

IMPROVING PROFITS THROUGH MILK QUALITY AT LITTLE OR NO ADDITIONAL COST

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Milk quality is a world wide issue. The consumer has demanded a better quality product so it is the dairy producers and dairy industry's obligation to meet that request. All consumers have choices and if the dairy industry does not meet their needs, they will buy other products.

Milk quality is dependent on three key areas. These areas are the milking routine, the cows and their environment, and the milking equipment. I refer to the interaction of these three areas as the "Mastitis Triangle." A common reason why many milk quality programs fail is people fail to look at all three areas together and all causes of the problems are not identified.

Milk quality is really a numbers game. The less bacteria on the cow's teat at milking time means the less risk to new infections. The number game fits the entire dairy operation. Cleaner cows have less bacteria. Cleaner milking equipment has less bacteria. A good milking routine has less bacteria. The bottom line is clear. The less bacteria, the less risk to mastitis.

The milking routine is critical to the production of quality milk. People need to clearly understand there is huge economic differences between different regions of the USA so the significance of a quality milk can be different in all these areas. In my opinion, extra money in quality premiums should not be the driving force to producing quality milk because research has clearly shown herds with lower SCC do make more profit by the production of more milk. Under most circumstances, the milking routine can be the key reason for the production of quality milk. The secret is to make sure every one on the dairy farm clearly understands the importance of a consistent milking routine and implements this routine at every milking. On the vast majority of the dairy farms that I consult with, fine tuning the milking routine is necessary to get to the new level of milk quality every one wants. To have success in changing a milking routine, you have to implement procedures that clearly demonstrate the need for change. When the milkers can clearly understand the need for change, you are much more likely to succeed in the implementation of any change.

One of the biggest misconceptions of most dairies is they do not have the time to do all the necessary steps of a milking routine. Many dairies are so driven by efficiency, they lose focus on quality milk. Based on dairies ranging from 100 to over 10,000 cows, a dairy can use a full milking routine and get the desired efficiency AND produce higher quality milk. Cutting corners in the milk routine usually increases milking time, not shortening it.

When evaluating a dairy during milking, the most important factor that I look for is consistency of the milking routine. Having a milking routine that every one can follow at every milking is very important. Once you have evaluated milking practices long enough to understand their normal routine, the next thing to look for is timing.

Recent studies have clearly demonstrated that regardless of which region of the country a dairy farm operates, there are definite economic benefits to having a good milking routine with the right timing. Their studies showed the ideal lag time from the start of the milking routine to unit attachment was 60 seconds. (See table 1)

TABLE 1: BENEFITS OF PROPER LAG TIME

-No Additional Income From Lower SCC	-10 cents/cwt Income from 100,000 SCC Decrease
-400 cows milked in double 8 parlor -Price of milk: \$12.20 per cwt -Compare 30 second lag time to 60 seconds	-400 cows milked in double 8 parlor -Price of milk: \$12.20 per cwt -Compare 30 second lag time to 60 seconds
-\$35,136 additional income with 60 second lag time used	-\$59,472 additional income when 60 second lag time used

On many of the dairies I consult at, there is a wide variation in lag time depending on who is doing the milking. On the dairies with inconsistent timing, many of the cows do not have adequate let down prior to unit attachment. I call this “over milking” at the start of milking. Over milking is simply the time the cow’s teat is exposed to high vacuum during low flow of milk. A quick and easy way to determine if the proper lag time has existed is to examine the teats prior to unit attachment. If the teats are swollen with milk, you know the stimulation and lag time is good. When the teats are empty, you know the units are being applied too soon and there is a greater chance of udder health problems and longer milking times. “Over milking” is much more common at the beginning of milk in larger dairies, NOT at the end of milking.

In dairies, there are basically two ways to implement a milking routine. They are territorial and sequential milking routines. Territorial is where one milker works in a group of cows and does the entire milking routine to that group. Sequential is when multiple milkers do single tasks throughout the whole parlor. Without a doubt, a territorial milking routine will give you the most consistent milking performance and fastest milking.

One of the hardest things to accomplish on a dairy is to develop a milking routine that every one understands and can easily follow. Many of the milkers have milked at various other farms and tend to utilize the skills they had acquired from those farms. It is not uncommon to see three or four different routines on each farm. I try to look at the advantages of each routine and then develop a routine that gives the dairy the best of what is already being done and will lead to better milking performance and milk quality.

Every milking routine should start by having the milkers wear milking gloves. In my experience, hands are a common source of bacteria to the cow’s udder. Hands are a common source of Staph Aureus which is a common contagious bacteria affecting most farms. Wearing gloves is important, however, keeping the gloves clean is equally important. Gloves can be cleaned periodically by sticking them in a bucket of warm water and sanitizer or by using automatic faucets to clean them in a parlor. Milking with clean gloves is an important way to reduce the level of mastitis on any dairy operation. If milkers are not using gloves, I feel it is enough of a reason to terminate them from employment.

Every milking routine must properly sanitize the teat skin and teat end. The real secret to producing quality milk and reducing the level of clinical mastitis on any dairy is to reduce the bacteria numbers as much as possible on the teat skin prior to unit attachment. There are many different ways to accomplish this, however, most dairies are now using predip to sanitize the teats. Predipping is an excellent way to control environmental bacteria as well as Staph Aureus, which tends to colonize on the teat skin.

What people fail to understand, the best milking routine possible will only reduce bacteria numbers by 85%. Unfortunately, I see few perfect milking routines used. What is important to understand is if the cows enter the parlor cleaner, there will be less bacteria to remove from the teats. Reducing bacteria numbers is important throughout the whole 24 hour period.

In order to make predipping more successful, two things must happen. The predip must cover the entire surface of the teat that will be inside the teat cup during milking and be on the teat long enough to kill the bacteria. My goal is to have 75-90% of the teat surface covered with predip and have it on the teat for a minimum of 20-30 seconds.

An easy tool to use to see if teats are getting proper coverage is to use a white paper towel and wrap it around the teat and see how much of the teat has been covered with dip. DO NOT assume the teat has been properly sanitized just because a teat dipper is being used.

There are several new tools to help clean teats such as teat foamers and teat brushes. Both make foam that covers the teats completely. Both systems are working very well in most dairies.

In my consultation practice, fore-stripping is a critical step in the production of quality milk. In a recent study done by a national milking machine manufacturer, it was clearly shown that cows that are fore-stripped will have higher flow rates and milk close to one minute faster. In other words, you can spend a few more seconds prepping a cow because the shorter milking time will make up more than that difference. My experiences have shown that herds that fore-strip will have faster milking, lower SCC, and actually get more milk production. Evaluating data on one Dairy Comp herd showed that fore-stripped cows had 3-9 pounds more milk than cows not fore-strip. Fore-stripping should be done either as the first step prior to predipping or immediately after predipping. The argument for fore-stripping after predipping is the milkers find it easier to strip a wet teat and they will work the predip into the teat skin and do a better job of cleaning the teats. The only thing that matters to me is to make sure the teats are never fore-stripped after drying because the teats are then re-contaminated with bacteria and the lag time will be too short.

The most important step in both the cleaning and stimulation of the teat is drying. The drying towel removes the most bacteria from the teat and provides extra stimulation to the teats. I find it difficult to understand how many dairy farmers try to dry teats with wet towels. It doesn't make sense. The secret to successful drying is to make sure the teat end is wiped dry. If the teat end is not properly cleaned, the dairy will have more problems with environmental mastitis.

When wiping the teats dry, the milkers must make an actual pass across the teat end. I recommend wiping the four teats with one side of the towel, then flip the towel and clean the teat ends. If the milkers

wipe the teats dry in a circular motion, it is very easy to wipe the teat ends dry without spending any additional time. Getting the teat ends clean will increase stimulation to the cow, will decrease environmental mastitis and reduce the level of hyperkeratosis on the teat end. The teat end is the most important part of the teat to clean.

The best way to monitor how good of a job the milkers are doing cleaning the teat ends is to wipe the teat ends with an alcohol pad prior to unit attachment. Often times, the teat walls are very clean, however, the teat end is still covered with manure. The teat end is the most important piece of real estate on any dairy operation.

Once the teats have been properly cleaned, the units need to be put on the teats with as little air admission as possible. The more air that is leaked in during attachment, the more irritation there is to the udder and milk quality can suffer. If properly trained, 95 out of 100 teat should have the teat cups put on without any audible air leaks. I understand this is being picky, however, it does make a difference in the total milk quality program.

After proper unit attachment, every milker needs to take a few seconds and properly align the unit on the udder. The key is to make sure the unit hangs squarely on the udder so liner slip is minimized. Poor unit attachment is a common cause of poor milk outs and liner slip. It doesn't matter if you have a parlor or stanchion barn, unit alignment must be done.

All units need to come off when the cow is done milking. Many dairies are now using automatic take offs (ATO) which have been very beneficial. ATO's bring consistency to milking regardless of who does the milking. The key is to make sure the ATO's are properly set so they come off when the cow is done milking and do not over milk the cows. New studies that are currently being done clearly show the benefits of not over milking cows.

Once the units are removed from the cow, I would like to see the teats dipped with an effective teat dip. My idea of proper teat dipping is a teat that has 75-90% coverage on the entire teat. Since the milking machine is one of the best washing machines ever built, the teats are bathed with milk during the milking process. In my mind, the key reason to teat dip is to remove the milk film left on the teat after the machine comes off. If milk film is left on the teat, the film will provide food for bacteria to grow especially in facilities with organic bedding. Convincing milkers to slow down and get good coverage is one of the biggest challenges I face. Many people feel that since they are dipping, they must be doing a good job. The secret is not to splash the dip on but to squeeze the dip on getting excellent coverage. The dipper should be pushed all the way to the floor of the cow's udder and then give it a squeeze. Keeping teat dip in the barrel does little to improve udder health. Using the white paper towel to check teat coverage is a great tool to show teat coverage with the post dip.

An excellent way to monitor a good milking routine on a dairy is to look at the milk filters after milking. If the filters are dirty, it is clear that teats are not being properly cleaned. If the filters are full of garget, it is clear clinical milk is being missed. If there is lots of bedding on the filter, there may be too many fall offs or teats are not being properly cleaned.

Once the milking routine has been properly evaluated and a new routine has been developed, the new routine should be typed up and a copy given to every employee. Another great practice is to post the milking routine in the parlor or milk house so people are reminded of what is expected from them. I have found the most success in implementing a new milking routine when everyone who milks cows is given a chance to discuss the changes and give their input. Keeping everyone involved is the secret to milk quality success.

A common mistake made on many of the large dairies is not properly training their new employees. Many times, they are shown where the parlor is and told to go milk the cows. Since milking cows is one of the most important operations on the dairy, it is critical to do it right. Every new milker should be trained for two to three days before they are allowed to milk alone.

Proper training of new employees can make a huge difference on both milking performance and milk quality. One employee doing things differently can defeat the work of all the other milkers. Remember, cows are creatures of habit and want to be treated as consistently as possible. Milker schools are something veterinarians and other milk quality specialists can become involved in which generates dollars and very positive results on dairies. All dairies regardless of size need milker schools. Consistency is the key to the dairy's success.

Cows that enter the parlor clean will yield better milk quality and make milking routines easier to follow. Keeping the stall beds clean and dry is the place to start. Making sure cows do not have to walk through manure piles to and from the parlor are critical to udder health. Keeping the hair off the udders of animals either by clipping or flaming makes a major difference. I like to see all animals udder's flamed before calving and then quarterly while in the milking herd. Tail docking also benefits cow cleanliness especially in free stall barns. I would like to see all animals freshen without a tail. When heifers calve with a tail, they are always dirtier than we would like to see. A great management tool is to dock the tails on heifers when diagnosed pregnant. This way, the farmer can quickly tell who is and who is not pregnant in the heifer group and the heifers calve cleaner.

A good milking routine is the key factor in the production of quality milk. If the right routine is implemented on any dairy operation, the farm should milk cows faster, get more milk, have better milk quality, and be more profitable.