

Proper Milking Procedures¹

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Proper milking procedures are important for the prevention of mastitis and for insuring complete milk removal from the udder.

Mastitis can decrease total milk production by 15 to 20%. To minimize loss and achieve maximum milk yield, a practical milking management scheme should be followed.

The term "milking management" includes care for the environment in which cows are housed or pastured. The dairy cow should have a clean, dry environment. This helps reduce the potential for mastitis and increases milking efficiency by reducing time and labor to clean udders before the milking process.

MOVING COWS

Movement of cows should be in a quiet, gentle manner. If cows are frightened or hurried, the milk letdown process may be disturbed. Therefore, rough handling of dairy cattle should be avoided.

MASTITIS DETECTION

Milking may begin with a check of all quarters for mastitis. It is acceptable to strip milk onto the

floor in a milking parlor or flat barn. Any cows that show clinical mastitis should be examined and appropriate action taken. If fore milking is not done, visual checking for inflamed quarters is done by milkers and herd health people.

UDDER PREPARATION

The object of udder preparation is to ensure that clean, dry udders and teats are being milked. The federal government's pasteurized milk ordinance (PMO) states that a sanitizer must be applied before milking. This task may be accomplished by using an approved sanitizer injected in the floor-mounted cow washers or by using a hose and water with a sanitizer on the parlor. Single-service paper towels or washed and dried cloth towels may be used.

Predipping

Predipping with teat dip has become popular. The advantage may just be getting the water out of the milking barn so wet udders are not being milked.

The procedure for predipping involves washing of teats with water and a sanitizer. The teats are then dried with an individual paper towel and dipped or sprayed with the sanitizer. A 30-second contact with

1. This document is DS9, one of a series of the Animal Science Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Reviewed June 2003. Visit the EDIS Web Site at <http://edis.ifas.ufl.edu>.

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sanitizer is needed to kill organisms. Then the sanitizer is wiped off of the teat with a paper towel. The cows are milked and teats are dipped again with the same type of sanitizer to prevent chemical reactions that could cause irritation to teats.

Predipping may be beneficial in reducing mastitis, but the actual dipping, dip contact time, and wiping with a towel increase the total milking time. If the dip is not wiped off, excessive chemical residues in milk may occur. If contact time is not sufficient, then it's a very expensive premilking regime.

ATTACHMENT AND DETACHMENT OF THE MILKING UNIT

To attach the milking unit to the teats, apply the cluster allowing a minimum of air admission and adjust to prevent liner slip. Air entering the unit may cause the propulsion of mastitis organisms from one infected teat into a noninfected teat. This also may happen when one teat cup is removed before the others.

Machine stripping usually is not needed on dairy cows. Machine stripping should not take more than one minute and no air should be allowed to enter the teat cups while this is being done. A downward force applied to the cluster while massaging the udder with the other hand is all that is needed.

Following milk-out, the machine should be removed only after the vacuum to the teat is shut off. This is accomplished most commonly by use of a vacuum shut off valve or milk hose clamp which prevents the backjetting of bacteria from one teat to another.

BACKFLUSHING

Backflushers have been developed to sanitize the liners and claws between milkings. Most units on the market have four or five cycles. The first cycle is a water rinse, followed by an iodine or similar sanitizer rinse, a clear water rinse, and positive air dry cycle.

Research has demonstrated that backflushers do reduce the number of bacteria on the liners between cows, but do not reduce the number of bacteria on teats. Backflushers also may stop the spread of

contagious organisms, but this can also be accomplished at a much lower cost by teat dipping. There is no effect on environmental pathogens that are encountered between milkings.

Backflushers may be effective in stopping the spread of contagious mastitis; however, there is limited research to support this view. Because of the high initial cost, the need for daily maintenance, and limited efficacy, backflushers are not routinely recommended.

POST-MILKING TEAT DIPPING

There is only one way to effectively stop the spread of mastitis in the dairy herd, and that is by applying teat dip to every quarter of every cow after every milking. Teat dips are used to remove milk residue left on the teat and kill organisms on the teat at the time of dipping. They also leave a residual film of sanitizer between milkings.

Are teat dips effective against all mastitis organisms? Yes, teat dips have been shown to effectively reduce mastitis caused by *S. aureus* and *S. agalactia*, the most common types of mastitis found in Florida.

Post-milking teat dipping is effective in eliminating environmental organisms *E. coli* and *Strep. uberis* on the teats after milking. These pathogens are found in the cow's surroundings; if there is udder-deep mud, the teat dip will be removed and a new infection may occur.

Types of teat dips

There are many effective teat dips, including iodine at 0.1%, 0.5%, and 1.0%. Also, although it is not labeled for teat dipping, hypochlorite at 4.0% with a sodium hydroxide content less than 0.05% was effective in field trials. There are many more teat dips on the market that are effective in preventing new infections. Effective coverage of the teats is more important than the type of dip being used.

Dip or spray

If contagious bacteria is present in your herd (*Strep. ag.*, *Strep. dysgalactiae*, *Staph. aureus*, or *mycoplasma*), you must dip the whole teat to the base

of the udder to stop the spread. Wand sprayers are acceptable for herds that have environmental mastitis, since teat colonization is not a factor. Hand-held spray bottles are almost worthless in getting proper coverage of dip on the cow's teats, so they should not be used.