

# Does Milking Equipment or Milking Personnel Contribute more to Parlor Throughput?

By MMPA Mastitis Management Team members, Dean Letter and Tom Herremans

On the surface, this is not an easy question to answer. With the technology available to most producers today, milking cannot be accomplished without both proper equipment and personnel. As long as your milking equipment is functioning properly, well-trained milking personnel have a greater impact on milking speed than milking equipment.

Milking equipment can only perform at the rates and settings the producer or equipment manufacturer has selected. Vacuum level, pulsation rates and ratios, and takeoff settings are very important to milking performance. However, milking personnel have more influence on the physiological response of the cow (the pattern of the milk let-down flow curve) than the milking equipment settings. Making good use of this pattern of milk letdown contributes greatly to milking speed. The best equipment marketed today will not compensate for poor operator performance.

Most milking personnel try to do a good job. They understand the importance of clean and dry teats and teat ends prior to attaching the milking unit. Clean and dry teats and teat ends are critical to milk quality and reducing new mastitis infections.

The most important factor in establishing a milk letdown flow curve that can result in faster milk out is something no one can see. Oxytocin produced by the cow's own pituitary gland is by far the biggest influence in establishing optimum milk let-down. Cows milk out faster, takeoff sensors and meters perform better and cows are more comfortable when the person milking performs the procedure and routine in a way that causes maximum oxytocin

production by the cow and then takes advantage of ALL the oxytocin produced by the cow.

Research has taught us several facts about oxytocin that show how important oxytocin is to milk let down and fast milk out:

- Oxytocin is produced in response to physical stimulation of the teats and teat ends.
- Maximum oxytocin production requires 10 to 20 seconds of stimulation depending on stage of lactation.
- Oxytocin is released from the pituitary gland and arrives at the mammary gland via the blood stream about one minute after the cow is stimulated.
- Oxytocin has a short life and dissipates from the blood stream quickly. The greatest benefit from oxytocin is realized in the first minute it is present in the mammary gland. (Remember that it takes one minute after stimulation to travel to the mammary gland.)
- Oxytocin actually causes the milk to be squeezed out of the alveoli (where milk is produced) and into the connecting ducts of the mammary gland, creating pressure in the gland and teat cisterns.
- As soon as oxytocin starts to dissipate (almost immediately), the mammary gland pressure reduces and the best opportunity for fastest and most complete milk out is lost.



The best news about oxytocin is that it is free and most cows have an ample supply on hand. A skillful operator can utilize a procedure that generates maximum oxytocin production by the cow and then attaches the unit at the right time to take advantage of all the oxytocin produced.

There is not much margin of error that should be tolerated in a milking routine. Personal adjustments to the procedure should be discouraged if they negatively impact the quality of the tasks being performed or the timing between tasks. Every cow should expect the same tasks to be performed with the same degree of effort and the same timing elapsing between tasks. A commitment to providing training to every milker and to do follow up evaluations of every milker's performance is an investment that will pay dividends in milking performance.

MMPA's 11th season of Milker Training Schools will be offered during February and March of 2007. The sessions teach techniques and procedures that allow for optimum performance from milking equipment. The classes offer the same value to both small and large farms and "hands on" training to practice the techniques and timing discussed. If you are interested in an investing in your milking performance, fill out the Milker Training School sign up form in the January *Messenger*.