

Managing Somatic Cell Counts – Looking Back and to the Future

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Most Wisconsin dairy producers understand the importance of producing high quality milk that is valued by processors. Meeting international quality standards allows our dairy products to compete in the international marketplace and is important to maintaining the image of our dairy industry. The bulk milk somatic cell count (SCC) is one of the most important indicators of milk quality and is used globally to define high quality milk. A history of bulk milk SCC in Wisconsin can be found in data from the Federal Milk Marketing Orders. This data is summarized each year by the National Mastitis Council and the USDA Animal Plant Health Inspection Service. In recent years, Wisconsin dairy producers have made tremendous progress in improving bulk milk quality. In the year 2000, the bulk milk SCC of Wisconsin dairy farms was 304,000 cells/mL whereas by 2014, that value had dropped to 196,000 cells/mL! However, if we want to produce the best milk in our region, we still have room to improve, as the bulk milk SCC of our neighbor farmers in Michigan was a mere 160,000 cells/mL!

The SCC of bulk milk reflects the percentage of cows that are affected with subclinical mastitis and improving bulk milk SCC requires knowing which cows are infected. All cows with SCC >200,000 cells/mL are considered to have at least 1 quarter that is affected with subclinical mastitis. Within each herd, the percent of cows with SCC above this threshold is an important key performance indicator that is referred to as the “prevalence of subclinical mastitis.” Minimizing prevalence is the key to reducing bulk milk SCC and this value should be reviewed each month with the goal of preventing new infections.

I recently used SCC data from several thousand herds that test with AgSource CRI to compare the prevalence of subclinical mastitis between 2000 and 2015. Looking at this data, it is apparent why bulk milk SCC values have decreased. For herds of all sizes, the prevalence of cows with SCC >200,000 cells/mL has dropped dramatically. In June 2000, the prevalence of subclinical mastitis ranged from 26% - 33% of cows (depending on herd size). By January of this year, the prevalence had dropped to 18-23% of cows. Decreases in prevalence were seen for herds of all sizes, but the biggest progress occurred in the smallest herds; in 2015 these herds have about 30% less infected cows as compared to 15 years ago!

This progress has occurred in response to improved management of individual cows and increased adoption of standardized milking practices. To continue to improve milk quality it is extremely important to monitor individual cow SCC values each month. The use of monthly SCC testing of cows is highly adopted by larger Wisconsin dairy farms. We recently published a survey that included 325 WI dairy farms that milked at least 200 cows (Rowbotham and Ruegg, 2015 J Dairy Sci, available online). Of these farmers, 82% tested cows monthly for SCC and almost all herds had adopted a complete milking routine that includes forestripping, predipping, drying teats with individual towels and the use of post-dip. The high adoption of these practices has clearly paid off with improved milk quality but some future challenges were apparent.

While milk quality on all study farms was acceptable, some differences in udder health were associated with use of different types of bedding. Farms that used inorganic bedding (primarily fresh or recycled sand) had the highest rolling herd average and the lowest bulk milk SCC whereas herds that used manure based bedding had the lowest rolling herd average and the highest bulk milk SCC. We believe that the

lower rolling herd average is at least partly a consequence of increased mastitis. The herds using manure based bedding, had greater bulk milk SCC (likely indicating a greater prevalence of subclinically infected animals), they discarded more milk each day (likely indicating that more cows were being treated) and the percent of cows milking on < 4 quarters was about 30% greater on those herds (likely indicating that they contained more chronically infected cows). As herd management continues to evolve, these challenges need to be recognized and addressed.

Wisconsin is the dairy state and we are proud of our dairy industry. Looking back at our bulk milk SCC data shows the tremendous progress that we have made and allows us to recognize the important milk quality management practices that have helped to achieve this success. The marketplace is always demanding higher standards and the continued willingness of our industry to adapt and respond to these demands will be a defining characteristic of our future.

Results of a study of large Wisconsin dairy farms.

	Bedding Used During Study Period		
	Inorganic (mostly sand)	Organic (mostly mattresses & wood products)	Manure based products
Number of herds	195	62	29
Rolling Herd Average	28,373 lbs	26,510 lbs	25,968 lbs
Bulk Milk SCC	198,000 cell/mL	220,000 cells/mL	240,000 cells/mL
Percent of daily milk not sold	1.6%	1.9%	2.4%
Percent of cows milking on <4 quarters	4.5%	4.8%	6.3%

From Rowbotham and Ruegg, 2015 J Dairy Science. available online <http://dx.doi.org/10.3168/jds.2015-9866>