Using DHI and PCDART Records to Evaluate Incidences of Mastitis

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Mastitis is one of the most common and costly diseases for a dairy cow. Not only does mastitis reduce milk production for that cow, there is an economic loss due to treatment cost, discarded milk, and possible early culling. Because mastitis is frequently subclinical, many symptoms are hidden and require the need for tests to determine somatic cell count (SCC). Within the dairy industry, there are two main programs that producers can use to help them manage SCC and mastitis within their herd.

- **Dairy Herd Improvement (DHI) Hot Sheet**: When receiving monthly DHI reports from the program, the most useful information that they receive is a summary of the milking herd that breaks down how much each specific cow milked on that test day, the milk fat and protein percentage, but most importantly, how many somatic cells the highest 20 cows contributed to the bulk tank. This report is called a "hot sheet," and is often described by producers as the single most important report from DHI.

  Each test date, a producer receives a report that shows what the somatic cell count is presently as well as how it compares to previous test date for each cow in the herd. The hot sheet describes how many cells an individual cow contributes to the bulk tank for the test day milking. Her contribution is "a factor of the somatic cell concentration within her milk (measured in cells per ml) and the volume of milk she produces." From DHI testing, both the total somatic cell count concentration and the volume of milk produced are known, so the contribution from each cow can be determined. By having this information, the percentage of cells in the bulk tank from a cow is calculated.

  On the hot sheet, cows are ranked by the total amount of cells they contributed to the count in the bulk tank. Also on the hot sheet, the bulk tank's total somatic cell count is listed and calculations as to what the new count would be without the cow in question and all cows that contributed more total somatic cells than this cow. Producers can use this information to help them decide which cow to cull based on weighted average somatic cell count of the bulk tank.

  It is important to remember a few restrictions of the DHI Hot Sheet. One of the most important things to remember when receiving results from DHI is that the reports only show the data from milk collected on test day. Somatic cell count can change significantly for a cow from one milking to another. Also, the weighted average SCC may not match the bulk tank SCC exactly due to cows only being tested at one of the two to six milkings of which the bulk tank may hold. It is also important to realize that removing

the top somatic cell producing cows are not a solution to the problem, but to take that information into consideration and try to figure out why the specific SCC is what it is. Therefore, it is also important to consider watching the trend of SCC of each cow rather than the results of one test day.

- **Dairy Herd Improvement (DHI) Herd Summary (DHI 202 report):** This report provides producers useful information about the herd including the SCC level of the herd and helps diagnose the source of increased SCC within a herd. Within this report, the data is sorted by the cows' stage of lactation. By sorting information about SCC this way, producers are able to use this information to determine if cows are coming into the milking herd with mastitis or whether their somatic cell count is increasing after the change of environments. In another section of the herd summary, cows are sorted into categories based on SCC or somatic cell score. Producers should strive to have greater than 85% of their herd sorted into categories where the SCC is 200,000 cells/mL or less and less than 5% of their herd with a SCC greater than 1,130,000 cells/mL. Based off of the SCC, this report also records the possible economic loss that producers are currently facing due to milk loss.

- **Personal Computer Direct Access to Records by Telephone (PCDart) Graphs:** PCDart is a software program also used to evaluate herd performance. From this program, many reports can be generated, but two graphs can be extremely useful. These graphs allow one to evaluate current compared to the last test somatic cell score for individual cows and the first test somatic cell score versus last test in previous lactation somatic cell score. By adding and moving crosshairs on the graph, producers are able to evaluate the herd in four different areas based on the percentage of cows in each quarter. In the graphs shown below, different values that producers should strive to meet are shown for each quarter. In each of these graphs, specific cows are represented by a point of the graph and can be recognized by clicking on a specific point within the graph.

As you can see, DHI and PCDart are programs that provide a wealth of information that a producer can use to better manage their herd. Producers can use this information to lower SCC or occurrence of mastitis within a herd and to find the underlying causes of mastitis within a herd. It is important to remember that prevention of mastitis is always more economical than treatments. Additional or different graphs and tables may be available depending on location due to the difference in DHI processing centers.

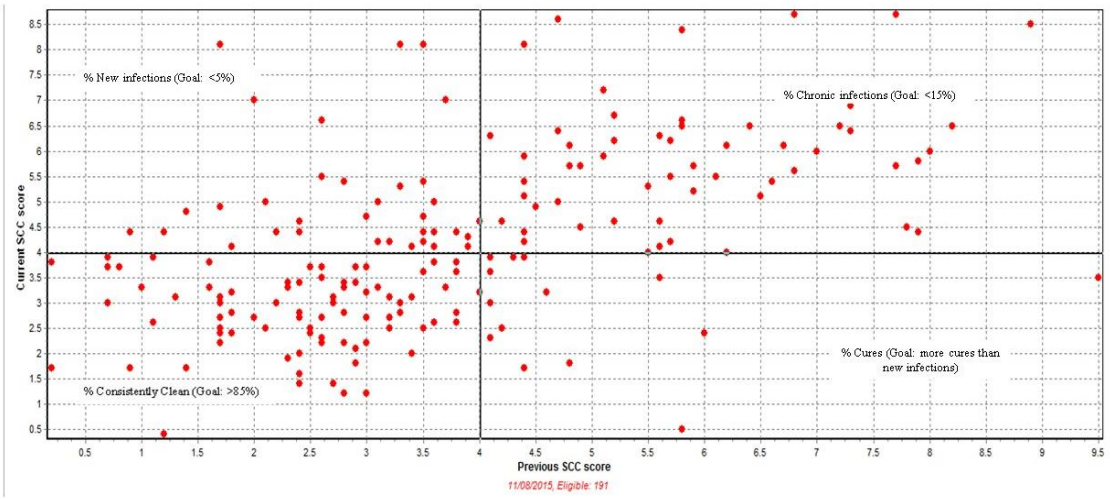

Figure 1. Previous SCC versus Current SCC

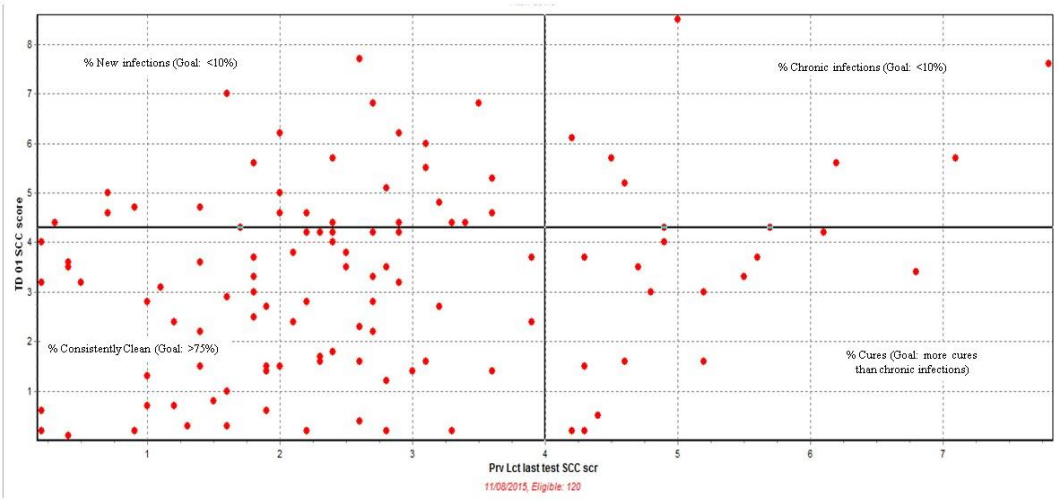

Figure 2. Previous lactation last SCC versus 1st SCC