

Are You Overmilking?

Implications for both manual and automatic take offs

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Many equipment manufacturers, researchers and dairy producers are utilizing shorter unit on-times and wetter take-off settings to improve teat end condition and lower somatic cell counts.

In fact, wetter take-off settings has been the topic for more dairy magazine articles and conference presentations than any other single milking practice in the past five years. For this article, the terms “wetter” and “drier” take-off settings are used generically to include the timing of manual unit removal.

Many dairymen also cling to the concept of complete milkout (usually resulting in longer unit on-times) as mandatory to maintaining good mammary health and lower somatic cell counts. Logic would suggest that these two conflicting philosophies cannot achieve the same goal of lower somatic cell counts. How should dairymen decide which of these two approaches to incorporate into their milking routine?

The difference of opinion surrounding wetter versus drier take-off settings seems to focus into three areas of concern: 1) overmilking, 2) rough teat ends and 3) residual milk. These factors seem to be the most important considerations in deciding when the milking unit should be removed.

While most dairy producers know overmilking should be avoided, wetter take off settings is challenged by the concept of complete milkout and the difficulty to identify when overmilking begins.

Overmilking and Mastitis

Overmilking starts when milk flow stops. If a cow's milk flow stops in all four quarters at the same time, the start of overmilking is easy to identify. However, the milk flow often stops at different times for each quarter (up to 1 to 2 minutes difference).

Quarters milking out at different rates make it difficult to identify when overmilking starts. When milk flow ends in one quarter, overmilking starts for that quarter while the other quarters exhibit milk flow. Understanding when overmilking starts is important because when there is no milk flow from a quarter and the milker is still attached, that quarter is at the greatest risk of having a mastitis pathogen enter the gland.

If milk flow has stopped in all four quarters and the milking unit stays on the cow, she then has four quarters at risk of a pathogen entering one or more quarters. The longer the unit stays on the cow after milk flow stops the greater the risk of infection. If the unit is removed just before milk flow stops the risk of infection is greatly reduced.

Reducing the number of quarters and the length of time those quarters are at risk is one of the major benefits of shorter unit on-times or wetter take-off settings for both manual and automatic take-offs. Because manual removal of units is at the discretion of the person milking, that person must understand that overmilking greatly increases the risk of new mastitis infections.



Systems equipped with automatic take-offs remove units at a preset flow rate. Different manufacturers utilize a number of different methods to measure the flow rate. Some automatic take-offs have no adjustment while others have a wide range of flow rates and delay times from which to select.

The traditional factory setting of 1/2 pound/minute for many take-offs being used today is considered to be a dry setting by today's standards. Dairy producers are implementing wetter take-off settings, ranging from 3/4 pound/minute to over 2 pounds/minute in an effort to reduce the length of unit on-time and reduce the amount of time and the number of quarters being overmilked.

Rough Teat Ends

Rough teat ends (hyperkeratosis) have shown a strong positive correlation to new mastitis infections. This correlation is easily understood when we consider that rough teat ends provide more surface area for bacteria to populate. Since it also is more difficult to remove bacteria from rough teat ends, the chance that a cow with rough teat ends will become infected with a mastitis pathogen significantly increases.

Rough teat ends are a result of many different influences. Total unit on-time, teat shape, weather,

vacuum levels, and pulsation, are some of the most frequently mentioned factors. While the combined effect of all these factors is significant, the one factor that seems to have the greatest single impact is the total unit on-time.

High Production; Total Unit On-Time

Total unit on-time is especially important considering that it takes longer to remove the milk from high-producing cows, and these cows are often being milked three or four times a day. This combination means that the highest producing cows are at the greatest risk for teat end damage because they are exposed to the most total minutes of unit on-time in a day. Close attention to the end of significant milk flow for those farms using manual removal and wetter take-off settings for those farms using automatic take-offs deserve special consideration when taking into the account the impact that unit on-time has on teat end condition.

Shorter Unit On-Times

Unit on-times of 4 to 6 minutes for 2X milking and 3 to 5 minutes for 3X milking are attainable for the majority of cows in most high-producing herds. The shortest unit on-times, which help reduce the number of rough teat ends, are only possible through a combination of excellent udder prep procedures and a willingness to adopt wetter take-off settings.

Residual Milk

The combination of excellent udder prep procedure and wetter take off settings not only reduces unit on-times but will encourage cleaner milkout resulting in little residual milk. The desire for complete milkout often leads to machine stripping or maintaining drier settings for automatic take-offs in an effort to harvest every drop of milk. This effort to get the

last drop almost always increases unit on-time which can cause rough teat ends and can cause the cow to be at greater risk of mastitis infection. Because some milk left in the mammary gland does not cause mastitis and small amounts of residual milk will still be there at the next milking, there is no proven reason to be concerned about small amounts of milk left in the udder, especially when 1 to 2 minutes less milking time may be realized.

The one benefit to complete milkout might be for the quarter already infected with mastitis. Complete milkout of this quarter may help reduce the number of bacteria left in the gland, but overmilking that quarter produces no additional therapeutic effect.

Anyone who wishes to implement wetter take-off settings or earlier unit removal can check the amount of residual milk by hand stripping all four quarters immediately after the unit is removed. One cup (1/2 pound) to two cups (1 pound) of residual milk is totally acceptable. A word of caution to anyone who implements wetter take-off settings: you must utilize excellent udder prep procedures and make the changes to take-off settings in small increments.

Overlooking the importance of proper stimulation and timing of attachment to properly utilize oxytocin or making the setting changes too fast could create problems in the areas of incomplete milkout and premature unit removal.

The issues surrounding overmilking and teat end condition are numerous. However, one factor is common to the milking performance on all dairy farms: the quality of the udder prep procedure. The perfect execution of all the tasks involved in udder prep and the precise timing with which all those tasks are carried

out, sets the stage for the milking equipment to perform at its best. Without excellent udder prep procedures, the goals of the fastest, gentlest milk out possible cannot be achieved.

Training – A must!

Because excellent udder prep procedures do not automatically evolve on every dairy farm, MMPA began offering milker training schools eight years ago. The purpose of the schools is to help producers establish procedures, routines, and practices that help them get the best performance possible from their employees and their equipment.

Milker training schools will be offered in February and March 2004. Watch the January *Messenger* for the dates and locations of the 2004 MMPA Milker Training Schools.

Quality Watch

Continued from page 7

Selection and Odor Control (Siting GAAMPS) process and be approved by MDA. If you are thinking about building or expanding, please contact your membership representative or MDA Environmental Steward division. One of MMPA's four MAEAP trained member representatives will review the Siting GAAMPS process with you. If you need assistance or further information, please call your MMPA member representative.

As we close out another year, MMPA's Member Services Staff wish all of our members a Merry Christmas and a prosperous New Year.

