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

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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 $330[1] 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. Leiterman'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".