

Herd Average Somatic Cell Count: An Accurate Measure of Mastitis in a Herd?

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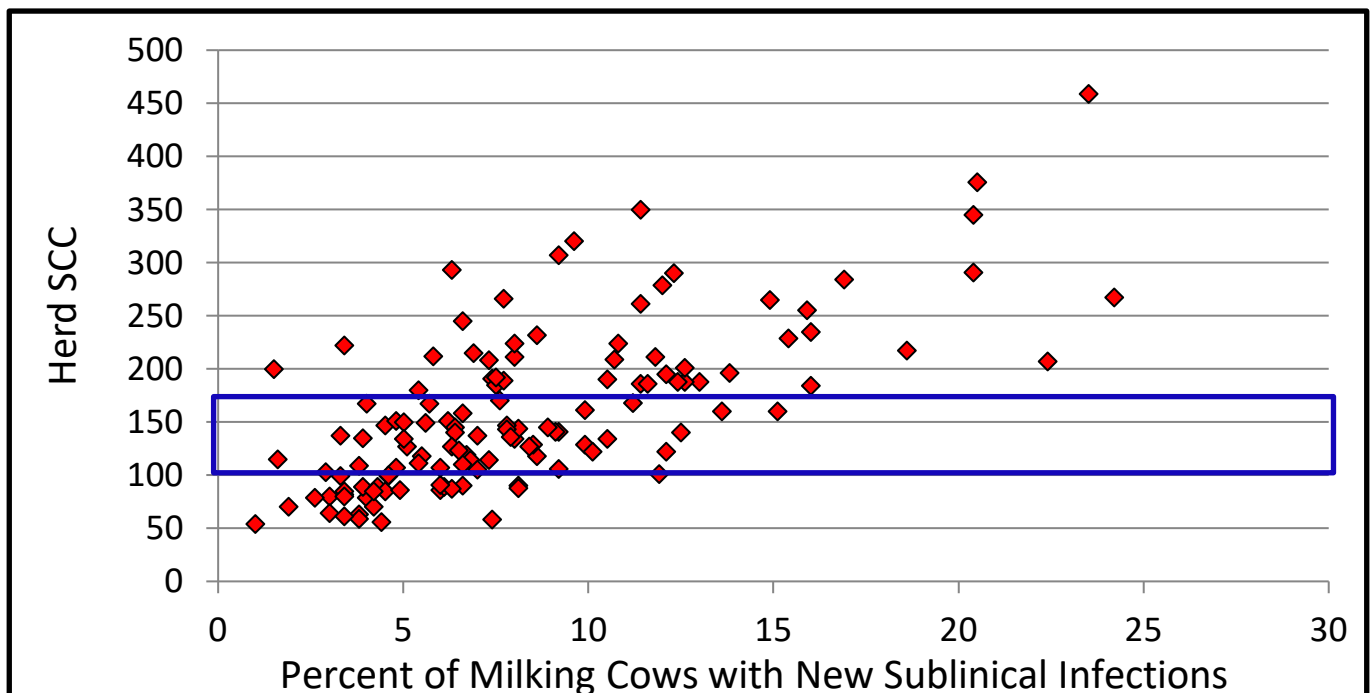
Bulk tank somatic cell counts (BTSCC) or DHI average SCC are the most common milestones that are used to rate the mastitis management in a dairy herd. The lower the herd SCC, the better the milk quality, shelf-life, and yield for processed dairy foods. But should a dairy producer rely solely on changes in herd SCC to monitor mastitis? Herd SCC is highly correlated to the number of infected cows in a dairy herd. However, this number doesn't really give the full picture of mastitis in a herd. Part of the problem is that a small proportion of cows account for a disproportionate percent of the somatic cells in the bulk tank; usually 2 to 3% of the cows account for 30 to 35% of the BTSCC. This occurs regardless of herd size. A helpful article describing this concept can be downloaded at the following web address:

Two key factors determine the percent of infected (mastitis) cows in a herd, 1) the rate of new infections, and 2) the rate of removal of infections from a herd. Herds remove infections by treating cows with antibiotics, culling chronically infected cows, treating cows at dry off, or in some cases, stop milking the affected quarter....choosing to milk the "3 quarter" cow. Drying off a chronically infected quarter is a viable option for removing poor quality milk from the food supply; and reduces the risk for the infected quarter to spread the infection to other cows. Drying off a chronically infected quarter is also preferable to repeating antibiotic therapy, that will not likely result in a cure...treating the "chronic offenders". As opposed to culling the cow, milking 3-quarters can keep a cow in the herd, especially if she has value for reproductive efficiency, genetics, and milk production. Many cows produce 90% of the milk that would be expected if all four quarters were functional.



However, is culling cows, drying off quarters, or treating mastitis with antibiotics the best way to maintain lower herd SCC, or is this a game of “whack-a-mole”? If the new infection rate for subclinical mastitis is not lowered while removing infected cows or quarters from the herd, the percent of infected cows essentially remains the same. Nationally, the herd average SCC levels have been decreasing; among DHI herds, the average herd SCC reached 200,000 cells/mL in 2012. Thus, dairy producers are focusing on reducing their herd average SCC and improving milk quality for consumers, but is this goal being achieved by reactive management of managing infected cows in the herd, or proactive management to prevent infections from happening?

The plot below shows a scattergram of over 120 herds in the Midwest (mainly from Michigan) where the herd DHI herd average SCC is plotted against the new infection rate (percent of cows) for each herd. In this case, *a new infection was defined as a cow that had a linear SCC score of less than 4 during the previous test date, but had a SCC score of 4 or greater at the current test date.* As expected, there is a strong correlation between new infection rate and herd average SCC. Within the “blue rectangle” are herds with test date herd average SCC between 100,000 cells/mL and 175,000 cells/mL, a SCC that is below the national average and an indicator of good milk quality. However, the range of new infection rates varies from as low as 2% to 15%, a more than seven-fold difference. How can this be happening and yet the SCC for all of these herds is considered to be very good?



The answer is that the herds with the higher infection rates are maintaining lower SCC by culling cows, drying off quarters or treating clinical mastitis cases as they appear. These are all sound management options, but which herd, a herd with a new infection rate of 4%, or a herd with a new infection rate of 15%, is spending more labor and money **reacting to the problem, instead of preventing it?** Which herd is likely using more antibiotics, losing potential genetic value in culled cows, and losing milk production in 3-quarter cows?

Herd average SCC are a great monitor for milk quality, but if maintaining a low SCC is done through reactive management strategies, rather than proactive strategies, the productivity of the herd is decreased, despite having a desirable herd average SCC, or BTSCC. An ounce of prevention is worth a pound of cure.