



Technical Services Global Newsletter

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Technical Services Mission:

To support ABS Global products, people, and services in a manner that provides direct income for shareholders while maximizing customer profits

Monthly TS Highlight



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As a Technical Service Consultant on retainer with ABS Global, I am able to utilize my 27 years of veterinary and management expertise to enhance herd performance, training programs and profitability for ABS customers across the U.S. I have been working part-time as a part of the ABS Global Technical Service Team for the past four years.

I grew up on a dairy farm in Michigan and have been a practicing veterinarian in Ohio and Michigan. My current practice, Team Management Concepts, serves dairy clients from 50-3,000 cows. This diversity keeps me focused on both big picture issues as well as individual cow problems. I know teamwork is essential within the farm work force. I also believe teamwork is critical among all consultants serving a dairy.

I am very passionate about milk quality. I operate my own milk culturing laboratory, identifying common mastitis pathogens plus mycoplasma. I also perform milking procedure and equipment evaluations to maximize efficiency and milk quality.

My hobbies are learning (I love to read, attend meetings and learn new things) and spending time with my family, which includes a wonderful wife, three adult children and most recently a new grandson and twin granddaughters.

Want to contribute next month?

Contact Angela Storch (astorch@absglobal.com).

In This Issue:

- **Conference Comments:** National Mastitis Council Annual Meeting—"Bedding Counts in Manure Solids"
- **Milk Quality Minutes:** Udder towel cleaning and drying
- **Research Review:** GnRH effects on serum progesterone and conception rates
- **Fertility Focus:** Impact and Testing for Persistent BVDV Infection
- **TS Tidbit:** 1st Technical Service Latin-American Conference

2006 Annual National Mastitis Council Meeting— Bedding Counts in Manure Solids

By: Dr. K. Larry Smith & Dr. J. S. Hogan

(Adapted by Lydia Moeller, Technical Service Intern)

In January, three Technical Service Team members; Dr. Monfore, Dr. Thomson and Kylene Anderson, traveled to Tampa, Flor. to attend the 45th Annual National Mastitis Council Meeting. This newsletter will highlight Dr. Smith and Dr. Hogan's paper, "Bedding Counts in Manure Solids," which was presented at the meeting. Their paper discusses how a lab can perform tests for producers to determine the bacterial count their manure solids can hold. This is important due to increased bacteria in bedding contributing to the amount of environmental mastitis cases.

Interpreting the test results

As a rule of thumb, the bacterial numbers in bedding materials generally change by powers of 10. There is little or no difference between 2,000,000 cfu/g coliform bacteria in a bedding material and 4,000,000 cfu/g of bedding. However, the difference between 2,000,000 cfu/g and 20,000,000 cfu/g is likely to be meaningful. In the past, levels above 1,000,000 cfu/g has been considered the level at which manure solids are contributing to the herd's mastitis cases. This is supported by a paper done by Bramely and Neave. In the paper, the Bramely and Neave make the



observation that within the group of herds they were studying, those with bedding counts of coliform bacteria greater than 1,000,000 cfu/g tended to have more coliform mastitis problems than herds with bedding counts below 1,000,000 cfu/g. This only applies for coliform bacteria numbers.

Managing stalls and corrals

Free stalls should have at least 4 to 6 inches of bedding with more placed in the front due to normal loss from exiting the stalls. If mattresses are being used, bedding material should still be present on top of the mattresses to absorb the urine and manure, as well as providing additional support for the hocks.

Corral maintenance is very important because many dairies in the west use recycled manure solids for bedding material. Running a harrow through the corral multiple times a day is the preferred method of maintenance. This process moves wet areas into open areas to dry and moves dry areas back under the shade to be utilized as bedding. This is important because most cows' teats will come into contact with manure under the shade.

Encountering other issues

Recycling manure solids gives pathogens another chance to get into the herd. If a herd is trying to eradicate Johne's disease and Salmonellosis, recycling manure may not be a viable option. If a producer considers buying manure solids from another operation, farm biosecurity will be at risk.

Generally manure solids will contain 30- 40 percent dry matter. Solids with a higher dry matter content would help reduce bacterial growth, however it is not economically efficient to physically dry them. Researchers are still unaware of what level dry matter is needed to keep bacterial growth minimized.

Conclusion

Using separated manure solids can lead to a higher risk of exposure to environmental pathogens, but if these solids are managed correctly the risk can be significantly reduced. Ways to reduce the risk include maintaining adequate bedding in the stalls, frequently grooming the stalls or corrals, upholding parlor hygiene and maximizing ventilation.

How can we ensure that our udder prep cloth towels are truly clean and sanitized?

By: Roger Thomson, D.V.M.

During the past six months, I have been performing towel cultures for dairy farms in the Great Lakes area. I have consistently cultured bacterial growth on most

initial towel samples. The greatest challenge to laundering udder cloths is dealing with the large amount of organic material. This organic load must not only be loosened and removed from the fabric matrix itself, it must be rinsed out of the machine completely without reseeding the cleaned towels with bacteria. Clearly, this is the step where many of the contamination problems are occurring. The following are my observations with common laundering practices used on Midwest dairy farms today.

Type of equipment used

Top-loading washing machines are less expensive initially, but do not handle heavy loads of organic material. Therefore, these machines do not clean or rinse as effectively as front loading washing machines.

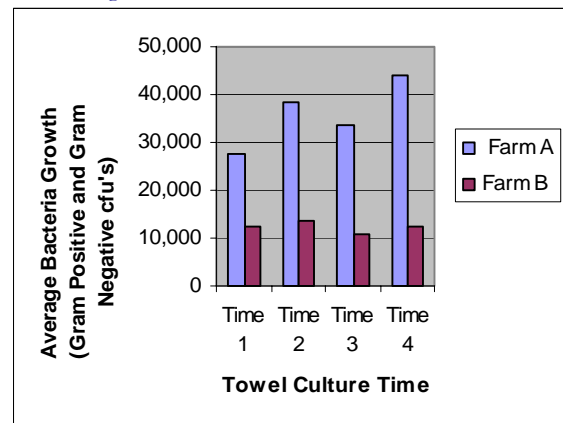
Overloading machines

Cloths get cleaned by moving and rubbing against each other during the wash cycle. Cloths packed tight do not move, and are therefore not cleaned. This also prevents an effective rinse cycle to remove bacteria-laden organic material.

Not drying

Money is saved by not drying towels, and the need for fewer towels (towels are not tied up in a dryer). However, bacteria (colony forming units (cfu's)) counts are higher on wet towels than dry towels (see Figure 1).

Figure 1: Towel Cultures on Two Farms



- Farm A uses a commercial washer, no towel drying, no bleach, sanitizing detergent, and average load sizes.
- Farm B uses a commercial washer, towel drying, regular detergent, but has severe overloading.

Drying is an excellent way to kill bacteria. Poor washing practices can leave a heavy organic material/bacterial load on the towels, and drying cannot complete the cleaning process. Some milkers like wet towels because they wipe "cleaner" and are easier to hold. Typically milkers struggle to clean teats with a pre-dip that has been on too long and dried. A pre-dip with a fast kill time will still be moist when wiped off. To quote Dr. Andy Johnson, "If our goal is

to attach milkers to teats that are clean, DRY, and well stimulated, how can we produce dry teats with a wet towel?" Enough said!

Wash water temperature

Many dairies struggle to have "hot" water for CIP cleaning, let alone for multiple laundry loads. Towels are not consistently washed in water >160°F. Combined with overloading, this problem creates a very "dry" mass of towels due to a lack of water for the size of the load further reducing water temperature.

Transport baskets

Baskets must be kept clean inside and out. The parlor storage and handling system represents a high risk for manure contamination of clean towels. Aprons or "kangaroo pouches" are excellent at increasing parlor efficiency, but must be kept clean. Closed topped transport baskets prevent manure from splattering onto clean towels. Do you know where your clean towels are right now?

Micro-Fiber towels

These new towels have some advantages in drying speed and life expectancy, but it is more important not to over-fill machines with this type of towel. If compressed in a machine, it is difficult to clean.

Bleach or Sanitizing Detergent

Too much organic material can interfere and the bleach and detergent "fight" with each other chemically. Bleach during the rinse cycle is very effective, but not practical due to the precise timing that the bleach must be added.

A cooperative team of ABS Global and Ecolab technical service members in the Midwest have been implementing solutions to this problem. To date, the following steps have been taken to produce consistently clean towels on several dairies.

Step 1. Culture random towels to assess initial towel cleanliness. Typically we find gram positive and negative organisms at levels of thousands to tens of thousands of cfu's.

Step 2. Evaluate current laundering equipment and protocols. So far, we have insisted on installing a front loading commercial washing machine. We establish a protocol designed to prevent overloading the machine.

Step 3. Install a commercial washer and wire a pumping system directly into the machine. This system will automatically dispense the correct amount of liquid detergent and liquid sanitizer to the washer for the wash and rinse cycles, respectively. After 1-2 weeks with this system in use, we culture more random towels.

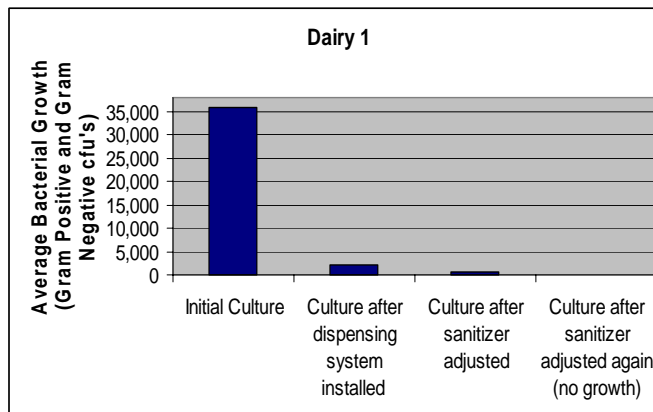
Step 4. Then we start the sanitizer dispensing at a low level to control costs and minimize wear to the towels.

Typically we find that gram negative organisms are <100 cfu's or completely eliminated.

Step 5. We adjust the sanitizer amount and culture towels until we get no growth from gram positive and/or gram negative organisms. We re-culture towels every 3-6 months to monitor results.

Figure 2 portrays how towel cultures change after implementing these five steps.

Figure 2: Towel Cultures after Changes were Implemented



Working with these dairies we have realized a visual assessment of a towel is not enough to know if the towels are properly clean and sanitized.



Towel, visually clean, cultured heavy bacterial growth of Gram Positive and Gram Negative bacteria.

We know that the removal of the organic matter is the largest challenge on a dairy and through the steps discussed we can take measures to ensure a properly cleaned towel. **A clean towel is one of the many important steps to proper udder health management.**

Conception rates and serum progesterone concentration in dairy cattle administered GnRH 5 days after A.I.

(Abstract from Howard, J.M. et al. (2005) Anim. Repro. Sci.)

The objectives of this study were to determine the effect of administration of exogenous GnRH 5 days after artificial insemination (A.I.) on ovarian structures, serum progesterone concentration and conception rates in lactating dairy cows. In experiment 1, 23 Holstein cows were synchronized using the Ovsynch protocol. Five days after A.I. (day 0) cows were assigned randomly to receive either saline (saline;

n=11) or 100µg GnRH (GnRH; n=12). To examine ovarian structures, ultrasonography was performed on day 1 and every other day beginning on day 5 until day 13. On days 5 and 13 blood samples were obtained to measure serum progesterone concentrations. All cows in the GnRH-treated group developed an accessory corpus luteum (CL), whereas cows in the saline group did not. Mean serum progesterone concentrations did not differ between GnRH and saline groups on day 5 (1.64±/-0.46ng/ml versus 2.04±/-0.48ng/ml). On day 13 serum progesterone concentrations were greater (P<0.05) in the GnRH group compared with the saline group (5.22±/-0.46ng/ml versus 3.36±/-0.48ng/ml). In experiment 2, 542 lactating cows, at two different commercial dairies, were used to test the effect of administering GnRH 5 days after A.I. on conception rates. Cows were synchronized and detected for estrus according to tail chalk removal. Cows detected in estrus received A.I. within 1 hour after detection of estrus. Five days after A.I., cows were assigned randomly to receive either GnRH (n=266) or saline (n=276). Pregnancy status was determined by palpation per rectum of uterine contents approximately 40 days after AI. There was no effect on conception rate. There was no effect of treatment as conception rates did not differ between GnRH and saline groups (26.7% GnRH versus 24.3% saline). Treatment, days in milk, parity, milk yield, and number of services had no effect on the odds ratio of pregnancy. In summary, the results of this study indicated that GnRH administered 5 days after AI increased serum progesterone by developing an accessory CL but did not improve conception rates in dairy cattle.

In this study the cows treated with GnRH had more circulating progesterone but similar conception rates when compared with cows treated with saline. Currently more studies are being conducted to evaluate the effect of GnRH post AI in relation to cyclicity status, parity, and day of treatment.

Impact and Testing for Persistent BVDV Infection

Bovine viral diarrhea virus (BVDV) is prevalent in .3-.4 percent of the cattle tested, meaning these animals are persistently infected (PI) positive. BVDV-PI impacts herds by decreasing conception rates and increasing abortions. In addition, profits decrease due to increased illness, pregnancy waste, death and lower production.

If your herd is encountering these problems, two methods are available to test whether or not BVDV is a problem in your herd. The first method is comparative serology. This should only be used when

there is a reproductive performance concern, such as high incidence of early embryonic death and poor conception rates. This test looks for a difference in BVDV-SN titers between pregnant and open cattle. (pregnant cows: control and open animals: cases) There should be 10-15 animals in each group for adequate comparison of titers. Furthermore, cows should be comparable days from their last breeding.

There are three steps for sending in your samples. A sample consists of whole blood, serum and two ear notches. To send in, first complete the WVDL Madison submission form:<http://www.wvdl.wisc.edu/> **On this form request analysis of “Comparative Serology BVD Type I & II Attn: Dr. Donald Sockett.”** The last step is to submit serum samples to Wisconsin Veterinary Diagnostic Lab Madison, Wisc.

Another option to comparative serology is to collect pre-colostral serum from newborn calves to look for evidence of fetal exposure to BVDV. Serum must be collected from calves for 4 -6 months before BVDV fetal exposure (congenital infection) can be ruled out. To help control the impact of BVDV in your herd, perform either test on any aborted fetuses.

Reference: Sockett, Donald C. Testing for Persistent BVDV Infection. WVDL Diagnostic Update. Summer 2003.

1st Technical Service Latin-American Conference Held

By: Hernando Lopez, PhD

The Technical Service Latin-American conference was held in the scenic Mexican colonial city of Guanajuato on March 23rd - 24th, 2006. Sixteen international personnel were in attendance at the successful event from Mexico, Puerto Rico, Colombia, Ecuador, Brazil, and Chile. Objectives included updating and standardizing technical service concepts, familiarizing existing as well as introducing new tools used for technical support, identifying needs and strategies within the region, and allocating resources for training and support of the technical service personnel in Latin America. Highlights of the conference included the appointment of Dr. Fernando Cavazos as the Manager of Technical Services for Latin America and the official welcome of Drs. Carlos

Castellanos and Cristian Vegara as new members of the technical team in Mexico and Chile, respectively.

