

# DAIRY PIPELINE

Volume 35, No. 3 April 2014

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## IT HAS GOT TO BE CLEAN!

Getting calves off to a good start means instituting a successful colostrum program to assure that the calf receives adequate immunity from the dam. Ask nearly any calf care giver and they can recite the colostrum mantra:

- Feed high quality colostrum. Levels exceeding 50g of IgG/liter are considered good quality. The Brix refractometer provides a quick method for testing colostrum on the farm. Values exceeding 22 indicate good quality.
- Feed enough colostrum and feed it early in life. It is commonly recommended that the calf receive 4 liters/quarts in the first 12 hours after birth. This provides approximately 200 g of IgG which is more than adequate.
- The final step may be the most important and that is to CLEAN!

Consider that it is a race between colostrum antibodies (IgG) and bacteria reaching the site of absorption in the small intestine. If bacteria win the race then antibody absorption is likely to be severely reduced regardless of the amount of antibody that the calf consumes. Excessive bacteria can arise from two sources. The first is the calving environment and the second one is poorly handled colostrum. If the first exposure of the calf after being born is a mouthful of manure from a poorly bedded box stall, bacterial growth in the small intestine can number in the millions within a few hours of birth. As it comes from the cow, first milking colostrum has a relatively low bacteria count (<100 cfu/ml). However Minnesota researchers found that, on the average, the colostrum bacteria counts obtained from either an esophageal feeder or a floor bucket exceeded 10,000 cfu/ml. It was interesting that their study found excessive variation in counts observed from farm to farm. Bacterial counts from colostrum on some

farms exceeded 100,000,000 cfu/ml. Why the large differences? Although they didn't study colostrum handling procedures there are several likely causes. The first being sanitation of the collection buckets and esophageal feeders. The second cause is storage of colostrum for more than a few hours at room temperature. It is important that any container exposed to colostrum is cleaned as carefully as the milking equipment!

After each use the container should be cleaned using the following steps in order:

- 1.) **rinse with lukewarm water;**
- 2.) **scrub with hot soapy water;**
- 3.) **rinse with a sanitizer;**
- 4.) **invert to allow drying.**

Rinsing with hot water causes biofilms to form on the container surface which are conducive to growing bacteria.

The importance of bacteria levels in colostrum was demonstrated most recently by a Minnesota field trial involving 1,000 calves on 6 farms. One half of the calves were fed raw colostrum while the other half received pasteurized colostrum. They found that the high level of coliform bacteria in raw colostrum was highly negatively correlated with colostrum antibody absorption.

The problem on many farms is that calves are born into less than desirable conditions. In addition, failure to store colostrum in clean containers promotes excessive bacterial growth. Colostrum management should include strict adherence to cleaning protocols for any surface exposed to, or used to store or administer colostrum. Clean containers prevent bacterial growth and make early feeding or prompt cooling of colostrum less critical to success.

—R. E. James,

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## Upcoming Activities

See [VTDairy](#) for details.

### April 1, 2014

Forage Management Workshop/Ryegrass Cover Crop

### April 2, 2014

Farm Credit Finance Program

### April 5, 2014

VA Spring Holstein Show

### April 26, 2014

Little All-American

### May 15, 2014

On-Farm Forage Management Meeting with Dr. Gonzaolo Ferreira, Amelia County - ([laurab08@vt.edu](mailto:laurab08@vt.edu) for more information)

### May 19, 2014

[12<sup>th</sup> Annual Hokie Cow Classic](#)

### June 20, 2014

Dairy Day at the Harrisonburg Turks Baseball game

### July 30, 2014

VA Dairy Expo, Weyers Cave

### September 22-24, 2014

[Southeast Quality Milk Initiative 2nd Annual Meeting](#)

*If you are a person with a disability and require any auxiliary aids, services or other accommodations for any Extension event, please discuss your accommodation needs with the Extension staff at your local Extension office.*

For more information on Dairy Extension or to learn about current programs, visit us at [VTDairy](#) —Home of the Dairy Extension Program at: [www.vtdairy.dasc.vt.edu](http://www.vtdairy.dasc.vt.edu).



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## HOW DOES MILK QUALITY IN VIRGINIA MEASURE UP?

*Christina S. Petersson-Wolfe, Ph.D., in collaboration with researchers on the Southeast Quality Milk Initiative*

The quality of milk produced in the Southeast (SE), based on somatic cell count (SCC) and standard plate count (SPC), is consistently lower than the rest of the US. Reduced milk quality increases costs while decreasing revenues and efficiency. The combined effect of these factors contributes to the declining dairy industry in the SE. Understanding factors that have the greatest impact on milk quality will provide a background for programs aimed at helping producers improve their operations and was the underlying basis for the establishment of the [Southeast Quality Milk Initiative \(SQMI\)](#).

Our overall goal is to enable dairy farmers to move toward production systems compatible with a sustainable industry. To accomplish this, we will integrate outreach, education, and research initiatives focused on improved milk quality, lowered disease costs, and greater revenues on farm. As part of this process, we needed to establish the baseline status of milk quality at the start of the project on dairy operations in FL (n=126), GA (n=221), KY (n=753), MS (n=82), TN (n=404), and VA (n=814), which are the partnering states of the SQMI. SCC and SPC bulk tank milk data for 2012 were evaluated from records maintained by state regulatory agencies. At least one SCC and SPC were collected each month from each dairy farm with a Grade A permit and data were summarized using the Timeseries procedure of SAS. Most SPC samples (65% overall) had < 5,000 colony forming units (CFU)/ml and Virginia represented the most samples < 5,000

cfu/ml at 75.6%. Additionally, 82% of all samples and 92% of all samples from VA operations fell within the recommended range (< 10,000 CFU/ml). The SE SCC averaged 324,204 ± 174,083 cells/ml (mean ± SD). The annual mean SCC of individual states ranged from 279,603 ± 160,665 in Virginia to 417,146 ± 210,692 in Mississippi. For herds enrolled in DHIA, which comprised 30-44% of the total herds within a state, annual mean SCC was less. In Virginia, the mean SCC for herds enrolled on DHI was 19,000 cells/ml less than the overall average. Considerable state-by-state variation occurred in frequency of samples, with SCC > 400,000 cells/ml having the greatest effect evident in the summer months. At this time, 17 (Virginia) to 46% (Mississippi) of samples from individual states were > 400,000 cells/ml. The state of Virginia also had the greatest number of samples less than 200,000 cells/ml (32%) compared to the other states in the SE.

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In summary, milk quality in the SE lags behind the US as a whole, and hot, humid summers of the region present one of the major challenges to producing quality milk. Milk quality in Virginia for 2012 was the best compared to all other analyzed states in the SE. Continued evaluation of this information will provide a basis to evaluate the success of the SQMI. This work was supported by a grant award from USDA-NIFA-AFRI (2013-68004-20424).

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