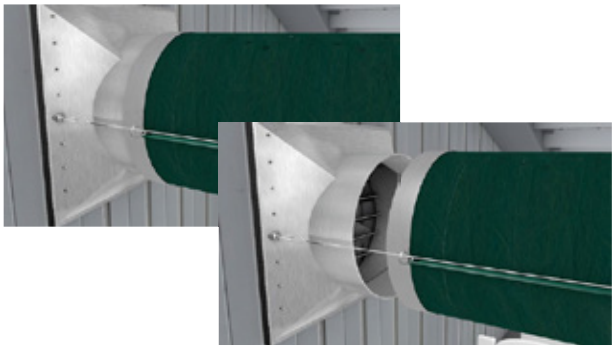

First, detach FLIP DUCT® from the wall-mounted ventilation fan, freeing the tube to rotate.

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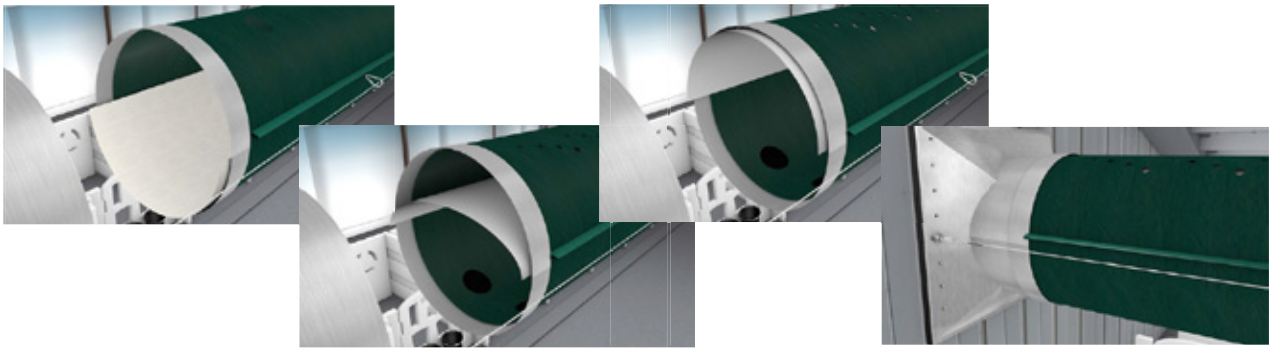

Reach inside the end of FLIP DUCT®, where it attaches to the ventilation fan. Lift the internal, lightweight membrane and place it over the top of the fan shroud. Turn on the fan. Set the variable speed controller to the high-speed setting, increasing air flow. Air from the fan pressurizes the tube, forcing the membrane to the top of FLIP DUCT® and inflating the entire run. The cold-weather hole pattern, now located at the top, is blocked.

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The simple steps for rotating FLIP DUCT® are performed only twice per year, once in the spring - in anticipation of warm weather, and once in fall - in anticipation of cold weather.

FLIP DUCT®. A truly unique and simple-to-install innovation for calf barn ventilation.

For more information, contact us at Crystal Creek®. We'd be happy to discuss how FLIP DUCT® can work in your calf barn. Visit our "CALF BARN VENTILATION" page on our website to view a number of educational videos on FLIP DUCT® and other ventilation solutions

FLIP DUCT®

Maintaining Your Pasture to Maximize Feed Quality

By Erik Brettingen, B.S.

Pasture is a high quality, cost-effective feed that many producers rely heavily on during the summer months. Because pasture is such a crucial feed, it is important to manage it during vulnerable times to make the most efficient use of it when it is growing. Implementation of fall and spring pasture management practices can make a noticeable difference in pasture quality and in your pocketbook during the grazing season.

In the fall, it is hard to resist the temptation to use as much pasture as possible; grazing right down to the last inch of pasture to avoid feeding stored forages and go into winter with nice "clean" looking pastures. While this practice may save you forage in the fall, it will greatly reduce your pasture's yield the following grazing season. It is important to know that plants store much of their energy reserve for the upcoming winter in the bottom three inches of the plant. Grazing too close to the ground in the fall greatly reduces the energy reserves of the plant needed for spring regrowth. The additional pasture growth in the following grazing season will more than make up for any hay fed to allow the pasture to stay at 3 inches.

Grazing in the fall needs to be closely managed not only for the potential yield of the grass the following spring but also the safety of the livestock. Prussic acid poisoning may occur as the temperatures drop in the fall. All sorghum based species have the potential to become toxic to ruminants, especially after a freeze. When the plant freezes, toxic materials that were once bound become loose and float freely throughout the plant, making them dangerous for livestock when consumed. To be safe it is always a good idea to avoid grazing sorghum when a freeze is possible. If sorghum is grazed around the time of a freeze, wait 5-6 days after the freeze before turning animals back out on the sorghum. Spring is another time in which pasture yield is greatly affected by grazing practices. Grazing operations anticipate the spring flush of grass and look forward to getting animals back out onto pasture. Because of the grass's benefits from both a health and nutrition standpoint, it is important to make sure the grass is well established before turning animals out. If animals are sent to pasture too early (less than 6" of growth) the ability of the plant to perform photosynthesis is compromised. Plants need adequate leaf and vegetative material to generate energy and grow at a sustainable rate.

It is important to have a grazing plan. A plan should be set up allowing animals to be moved to new grazing areas regularly without overgrazing the pasture. A plan that involves rotation is best for pasture persistence. Grazing with the idea of "take half, leave half," is a great way to get started on managing your pastures. Pastures that have adequate residue will grow back significantly faster than those pastures that are grazed too heavily.

Another strategy that can help stressed grasses recover is called stockpiling. An area that is not grazed and allowed to grow to maturity undisturbed is called a stockpile area. A stockpile area is great for times when the pastures that have been grazed are becoming sparse or when the weather patterns create slow growth of the grasses. This area allows the stressed pastures to rest and creates a safety buffer of fresh growth during times of decreased rainfall.

Grazing well managed pastures is a terrific cost effective way to feed animals during the pasture season. By implementing some of these simple tips, producers can make the most of the pasture while it is available. Not overgrazing in the fall, making sure adequate pasture growth is present before turning out in the spring, developing a grazing plan, and setting aside stockpiles are all great ways to minimize stress on your pastures. These management strategies will maximize the yield, health and profitability of your pastures during the grazing season. Call Crystal Creek® with your grazing questions or visit our website at www.crystalcreeknatural.com to find more information about managing pastures.

"Ask the Vet/Ask the Nutritionist"

"How do you determine the right time to harvest corn silage and how long should I wait before feeding this year's silage?"

The proper timing of harvesting corn silage is of the utmost importance. If corn silage is harvested when it is too wet, it can grow mold and/or clostridia and there is a greater chance that butyric acid will form leading to dry matter loss, poor feed quality and decreased feed intake. Harvesting corn silage when it is too dry will cause poor packing in the storage structure, poor fermentation and possible heating in the bunk. All of these factors can lead to an increased dry matter loss during fermentation, spoilage and poor bunk life. Dry corn silage is also less digestible. Harvesting corn silage at just the right time will produce high quality silage which will result in optimum animal performance. Factors to consider when harvesting corn silage include:

1. **Harvest time.** Visual observations of the silking date, kernel milk line and dent are useful tools to determine appropriate harvest time. Make note of the silking date. Wait 4 weeks and assess corn for milk line and dent. Once kernels show dent and the milk line is between 1/2 and 2/3, take samples to determine the moisture content. Moisture content can be determined by sending samples to an accredited lab or testing on the farm using a Koster tester. Ideal moisture content for corn silage harvest is:
   - 65-70% for horizontal bunker silos
   - 60-68% for bag silos
   - 62-67% for tower silos

2. **Use of An Inoculant.** Using the inoculant, Inoc-u-Lock™, will help preserve the quality of the forage you harvest. There will be less dry matter loss, less protein degradation, and improved face quality resulting in better quality feed. For more information on this cost effective approach please refer to page 80 in our 2016 catalog or visit our website at www.crystalcreeknatural.com.

3. **Time to fill.** Silos should be filled and packed as quickly as possible to retain the quality of the forage and reduce the exposure to air.

4. **Sealing and covering.** Make sure to seal or cover the silo in a timely manner.

5. **Feeding rate.** To help maintain corn silage quality, make sure you keep feeding ahead of the face by feeding the proper amount for that storage structure.

Protect your hard work and silage investment by calling Crystal Creek® with any questions regarding the harvesting of your silage or which silage inoculant to use. Making the smart choice to use Inoc-u-Lock™ will help ensure the quality of your harvest.

By Teresa Marker, B.S.
Livestock 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

Successfully Managing Internal Parasites In Sheep

By Contributing Editor
Julie Wadzinski, B.S.

Internal parasite resistance is becoming a serious concern across sheep flocks worldwide. Recent research has focused on different methods to minimize the genetic adaptation of internal parasites to survive deworming treatments (anthelmintic resistance). It is important to take a multi-faceted approach to create an Integrated Parasite Management (IPM) plan. One component to consider when creating an IPM is parasite refugia. Parasite refugia is a population of parasites that have survived despite being exposed to unfavorable conditions. An effective parasite managment plan includes pasture management, proper anthelmintic selection, selectively treating animals, careful breeding/culling considerations, quarantining new animals and investigating treatment failure.

How Anthelmintic Resistance Occurs

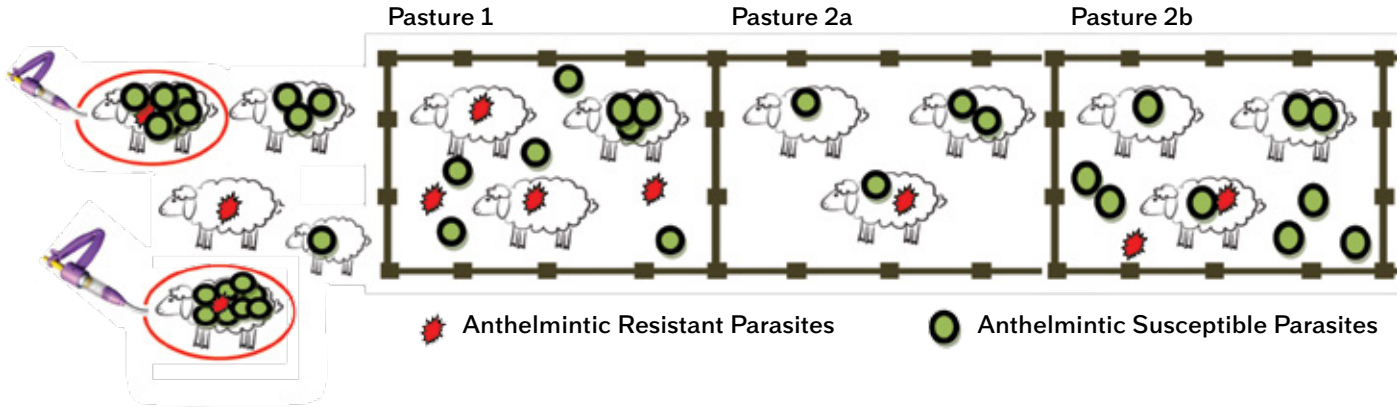
Similar to antibiotic resistance, anthelmintic resistance can occur in sheep for different reasons. Resistance commonly stems from a series of deworming treatment failures. Anytime parasites are exposed to a dewormer at lower than lethal levels the opportunity arises for the parasite to become immune to that particular dewormer. Treatment failure can happen if the wrong anthelmintic is used or if an animal receives an insufficient dose. Understanding how treatment failure can occur is the first step in preventing it.

Reducing Resistance

There are 6 different categories to consider when developing an effective parasite management plan.

1. **Pasture Management:** Pasture should be managed to maximize larval death; thus minimizing infection rates. Develop a rotational system that allows management of larvae loads and record which pastures the flock was on when they were dewormed. This information will help for future management of refugia.
2. **Proper Anthelmintic Use:** Learn how to collect fecal samples to submit to your local veterinarian for a Fecal Egg Count Test (FECT). This test will aid in selecting the right dewormer. After choosing a dewormer, accurately weigh the animals being treated and calibrate the drench gun to dose the proper amount of anthelmintic.
3. **Selectively Treat Animals:** In a typical flock 20% of the animals will carry 80% of the internal parasite burden. Visiting with your local veterinarian about the FAMACHA® test will help you select and treat animals most impacted by parasites. The FAMACHA® eye chart is a tool that matches the color of the eye mucous membrane of small ruminants with a color chart showing five color categories that correspond to different levels of anemia.
4. **Selectively Breed Animals:** As animals get older, they can develop an immune response to internal parasites. For instance, an animal with a positive fecal that is not anemic on a FAMACHA® test would be one to consider as breeding stock. Conversely, some ewes or rams that have a low fecal egg count but always seem to test high on the FAMACHA® test would be candidates to consider culling out of the flock. Practicing selective breeding and culling will improve a flock's genetic potential of increased parasite tolerance.

Figure 1:



Of the 5 sheep in the flock, there are two that are heavily burdened with internal parasites and could be identified with the FAMACHA® test. Treat the two circled sheep and keep them on the same pasture so that they can become mildly infected with the susceptible larva (Pasture 1.) After they have been exposed to the susceptible larva move them to the "clean" pasture 2a. As the parasites move through their lifecycle the resistant parasites will mate with susceptible parasites.

5. **Treat and Quarantine Incoming Animals:** There is always the risk of introducing a new internal parasite to the flock with the purchase of new animals. It is best to quarantine, test and treat those needed, before introducing them to the existing flock.
6. **Investigate Treatment Failure:** By collecting a Fecal Egg Count Test on a regular basis a baseline of data is established to evaluate how different treatments are working. Collecting a FECT after a deworming treatment will quantify the treatment result. This can be used as the starting point of the treatment failure investigation. The next step would be to check the calibration of the drenching gun and confirm the proper dose was administered.

Establishing The Most Beneficial Amount Of Refugia

Studies have shown that a rate of 2% is the most profitable amount of refugia to have on a farm. This population size was preferred in research studies because it served to minimize profit loss from animal loss. There are two basic techniques to create this 2% parasite population rate. The first method in obtaining a desirable refugia number (amount of parasites that have survived despite being subjected to undesireable conditions) is by selectively treating only a few of the animals in a group. The untreated animals will shed larvae that are susceptible to the dewormer. These larvae will then be ingested by the treated animals and will mature and breed with the adult parasites that survived exposure to the dewormer thus diluting the genetic potential of the parasite offspring that survive a deworming treatment. Another practical method is referred to as "Delayed, Dose and Move". In this instance, all of the animals are treated and then kept on the same pasture allowing them to get mildly re-infected with the non-resistant parasite larvae that were shed on the pasture prior to treatment. The ingested non-resistant parasite larvae will then mature and breed with survivors of the deworming treatment, diluting that genetic response as well.

Supportive Care

Animals that have recently been dewormed will benefit from receiving a balanced mineral that will aid in their recovery from the anemia and stress associated with internal parasites. Crystal Creek® Sheep Mineral is specially formulated to meet all of your flock's needs; from nursing ewes to growing lambs and breeding rams, it is an invaluable supplement for all sheep year round. If a specific animal is particularly challenged, Crystal Pellets™ can help support the animal's immune system. Use Crystal Pellets™ with Prevail™ or Pivot-FL™ for a tag team approach to assist the recovery of the animal after a deworming treatment. If you have any questions regarding Crystal Creek® products or implementing a parasite management plan call toll free at 1.888.376.6777.

Providing A Clean Environment = Healthier Calves And Increased Profit

By Lorrie Meister, CVT
Livestock Specialist

A clean environment is essential to successful calf raising. Housing, air quality and cleanliness of the surfaces the calf comes into contact with (hutches, panels, bottles, pails, feeders, etc.) all play a role in raising a healthy, robust animal. Many producers fall into habits of using certain products, or practices, to clean and disinfect surfaces because they have never considered, or have not taken the time to look for a better alternative.

For many years, bleach has been the most commonly used disinfectant on livestock operations. While bleach is effective in some ways, it has several major downfalls. Cryptosporidium and giardia are two common pathogens that bleach will not control. A common misconception when cleaning facilities is if it looks clean, it is clean. Unfortunately, this is often not the case. Studies of bacterial loads in dairy farm environments have shown that only 10% of bacteria present is free floating. That leaves the remaining 90% of bacteria attached to surfaces or trapped in biofilms.[1] Biofilms are a group of microorganisms which stick to each other and adhere to a surface. This representation of bacterial distribution proves how important the steps of sanitation (past the removal of gross debris) are in our cleaning protocols. Finding a disinfecting agent that can provide a broad spectrum of protection for your animals can be a challenge. Some agents work well in certain settings but not others. New studies have shown that chlorine dioxide is the best choice for on-farm sanitizing applications.

A Case For Chlorine Dioxide

When choosing a disinfecting agent consider that chlorine dioxide provides the quickest action at the lowest concentration of use. When used at the proper concentration, chlorine dioxide will reduce the environmental pathogen load to create a safe environment for calves to thrive in. If pathogen loads are high, mortality rates will increase. This not only affects your current profitability but future profits, as for most operations this results in a decreased number of replacement heifers coming into the milking line.

When handled properly, chlorine dioxide is safe and easy to use, mixes well and has a wide variety of applications (hand washing, power washing, fogging). Chlorine dioxide is not pH dependent and is less corrosive than chlorine. Being able to use one agent at different concentrations for multiple applications will provide for greater efficiency on your farm. At the correct concentration, chlorine dioxide can even be used when animals are in the immediate environment. This factor alone is of great advantage to producers, especially when considering the growing popularity of group calf housing and automatic feeders.

New Formulations

Crystal Creek® has recently integrated a number of new chlorine dioxide disinfectants into our product lineup. One of these new items is the Exact™ Tablet: a chlorine dioxide tablet made to be mixed on-farm, with water, to the exact concentration you need to do the job at hand. These specially formulated tablets have a sustained release property which carefully controls the creation of the chlorine dioxide gas concentration when added to water. This property allows producers to use the product in various ways such as a water treatment, a cleaner/disinfectant and even as a fogging agent. Best of all, with Exact™ Tablets, these benefits are available at a more economical price than other products on the market.

Management Practices

In addition to using an effective, economical disinfectant such as chlorine dioxide, creating and maintaining good management practices can go a long way to raising healthy livestock. These practices can involve standardizing protocols and applying new technologies when necessary to help overcome a specific obstacle.

A) Basic general management practices to reduce cross contamination within the herd should not be forgotten. These practices include feeding calves from youngest to oldest, using good biosecurity measures with all animal handlers (clean gloves,

boots, coveralls), and providing appropriate air exchange in the housing environment. Keeping an adequate quantity of clean equipment on hand will make your operation run smoother on a daily basis. Each sick calf should have its own esophageal feeder per day. Having one spare feeder on hand will help avoid panic during an emergency situation. All these factors are essential to minimizing potential sources of illness and creating and maintaining an optimum environment for calves to grow in.

B) Another tool many producers find to be useful is an ATP meter. ATP (Adenosine Triphosphate) meters detect and measure the presence of organisms on an exposed surface. Investing in an ATP meter can help producers find trouble spots where microorganisms are not being eliminated in the environment and serve as a tool to evaluate when it is time to replace equipment. While the initial investment in an ATP meter can be significant, the return on investment can be great; especially for operations who are struggling with detecting sources of infection.

C) Written protocols are necessary to make sure the employees understand the nature of the disinfectant being used. Because chlorine dioxide cannot be transported it needs to be generated on site. Safety considerations during preparation, and use, include wearing protective gear such as nitrile gloves and eye protection. The most common concentration for on-farm use of chlorine dioxide is 100 ppm. When preparing concentrations >200 ppm, an approved respiratory mask should also be worn. Always prepare your solution in a well ventilated area, with cool water in a chemical resistant plastic container that can be sealed to store unused solution in the refrigerator per the product manufacturer's guidelines.

Developing a standard sanitizing operating procedure (SSOP) is vital to any successful operation. Following the cleaning standards below will help you obtain quality results:

1. Physically remove any visible dirt or residue.
2. Soak equipment in a hot water chlorinated alkaline detergent solution for 30 minutes.
3. Manually wash bottles and buckets with a brush. Do not wash nipples in a dishwasher as bacteria build up can occur in folds and crevices. Hand washing provides an opportunity to check for cracks and defects on equipment that should be replaced.
4. Rinse with cold water.
5. Dry. Avoid stacking pails until completely dry.
6. Sanitize (preferably with a chlorine dioxide solution).

Working with your veterinarian to create a reference that is applicable to your specific operation will help you establish a baseline as well as enforce expectations for everyone involved in your cleaning protocol.

The implementation of chlorine dioxide has helped many producers overcome reoccurring health issues in their calf raising operations. The staff at Crystal Creek® is here to help you with any calf health issues you may be experiencing and assist you in improving current protocols. Exact™ Tablets offer a safe, quick and highly effective option for sanitation on your farm. If you would like to take advantage of this new technology contact us at 1-888-376-6777 for further information on Exact™ Tablets and other cost effective disinfection products now available at Crystal Creek®.

1) Don Sockett, DVM, MS, PhD, ACVIM "Sanitation For Calf Scours Prevention", Bovine Veterinarian, January 2015.

Maternal Colostrum Management

By Kaylee Viney
Livestock Specialist

Giving calves the best chance for a healthy and productive life starts with proper colostrum management. Calves that receive high quality colostrum obtain the passive immunity needed to protect them against disease. Properly managing colostrum will reduce calf treatment costs as well as increase average daily gain. Three areas to focus on when evaluating a colostrum management plan are:

- Colostrum quality
- Colostrum delivery time to the calf
- Colostrum quantity

What Is Colostrum And Why Is It Important?

Colostrum is generated just prior to calving in order to transfer protective antibodies from the dam to the calf (passive immunity). Good quality colostrum can protect the newborn calf from diseases until its immune system can produce its own antibodies. The chart in Figure 1 shows a general concept of the amount of antibodies a calf receives when given 2 quarts vs. 4 quarts of colostrum. The most crucial period of a calf's life is the first two weeks. Colostrum is largely comprised of protein, fat, and antibodies. The amount of antibodies absorbed by the calf will determine the degree of protection from disease.

Maternal Colostrum Management

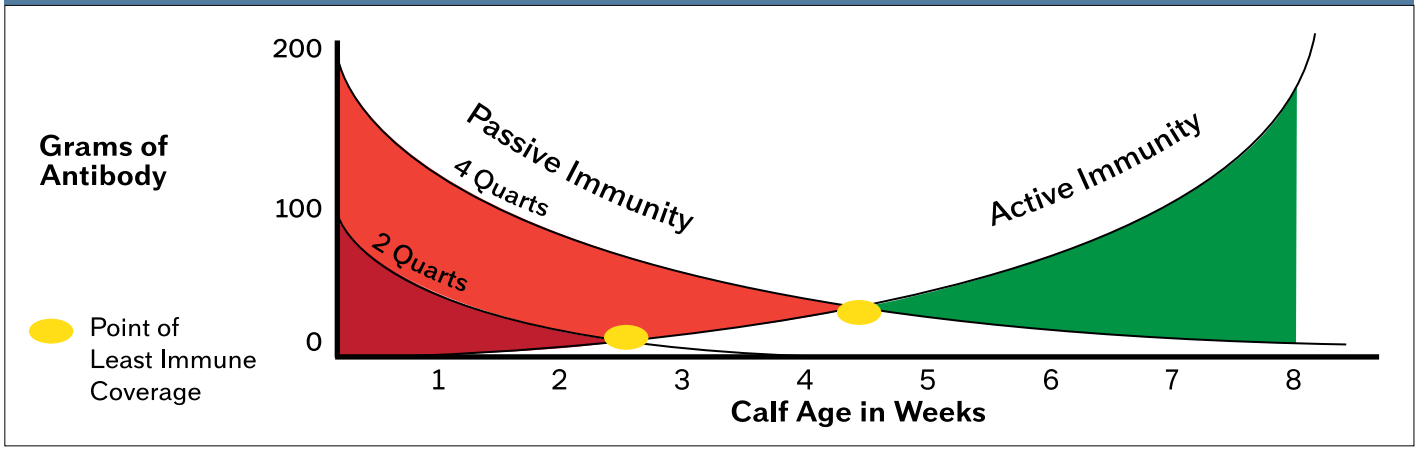
1. Testing Colostrum To Determine Quality:

Testing the level of IgG's in colostrum will help determine its quality. There are different types of colostrum testing devices on the market. A digital Brix handheld refractometer (See Figure 2) is recommended for its ease of use and accuracy. To test colostrum on this meter turn it on by pressing the "Go" button and place a few drops of thoroughly mixed colostrum into the sample well on the meter, close the lid and press the "Go" button once again. A brix value will read out on the screen. For a detailed video on how to test colostrum using a digital refractometer visit www.crystalcreeknatural.com and select the "VIDEO" option from the menu under our "NEWS & RESOURCES" tab.

2. Timing/Temperature Of Colostrum Feeding:

Colostrum should be fed to the calf within the first 4 hours of life to optimize the absorption of IgG's (antibodies). The general concept of antibody absorption in the first 12 hours of a calf's life is shown in Figure 3. Colostrum should be delivered to the calf at a temperature of 101-103°F.

Figure 1: **CALF IMMUNITY LEVELS IN RELATION TO AGE AND COLOSTRUM QUALITY**



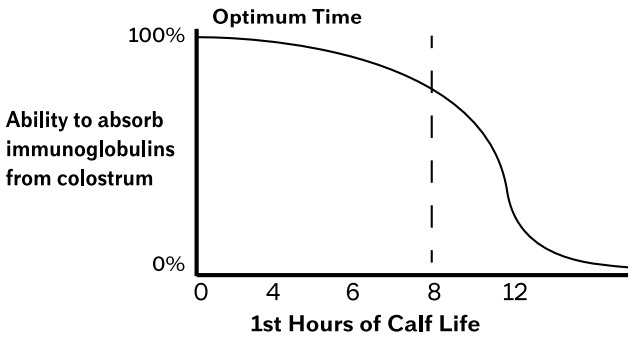
3. Quantity Of Colostrum To Be Fed:

The goal of a successful colostrum program is to feed a minimum of 200 grams IgG's, ensuring that adequate amounts of antibodies have been supplied to the calf. A Brix value of 23% is equivalent to 50 grams of IgG/quart. Feeding 4 quarts of this 23% Brix colostrum will deliver 200g IgG to the calf. See the "Colostrum Quality Interpretation" chart on our website under the "NEWS & RESOURCES" "TECHNICAL INFORMATION" selection to determine the IgG concentration from the brix value of a colostrum sample. Research has shown that 2 quarts of colostrum is not enough for a healthy calf. Figure 4 illustrates the benefits of providing a 4 quart vs. 2 quart feeding of colostrum.

Figure 2

Figure 3:

OPTIMUM ABSORPTION TIME OF COLOSTRUM



Benefits of Colostrum Management

The success of a colostrum program is monitored by total protein testing. Total protein samples should be taken from calves between 24 hours to 7 days of age. A result of less than 5.4 g/dL of serum protein indicates failure of passive transfer. This means the calf did not absorb enough antibodies to adequately protect themselves from disease. Calves with failure of passive transfer are 3-10 times more likely to become sick before weaning when compared to calves with adequate antibody levels[1]. In addition to disease protection, feeding the proper amount and quality of maternal colostrum has been proven to show an increase in the average daily gain and feed efficiency over calves with failure of passive transfer.

Adequate test numbers are anything greater than 5.4 and ideally closer to 6.0g/dL for an indicator of a

(CONTINUED ON PAGE 14)

Figure 4: **QUANTITY COMPARISION OF MATERNAL COLOSTRUM FED**

Benefits	4 Quarts of Colostrum	2 Quarts of Colostrum
Average Daily Gain (lbs./day)	2.2	1.76
Age at Conception (months)	13.5	14
Survival Through 2nd Lactation (%)	87.1	75.3
Milk Yield Through 2nd Lactation (lbs.)	37,558	35,297

Maternal Colostrum Management

(Continued from page 13)

successful passive transfer of immunity. Calves fed correctly managed colostrum see a higher lifetime milk production than those without. In fact, studies show that calves fed the proper quality and quantity of maternal colostrum have produced an increase of 1,131 pounds more milk yield through their first lactation[2].

Proper colostrum management is important for overall calf health and future milk production. Having a successful colostrum management plan will save money on vet bills and treatment costs. Once your calves are off to a great start, continue their growth and development with Crystal Creek® Swift Start® calf products such as milk replacer, texturized calf feed, calf pellets or calf and heifer mineral. For more information check us out at www.crystalcreeknatural.com or give us a call at 1-888-376-6777.

Sources:

[1] *The Merck Veterinary Manual*. 9th Edition, 2005, Print.

[2] Dairy Calf & Heifer Association June 7, 2011 Webinar "Back to Basics: Economics of Health & Economics of Accelerated Calf Growth" Dr. Mike Van Amburgh, Cornell University.

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