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Using the somatic cell count report

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Using the somatic cell count report

Abstract
High-producing dairy herds can consistently average a somatic cell count (SCC) <200,000. Herds with consistently higher averages can decrease SCC and realize higher profits. The SCC report discloses the pitfalls that need to be addressed before improvement can be made.; Dairy Day, 1996, Kansas State University, Manhattan, KS, 1996;

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Summary

High-producing dairy herds can consistently average a somatic cell count (SCC) <200,000. Herds with consistently higher averages can decrease SCC and realize higher profits. The SCC report discloses the pitfalls that need to be addressed before improvement can be made.

(Key Words: Somatic Cell Count.)

Introduction

Mammary gland health and milk quality have a direct effect on a dairy's profit. In fact, these are the most costly health problems on dairy farms. Yet, many producers are unaware of losses from mammary health because subclinical mastitis, which is not visually observed, is the most common problem. In most cases, a high somatic cell count (SCC) is the only indication that mammary health and milk quality need to be improved.

The SCC is an excellent evaluation of mammary gland health and milk quality. Since 1980, most DHIA programs have provided SCCs for dairy farmers. The SCC program has proven to be very popular and useful. However, misunderstanding still exists about the interpretation and use of the SCC reports. This review will suggest recommendations for using the SCC information to develop a profile for managing mammary health and milk quality.

Terminology

SCC reports show the counts in thousands of cells per milliliter and linear score (LS). The cell count is more easily understood by producers and field representatives. The LS is a logarithm conversion of the SCC and is not as well understood.

The herd average SCC is a weighted average and corresponds to the bulk tank SCC, whereas LS correlates with the amount of milk loss per cow per day. Figure 1 shows the relationship of LS to milk loss. First lactation losses are half those of older cows.

Herd average LS is not weighted by pounds of milk from each cow, because milk loss is not related to production level of each cow. Example: two cows with an LS of 4 would have a calculated production loss of 3 lb per day regardless of their individual production level. Yet one cow could be producing twice as much milk as the other and would be contributing twice the number of cells to the SCC average. Therefore, both SCC and LS are useful measures of udder health.

Herd Average SCC

Figure 1 shows the herd average SCC for the last six test dates and the current average for the top 25% of herds in the Mid-States area. The history of the last six test dates shows the trend of the mammary health profile. A realistic goal for a herd is to have consistently an average SCC <200,000.

Individual Cow SCC

An SCC report for individual cows (Figure 2) shows each cow's SCC for the last six test dates. The profile for each cow is useful for selecting potential mammary health culls. Cows with several consecutive high counts should be considered for culling. However, a cow with an occasional high count may be self-curing (spontaneous recovery). Cow number 2024 in Figure 1 is an example of a spontaneous recovery. This indicates that the cow's somatic cells were able to control the mammary infection.
During the early days of SCC reports, dairy farmers selected cows with several high counts to double dry treat at dryoff. This practice has not proven to be effective. The most recent SCC history is most useful for selecting culls.

Milk Loss

Figure 1 shows the milk loss per cow per day and for the herd. The loss is converted to dollar values according to milk price. Milk loss is determined by the LS average for the herd. This section illustrates the economic impact of subclinical mastitis in the herd.

Animals over 300 SCC

Cows with SCC >300,000 are shown in this section of the SCC report (Figure 2). These animals are assumed to be infected with mastitis-causing pathogens and most have subclinical mastitis. Those with an asterisk are new on the list since the previous test day.

This section illustrates the effects of weighted average SCC and LS. The percentage contribution value in Figure 2 indicates each of the high SCC cow’s contribution to the herd’s average SCC. Cows 2030, 2294, and 2293 each have a 7.9 LS with comparable SCC. However, cow 2294 is contributing 7% to the total herd SCC average, whereas cows 2030 and 2293 are contributing only 1%. Obviously, cow 2294 is producing much more milk than the other two cows.

This report is useful to indicate from which cows to save milk to feed calves. Five of the first seven cows listed on the report contribute 41% of the herd average. Hence, if this milk is used for feeding calves, quality premiums could be increased.

Some dairy farmers have used this list to select cows for antibiotic treatment in an attempt to lower herd average SCC. However, treating lactating cows to lower SCC is not usually worthwhile and, in most cases, will be futile. Dry cow treatment has been shown to be the only effective antibiotic treatment program to lower SCC.

Lactation Average

This section of the SCC Report (Figure 1) illustrates the effects of lactation number on SCC. Almost every herd's report will show that SCCs of 1st lactation cows are lower than those of 2nd lactation cows, which are lower than those of 3+ lactation cows.

This section is very useful when evaluating problem herd situations. Even though the SCC rankings by lactation number in high SCC herds will be normal, those of first lactation cows may be too high and the following lactations will be higher. In this situation, the herd average SCC could be improved by freshening heifers with lower SCC.

The goal for SCC average of 1st lactation cows should be <100,000, and 5% or less of the heifers should have counts >300,000. If this is not the case, then heifers are likely becoming infected with mastitis-causing pathogens before calving. Look for wet and(or) unsanitary conditions in the springer lot.

The days in milk averages shown in Figure 1 are useful for evaluating dry cow programs and milking management. This is actually a stage of lactation profile for SCC.

The top 25% of herds show that the lowest SCC cows are 50 to 100 days in milk. Then the SCC increases slightly after 100 days. It also shows that cows in milk <50 days have lower SCCs than those in milk >300 days. In many high SCC herds, this is not the profile.
When the SCCs are higher for cows in milk < 50 days than for late lactation cows, suspect a problem during the dry period. Dry cow treatments may be ineffective. However, in many cases, high SCCs are caused by cows becoming infected as they approach parturition. If the SCC average is higher in cows during early lactation than during late lactation, usually, the average in 1st lactation cows also will be high.

To evaluate milking management, compare the SCC of cows in milk < 50 days with that of cows in milk 50 to 100 days. If the second group is higher, suspect a problem with milking management. A higher SCC indicates that the milking management program is stressful, and the cows respond with higher SCC after 50 days in milk. Usually, the SCC will increase with advancing stage of lactation.

Stresses causing higher SCC in cows as lactation advances can include poor milking techniques, poor sanitation in the parlor, and(or) faulty milking equipment. The first two situations are most common.

If milking management does not seem to be the cause of higher SCC as lactation advances, then the problem is probably narrowed down to the condition of lots and the housing system. Systems that do not provide dry and comfortable conditions in the feeding and lounging areas will cause high SCC.

In too many systems, cows do not use free stalls unless the weather is extremely severe. Look for conditions in the free-stall barns that may not be comfortable for cows. These include: condition of the free-stall surface and ventilation in the barn. Cows often will congregate in the alleys of the free-stall barn where air movement occurs. Of course, this area becomes sloppy, and high SCCs usually follow.

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**Figure 1. Somatic Cell Count Averages and High Cow List**
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XXX = SAMPLE MISSING OR INSUFFICIENT

Figure 2. Somatic Cell Count Report for Individual Cows