

Milk quality services for dairy farms

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Abstract

A veterinarian and founder in milk quality work, Dr. John Dahl once made the statement, "The half life of mastitis control is at least 25 years." Unfortunately, this statement is still true today. It seems as though mastitis control still requires the same approach such as the "Mastitis Triangle". As veterinarians, our main goal still is to educate the dairy farmer the important interaction between the Man, the Machine and the Cow. The real problem is after all these years, we just cannot manage to get people to understand the real need for change, and therefore change doesn't happen. The purpose of this paper is to discuss the basic tenants of managing udder health on dairy farms by addressing the Mastitis Triangle.

Key words: dairy, milk quality, mastitis, udder health

Résumé

Un père vétérinaire dans le domaine de la qualité du lait, le Dr. John Dahl, disait que la demi-vie du contrôle de la mammite était d'au moins 25 ans. Hélas, cette assertion reste toujours vraie aujourd'hui. Il semble que le contrôle de la mammite demande toujours la même approche comme celle du triangle de la mammite. En tant que vétérinaires, notre but principal est d'informer les éleveurs laitiers sur l'importance de l'interaction entre l'homme, la machine et la vache. Le problème véritable après toutes ces années est qu'il est encore difficile de bien faire comprendre aux gens le réel besoin de changement, ce qui fait en sorte qu'il n'y a pas de changement. Le but de cet article est de discuter des principes de base de la régie de la santé du pis dans les fermes laitières dans le contexte du triangle de la mammite.

Introduction

I have been doing mastitis control for over 35 years, and my approach is basically the same. I still look at the whole picture at each farm. I evaluate milking routine, I evaluate the milking equipment using National Mastitis Council (NMC) guidelines, and I look at the cow, her environment and her records. Only after I have all this information can I really provide the dairy farmer with a plan to improve their milk quality. To have success, you cannot afford to leave any part of the "Mastitis Triangle" to someone else, because if your program fails

it will be your fault despite whether the other players did a good or bad job. The veterinarian is the best team leader, and is trusted to have reliable information. One of my favorite things is to use the data from the farm (their own records) and the information gathered during a farm visit to actually impeach the dairy farmer as to what the real problems are.

In early years of milk quality work, most of my mastitis control work was on herds having a problem. The main goal was to help them get their somatic cell count (SCC) lower and keep it there. Now my role on a dairy has changed more to parlor throughput, getting SCC to lower levels (<150,000) for more profit, helping reduce clinical cases from environmentals, monitoring equipment function, and training employees. The best part of these issues is there is a never-ending job for any veterinarian interested in mastitis control. It seems like less time is spent with the cows and more time with the people, but that is fine. The new approach also gets me behind a computer more, which is not all that much fun.

Recently the European Union has forced the US to enforce the under-400,000-SCC rule on our dairies. Exports are a huge part of our dairies' economic health, and are helping the industry maintain a higher milk price. Losing export business would cause serious reductions in milk prices. For the first time ever at the NCIMS conference, the motion to have the US lower their standards from 750,000 to 400,000 made it to the floor for discussion. Even though the motion did not pass, it sent a clear message to the industry that this lower SCC standard will indeed become law in the near future. If our dairies are going to survive and maximize profitability, they really need to produce milk with SCC under 200,000. In the US, some milk plants are already setting standards at 350,000 SCC or less. Whether it becomes a law or not, there are clear facts that dairies with lower SCC have higher profitability because of higher milk prices, less clinical mastitis, and more market choices.

The Mastitis Triangle for Quality Milk

Most dairies are trying to find ways to milk more cows with less labor faster than ever before. Dairies' profitability definitely improves if they can milk more cows in an 8- or 12-hour shift with less labor costs. In days past, it was acceptable to turn parlors 3 to 3.5 times per hour, but now many of my clients are getting the same parlors turned 4.5 to 5.0 times per hour with the

same or less help. I work with dairies to accomplish this by fine-tuning milking routine so cows have maximum milk flows, work with equipment and get the automatic take offs (ATOs) fine-tuned to come off sooner, fine-tune vacuum levels to minimize machine on-time, work with parlor loading by getting crowd gates designed to fill parlors rapidly with minimal people assistance, evaluate the records, and look at the culture data.

Many parlors now have meters communicating to computers, so flow data and parlor efficiency is easily evaluated. Items such as cows per hour, milk per stall per hour, milk in first 2 minutes, milking duration, peak flow, and average flow can be monitored to see if cows are being prepped properly and milk is being harvested properly. I have found that the most important number that really tells you what is going on during the entire milking process is average pounds of milk per hour. Even if they do not have meters, you can use a calculator and determine this number fairly easily. My goal is to have dairies average over 7 lb (3.2 kg) per minute. I have some dairies approaching 9 lb (4 kg) per minute, so you know the 7 lb per minute number is a fairly easy goal.

If a dairy has the right type of meters, changes can be monitored to see if the net effect is positive or negative. I feel a huge problem with most mastitis control programs is change is made, but no one determines whether the change was good or bad. Everyone just assumes things will improve, but you quickly learn that farms are not created equal. Without monitoring data after changes or having a follow up visit, I think the risk is too great for the veterinarian to fail.

Milking routines can still be monitored via observation and a stop watch. Tools such as the Lactocorder or Flow Scan Analyst can be used to help you determine flow patterns in cows. Both of these tools give you data that farmers can quickly relate to, and hopefully understand the need for change.

The biggest change in milking routine is increasing the lag time (time from stripping to unit attachment) from 60 seconds to 90 seconds or more. I try to get lag times in the 90 to 200 second range before I get concerned or make any changes. By increasing the lag time, there are fewer cows over-milked at the beginning of milking. This decreases machine on-time and helps keep teat ends healthy. It is still important to work on a consistent milking routine and timing. Cows are creatures of habit, and still respond best to consistency. Many dairies have lost the necessary time for physical contact to the teats because they are in such a hurry. If properly trained, you can get milkers to spend more physical time on drying the teat and end up with a cleaner teat and better stimulation.

A new change that has been very good for larger dairies is the Power Teat Scrubbers. If used properly, these scrubbers can bring great stimulation to the teats,

get the teats and teat ends very clean, reduce labor needs, and bring the most consistency to udder prep the dairy has ever experienced. The key is these machines are tools, and to get the best results, stripping milk prior to milking is still a MUST!

Most ATO systems have two adjustable settings. You can adjust the end of milk flow rate and the delay time after the cow reaches the low-flow-rate setting. For most herds with good production, the end-of-milk-flow setting should be between 1.5 and 2.2 lb. The delay time should be set somewhere between 1 and 3 seconds. The key point is not to make the changes too rapidly, but to take baby steps and move the settings in small increments every 7 to 10 days until you reach your goal. It is important that the cows are monitored after each change, so you don't make a problem rather than fix a problem.

The only vacuum level that really matters on any dairy farm is the vacuum in the claw during peak milk flow. Unfortunately, only a few dairies actually have their milking systems tested during milking. What a great opportunity for veterinarians! In order to minimize machine on-time, the ideal claw vacuum during peak milk flow should fall within the range of 11.5 to 12.5 inches (38-41.5 kPa). On many farms, the response is even better when the vacuum ranges from 12 to 12.5 inches at peak flow (40-41.5 kPa). There is no way to determine what the claw vacuum is, other than being there during milking and measuring it. If the milking system has not been tested during milking, it has not been properly tested. More and more data is stressing the importance of having the right claw vacuum during peak milk flow along with the right pulsation settings, to assure the best milking performance and minimal teat-end health risk. Matching the right liner to the right settings can dramatically influence milking performance.

A major problem on many dairies is poor cow loading. On many farms the cows are chased into the parlor rather than loading on their own. Cows are easily confused, and if they are chased into the parlor they will wait in the holding area until someone comes out and chases them in. Poor parlor loading can decrease parlor efficiency by 10 to 20% and waste labor usage. If a crowd gate is designed so it can be operated anywhere in the parlor by the milkers so they do not have to leave their routine, the loading will improve. All crowd gates need a loud bell/buzzer that operates independently of the gate moving.

The bell/buzzer signals to the cows that it is time to go into the parlor. If the cows do not respond to the bell/buzzer, the gate electrifies when it moves so cows are gently shocked as the gate moves forward. The key to making this system work is to make sure the only time the gate is electrified is when the gate moves. Whenever the gate is not moving, the electricity should be off. The

response by dairies that have made this change in crowd gate operation has been very rewarding.

Records

Records hold many milk quality data points, but few people look beyond milk production, butterfat, protein, and SCC. It is the easiest to gather this data when a farm has their Dairy Herd Improvement Association (DHIA) data on a computer and uses Dairy Comp 305. You can evaluate the current status of the cows, the new infection rate, cow contribution to the bulk tank, and fresh-cow issues. It is impossible to lower a bulk-tank SCC when a herd has a new infection rate greater than 7%. I have found most dairies really don't have a clue as to where their real milk quality issues are coming from, and the dairies with individual SCC data can find the issues and solutions faster than the herds that don't have the data. It is hard to control a SCC by selling chronic high-SCC cows when a high percentage of heifers and cows calve with a high SCC. My experiences, especially on low-SCC herds, show that their number one issue is animals having a high SCC on their first test. By knowing where the problems are, you have a much better chance of making a positive impact on the dairy.

By knowing the bacteria on a dairy, you can fine-tune your mastitis control recommendations to deal specifically with these bacteria. I like multiple-day commingled bulk-tank cultures, fresh cow cultures,

and clinical cultures to get a better idea where the herd problem is coming from. Many dairies are now interested in "on farm" culturing programs so they can use the right treatment for the right bacteria. Veterinarians can work closely with dairy farmers assisting them set up good on-farm culturing programs, and then provide the training and monitoring that is necessary.

Conclusions

Mastitis, a great disease or what? Dairy veterinarians have a huge opportunity in the field of mastitis control. The veterinarians doing milk quality work besides regular herd health work are considered more valuable team members for most dairies. Based on many surveys of dairy farmers, 1 of their top 3 requests is more mastitis control services by their veterinarians. They are not just interested in their veterinarian treating clinical cases, but instead want their veterinarians help in preventing mastitis, keeping the herd SCC low and the herd healthy, and training the ever-changing population of employees. Even though there have not been great new ideas in mastitis control, the basics still exist and provide a huge opportunity for all veterinarians if they choose to do it. After 35 years of doing primarily milk quality consultation, I still enjoy going to work each day. As far as I can tell, the job in milk quality work is safe for many years to come.