Milking records – Making sense of it all

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Abstract

More veterinarians should be involved in milk quality monitoring on a regular basis. There is a need for more monitoring, training, and record evaluation on a set schedule to improve the overall milk quality on many dairies. Understanding the available data and the importance of monitoring current performance levels, as either management or equipment settings are adjusted, is important for overall profitability of the dairy. A review of some available data will be presented to aid in improving veterinary involvement in milk quality programs.

Key words: dairy, milk quality, records

Introduction

Installation of milk meters, especially in larger dairies, allows management the flexibility to monitor the cows, people, and milking equipment on a milking-by-milking basis. I’m frequently asked what are “the” goals for some parameters typically monitored by herd managers and their veterinarians. My response is always that the most important numbers are where the dairy is today, and what happens to these same numbers as changes in either management or equipment settings are implemented on the dairy. A review of 3X parlor summaries was presented at the 2013 National Mastitis Council (NMC) annual meeting by Brandon Treichler, and he concluded that “average flow rate, average milking duration, 2-minute milk yield, % of time units were attached, and either cows/stall/hour or milk/stall/hour offer the most potential for dairies to monitor their performance and for the industry to evaluate that performance achievement.” The most important action is to communicate to the milk harvest technicians after every milking, or at least daily, what their numbers were for that particular milking or day.

Monitoring milk quality also involves evaluating clinical rates of mastitis. Accurate data entry is essential for evaluation. Classifications and codes will vary by region, but individual practitioners should coordinate classifications and codes for easier herd-to-herd comparisons in their practice area. Graphically displaying the data for clinical mastitis rates can be used as a motivational tool for employees on the dairy.

Parlor Performance Numbers

Most, if not all, significant parlor performance indicators are influenced by a combination of overall cow handling and udder preparation procedures and routines employed on the dairy. If cow handling is an issue, either when moving cows to the holding pen or by the technicians in the parlor, parlor performance numbers will be lower, regardless of the quality of the udder prep and routine being followed in the parlor. Dairy stockmanship is a key component of overall parlor efficiency and profitability of individual dairy operations.

Calculating parlor performance indicators include:

1. Average milk flow is calculated by dividing the milk per cow by the average duration. Average milk flow should be at least 6.5 lb (2.9 kg) per minute for 3X herds and at least 8.5 lb (3.8 kg) for 2X herds.

2. The average milking duration should be 4 minutes or less for the first 25 lb (11.4 kg) of milk produced at a milking. For each additional 10 lb (4.5 kg) of milk, the average duration should be 0.5 minutes or less. For example, a cow giving 35 lb (15.9 kg) of milk should have an average milking duration of 4.5 minutes or less.

3. Two-minute milk yield for 3X herds should be a minimum of 14.5 lb (6.6 kg) per minute, and for 2X herds should be 18.5 lb (8.4 kg) per minute rate.

4. Percentage of time the units are attached is controlled by the number of milk-harvest technicians, size of the parlor, and the procedures and routine being followed in the parlor. The overall goal is to have consistency from shift to shift and milking to milking, because this monitor is controlled by the people in the parlor.
5. Cows per stall per hour is a monitor that can be used in any parlor, even those without automation. The goal with full udder prep for a 3X herd is to have a minimum of 4.7 turns per hour. Some elite 3X dairies will see 5 or more turns on a continuing basis, and periodically have some as high as 5.7 cows/stall/hour. Rotary parlors should have 6.5 cows/turns/hour, or more if they have 60 or more stalls.

6. Milk/stall/hour should be 115 lb (52.3 kg) or more for 3X dairies, and 150 lb (68.2 kg) or more for 2X dairies.

7. Peak milk flow is defined as the amount of milk produced between the first and the second minute. There are differences between equipment manufacturers, with GEA Farm Technologies Inc. metered systems having slightly higher peak milk yields on a consistent basis. Peak milk flow for a 3X dairy should be 8.5 lb (3.8 kg) or more, and for 2X dairies it should be 10.5 lb (4.7 kg) or more.

The following series of 3 parlor performance summaries are from a double 42 parlor operated with 3 milk-harvest technicians and 1 cow mover bringing cows to the parlor (Figures 1, 2, 3). This dairy prints an individual parlor report for 3 separate sections of the parlor, and the technicians follow a territorial routine within their own designated areas. Parlor performance and the consistency from milking to milking improved dramatically when separate monitoring for individuals was implemented several years ago. Note how consistent the previously discussed monitors are for all 3 shifts. This is an older GEA parlor that does not offer all of the parameters, in particular the 2-minute milk, on the Dairy Comp report. The difference in total milking time from the first shift to the other 2 shifts is due to only treating cows at milking number 1. The takeoff settings for this parlor are set at a total of 6 seconds for the 2 parameters on the C 12 GEA meter. The factory defaults for these 2 were 40 seconds. Changes are made slowly over time, which allowed the dairy to milk significantly more cows and have much more consistent overall parlor performance.

A key to becoming more involved in milk quality and parlor performance is to understand all of the data being generated by the parlor automation. Parlor

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<th>3</th>
<th>4</th>
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<td>27</td>
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<td>15</td>
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<tr>
<td>Milk / stall / hour</td>
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<td>78</td>
<td>1</td>
<td>142</td>
<td>123</td>
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<td>75</td>
</tr>
<tr>
<td>Cows / stall / hour</td>
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<td>4.0</td>
<td>0.0</td>
<td>4.0</td>
<td>5.1</td>
<td>4.8</td>
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Error Summary:

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<td>2</td>
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<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Entered Twice</td>
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<tr>
<td>Suspect Mt</td>
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<td>5</td>
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<td>1</td>
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Figure 1. Milking report for 6/1/14 milking 1 at 08:17 AM.
summaries are routinely printed after every milking, and can be reprinted using the Dairy Comp command of “parlorAP”. This will allow you to select the milking you would like to review, and also to reach the PG 305 section of Dairy Comp. Another Comp command is simply “parlor”, which will lead to detailed data on a stall-by-stall basis for the entire milking. Once you select a milking, it will bring you into the deviation for each stall for review. Simply pressing the “escape” key will bring up a menu that will allow selection of various parameters. These include order of attachment, time of attachment, and milking duration. Selecting “milking duration” and then the “graph” key at the bottom will give a graphic presentation of all the pens in the barn. Using the mouse, you can expand the data to see the staggered unit attachments that are occurring, which allows evaluation of whether the procedures and protocol were being followed properly in the parlor.

When either the “parlorAP” command or the simple “parlor” command is entered, if you select “milking summary” you will then be able to graphically depict any of the data found on the parlor summary sheet. Only 2

**Figure 2.** Milking report for 6/1/14 Milking 2 at 04:01 PM.

Data points should be plotted to allow easy assessment of parameters, such as average flow and average milking duration with a separate range on each side of the graph.

**DHIA SCC Evaluation**

If the dairy is utilizing Dairy Herd Improvement Association (DHIA) individual somatic cell count, information using the command guide on Dairy Comp will allow detailed analysis of this data. Key parameters to monitor are the new infection rate, the chronic level, and the cure rate. These parameters are based on a cow moving from below a linear score of 4 to above a linear score of 4 as new infections, moving from a score above 4 to below 4 for cure, and with 2 or more consecutive counts over a linear score 4 as chronic cows. The goal is to maintain the new infection rate at 7% or less, which will allow the herd somatic cell count to begin to drop, and to maintain the chronic level as low as possible. The new infection rate in this dairy is depicted as a yellow section at 9%, the chronics as a red section at 6%, and green are cures that occurred since the last test at 6%.
Figure 3. Milking report for 6/1/14 milking 3 at 12:08 AM.

Clinical Mastitis Records

Dairies on Dairy Comp can easily be evaluated graphically for clinical mastitis (Figure 4). The command in Dairy Comp is “EGRAPH”, and then select “mastitis” and either “days of event” or “days-in-milk”. I have some dairies that print the “days of event” graph every week, which is posted for all milk-harvest technicians.

Conclusions

At the 45th annual AABP Conference in Montréal, Dr. Ken Nordlund commented “that the single most apparent characteristic of veterinarians who thrive in large herds is that they are viewed as the authoritative person with the herd health and production data.” Milk quality monitoring is an area that many veterinarians are not involved in on a regular basis. The work can be challenging, but it is definitely rewarding for both the practitioner and the producer.

Reference