

# The BovLine<sup>®</sup>

From the desks of Angela M. Daniels, DVM & Dan Tracy, DVM, MS  
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Volume 5 Issue 2 copyright 2005

summer edition

“ *Change has a considerable psychological impact on the human mind. To the fearful it is threatening because it means that things may get worse. To the hopeful it is encouraging because things may get better. To the confident it is inspiring because the challenge exists to make things better.* ”

This quote by King Witney, Jr. categorizes us at Circle H as confident. We have sought out change for the very reason to challenge us to make things better... for you... our clients. The addition of Dan and Suzanne Tracy are examples of this. Most of you have met Dr. Dan Tracy but have not had the chance to meet Suzanne, our Laboratory Director. Her main duty, as it relates to our dairy customers, is to run our milk quality laboratory.

Our newest change is the construction of our new office complex which houses our offices, laboratory and hospital. We would like to invite you to our client open house on **Thursday August 11th from 11 to 3** to see firsthand the changes we've made. Mark your calendars now and invitations are to follow.

We hope to see you there! Angela

## Metabolic Profiling: Troubleshooting Metabolic Problems

By Dan Tracy, DVM, MS

Negative energy balance and sub-clinical ketosis are significant problems among pre-fresh and fresh cows. Such conditions occurs in cattle that are not able to meet their energy needs to support the rapidly growing calf or milk production. Problems associated with a negative energy balance and sub-clinical ketosis include an increased incidence of pre-, peri-, and post- partum illnesses (milk fever, fatty liver disease, endometritis, retained placentas and clinical ketosis), increased incidences of DA's, poor milk production and poor reproductive performance. Metabolic profiling is used to measure or identify an excessive negative energy balance or sub-clinical ketosis by looking at the levels of non-esterified fatty acids (NEFAs) in the pre-fresh cow and by looking at ketones (BHBA) in the post fresh cows. There are many factors contributing to metabolic problems such as: dry matter intake, energy density of the ration, forage quality, feed delivery and bunk space just to name a few.

Metabolic profiling is a tool used to troubleshoot metabolic problems in a dairy herd. In addition, metabolic profiling can be used as an ongoing surveillance tool to monitor the energy balance of pre- and post fresh cattle as well as among different parity groups. Once a problem with excessive, negative energy balance has been identified, steps to find the source can begin quickly. Early intervention is the key in preventing disease processes that greatly affect the productive life and reproductive performance of dairy cattle. After the problem has been identified, metabolic profiling can be used as a monitoring tool to track the success of changes made. Metabolic profiling begins by taking a blood sample from a chosen group of high-risk pre-fresh and fresh cows and measuring the levels of NEFAs and BHBA's that exist. From this information, the energy balance of the herd can be reviewed on a proportional basis.

The sample is a minimum of twelve cows. Larger sample sizes are recommended when the proportional outcomes are very close to the alarm level. For example 2/12 or 16.7%. In this case you may select a total of 15 cows in your sample size.

Samples can be processed at most diagnostic laboratories or on the farm by using farm purchased chemistry analyzers. Recently, VDX, INC. ((262) 285-3810, or visit the Web site: [www.vetdx.biz](http://www.vetdx.biz)) makes available the DVM NEFA that allows for on farm analysis of blood NEFA levels.

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### On-line

- [www.dairyherd.com](http://www.dairyherd.com)

The website for the dairy herd management magazine where the reprint of Kimberlee Schoonmaker's article on metabolic disease can be found

- [www.vetmed.wisc.edu/dms/fapm/fapmtools/nutrition](http://www.vetmed.wisc.edu/dms/fapm/fapmtools/nutrition)

The nutrition resource page for the University of Wisconsin School of Veterinary Medicine

- [www.draxxin.com](http://www.draxxin.com)

Pfizer's website for their new Draxxin product

- [www.vetdx.biz](http://www.vetdx.biz)

The website for the DVM NEFA blood test

From "Metabolic Profiling" on page 1

The testing protocol is as follows:

Test <i>Blood from tail stick.</i>	Eligible Group	Test Cut Points	Alarm Level Proportion
NEFA	Pre-Fresh cows, ideally 2 to 14 days from calving	>0.400 mEq/L	> = 10%
NEFA	Dry cows >2 weeks from calving	<0.32 mEq/L	> = 10%
BHBA	Lactating cows, about 5 to 50 days in milk.	> 14.4 mg/dL	> = 10%

\*\*Source: GR Oetzel, UW School of Vet. Med

Please contact *Circle H Animal Health LLC* if you would like more information about setting up such a surveillance program on your farm.



### Mastitis Profile: A brief look at *Staphylococcus aureus*

By Angela M. Daniels, DVM

- Is one of three sources of contagious mastitis—the others include *Streptococcus agalactiae* and *Mycoplasma bovis*
- Infected udders are the most common source of infection. Flies, hands and waste milk are common ways to spread it
- Staph are easily killed by common disinfectants, exposure to light and external heat
- Staph aureus survives on teat lesions and in the teat canal, eventually making its way to the udder
- Carriers are often express infection with a subclinical infection with occasional clinical flare-ups
- Heifers with Staph aureus infections represent nearly 1/3 of the new cases of Staph aureus on dairies
- Staph aureus is shed intermittently in low numbers. Contrary to thought, shedding is low at calving
- Half of the infected cows will have SCC composite levels of >500,000
- Infected quarters have milk production reductions of 45 percent; infected cows have reductions of 15 percent
- All ages are susceptible to infection—from calves to fresh cows to lactating cows
- Approximately 80 percent of all dairies have some level of Staph aureus infection
- Staph aureus infections quickly become chronic due to its ability to form abscesses and cause tissue damage in the udder
- Treatment is difficult because of its chronic nature. Estimates are that lactation therapy treatment success ranges from 15 to 70 percent; dry cow therapy success is greater than 50 percent; and the best results are seen in heifer treatment with a range from 63 to 92 percent
- Staph aureus is commonly and easily diagnosed with a milk culture; freezing samples increases its recovery
- In high prevalence herds, false positives can occur with a poor collection technique leading to contamination of the sample
- In both low and high prevalence herds, false negatives occur nearly a quarter of the time, meaning that only 75% of the true positive samples will have growth on media
- In order to increase the likelihood of finding a positive cow, samples can be taken at 24 hour intervals; studies have shown the sensitivity to increase to 94 and 98 percent when cows are sampled two and three times, respectively
- Bulk tank testing is a far less accurate method of monitoring than individual culture but sensitivity does increase with multiple sampling as with individual sampling
- The sensitivity of bulk tank testing increased from 30 to 40 to 48 percent by testing 1, 2 and 3 samples, respectively
- Although not common, Staph aureus causes a peracute mastitis with gangrene which turns the udder blue and cold
- Control programs for dairies are cost effective measures of eliminating or controlling the spread of Staph aureus
- Call us today to learn more about how we can help you design a Staph aureus control program for you



From time to time we like to highlight new products that we feel are of interest to our clients. Pfizer just launched a new antibiotic called Draxxin® (tulathromycin). Draxxin® is an injectable antibiotic that is a single IM dose, but rapidly absorbed and long acting. It is an entirely new class of antibiotics for the livestock industry. It is known to penetrate and accumulate into the lung cells. So it is labeled for bovine respiratory disease associated with *Mannheimia haemolytica*, *Pasteurella multocida* and *Histophilus somni*. In Europe, the label includes *Mycoplasma bovis*. The cattle dose is 1.1mL/100lbs and carries an 18 day meat withdrawal. The cost is around \$3/100lbs. It is not to be used in dairy cattle older than 20 months of age. The intended dairy use is for heifers to treat respiratory disease.