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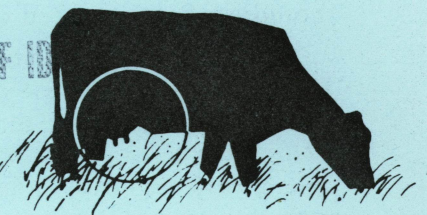
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# Milking Procedures To Maximize Production



*Edward A. Fiez and Dean E. Falk, Extension Dairy Specialists*

The goal of dairying is to make a profit. The combination of adequate milking equipment and a good operator is important in reaching this objective. Proper milking requires a mechanically correct milking system and an operator who understands and follows the fundamentals of good milking.

## Preparing the Cow

The operator should establish and follow a good milking routine. The first step is to stimulate the cow properly (priming) before the milking machine is attached. Adequate and complete "letdown" has a positive influence on milk production and shortens the time required to milk a cow out.

To properly stimulate a cow, wash and massage the udder for 20 to 30 seconds with warm water. The massage stimulates the nerves in the teat, sending a message to the pituitary gland at the base of the brain. This gland releases a hormone (oxytocin) into the bloodstream. When this hormone reaches the udder, the muscles surrounding the milk storage cells (alveoli) contract. This squeezes the milk into the lower udder ducts.

Your cows are well primed if they leak milk after stimulation. The normal letdown process is about one minute. Attach the teat cups about one minute after stimulation. Proper priming of cows before milking is the key to rapid, complete milk removal.

In milking parlors, washing can be done very efficiently, usually with a spray nozzle at or near each parlor stall. Wash and massage for 20 to 30 seconds. Then dry the udder, using a paper towel for each cow. This drying further stimulates letdown and removes excess water. Milking units also stay on better with no air leaks or vacuum "squawks."

The operators should remove 3 to 4 streams of milk from each teat by hand stripping. This "presquirting" starts the flow of milk and removes milk that is high in bacteria. This milk should also be checked for abnormalities.

## Milking the Cow

The objective in milking is to remove all the milk reasonably obtainable after normal milk letdown. The effects of oxytocin and the following letdown are short-lived. Place the milking machine on the cow within one-half to one minute after letdown, or as soon as the teats are full of milk. Delayed machine attachment can be costly in terms of length of milking and completeness of milk removal.

Cows respond to any constant, reoccurring, pleasant stimulus to produce letdown. This stimulus, in addition to udder washing and massage, could be grain feeding, teat cup applications or any other pleasant stimulus. Simply entering the parlor may result in milk letdown.

In modern milking parlors, the time necessary to wash and dry teats plus presquirting all provide stimuli for milk letdown. In many parlors, milking units are attached past the optimum time to receive full benefit of milk letdown. Again, it is important to attach the teat cups about one minute after stimulation on a regular routine to gain the full benefit of letdown.

Milking should be done as quickly as possible. Properly primed cows milk out in about 4 minutes. The teat cups should be attached low on the teat and adjusted as necessary during milking to ensure complete quarter milkout.

## End of Milking

Air and milk movement through the short milk tubes in the milking unit should not be obstructed. Checking for milk flow by squeezing the tube between thumb and finger can cause teat end flooding and mastitis.

Many cows are machine stripped to remove the last milk. Machine stripping is applying downward pressure on the clawpiece with one hand and simultaneously massaging individual quarters with the other hand to force milk into the teat cistern for removal by the milking unit. Machine stripping should only be practiced on problem cows.

Machine stripping has been overemphasized. This is probably because most operators start machine stripping before milk flow has stopped. It seems obvious that, under these conditions, stripping always results in an increased yield. However, experiments have shown that milk yield from unstripped cows compared to machine stripped cows is no different.

The two most critical times for udder damage to occur during milking are at the beginning, because of poor stimulation and poor timing in applying the unit, and at the end, because of overmilking, excessive stripping and improper removal of the unit. As soon as the milk flow stops, the milking unit should be removed.

The teat cups should be removed gently after the vacuum supply has been shut off. Automatic detachers will shut off the vacuum level before milking unit removal and prevent overmilking. Individual teat cups should not be dropped near the end of the milking. This practice can lead to infections.

## Teat Dipping

An important final step in the milking routine is to disinfect the teats with a recommended teat dip. This procedure eliminates the film of milk left on the teat end and leaves a chemical film that kills or prevents bacteria from growing. This step should not be eliminated from any milking routine.

Teat dipping is an effective way to reduce losses associated with mastitis and has been proven by many research and field trials. Many Idaho dairymen are dipping the teats of their cows after milking and finding it successful. If you plan to begin a teat-dipping program, follow these recommendations:

- If you use a commercial preparation, buy it from a reputable dealer or source. Make sure the solution is properly labeled.
- Do not transfer teat dip into unlabeled containers.

- Be consistent in teat dipping, following a routine in which every cow is dipped every day.
- Teat dipping preparations should be used while fresh and kept in a room where the temperature is constant.
- Do not add any compounds to prepared teat dips.

Teat dipping is most effective in mastitis prevention with young cows or heifers which enter your milking string. Teat dipping can also prevent healthy udders from being contaminated with mastitis organisms that otherwise might enter the teat canal between milkings.

## Completing the Routine

The cows should exit the milking parlor to feed rather than lying down immediately after milking. This will allow the teat end to close before exposure to harmful organisms from bedding or the barnyard.

The milking process should be regular by starting at the same time and in the same way every day. A milking routine should be followed consistently. A milker's barn routine should make every move count with little wasted effort.

All cows known to have mastitis or other sickness and all treated cows should be milked last. This will aid in eliminating the spread of disease from cow to cow. If this is not possible, carefully sanitize the milking unit after milking these cows. In larger operations, all treated or sick cows can be kept in a separate pen.

## Milking Machine Operators

Your herd production will depend on the machine operator and your milking machine. The operator is by far the more important. A good operator with a poorly functioning machine will do a much better total job of milking than a poor operator using a properly functioning milking machine.

You should secure the best machine operator available. Poor help costs money. An experienced milker who takes pride in his work is an asset. This operator will make you money every day the cows are milked. Unfortunately, the value of these operators is too often realized only after they have left and you try to replace them.

Inform your help of what you expect from them; outline all their duties and responsibilities to prevent misunderstandings. Periodically visit with your help during milking hours and observe their milking techniques. Don't force your help into poor milking habits by long hours and too many cows. Have them start milking young cows and late lactation cows that milk fast while they are fresh and rested. Save heavy milkers and slow milkers until last to slow the pace at the end of milking. Allow short break

periods during long milking shifts. These short breaks improve a milker's performance.

There is no set number of units per operator. Milk with the number of units that can be operated properly with time for priming and moving cows in and out of the barn. Speed of total milking means little if the cows are improperly milked. Stress quality milking, not just number of cows per hour.

## Summary

The role of milking procedures is often overlooked in total management. Milking is an everyday event, and operators can easily fall into bad habits. A sound program should prevent shortcuts in this important management area.

**A good milking routine will:**

- Increase milk production.

- Produce cleaner milk.
- Reduce the spread of mastitis.
- Increase the milking equipment's efficiency.
- Reduce milking time.
- Increase the net income from the dairy herd.

**Follow these practices in your milking routine:**

- Strip gently and check for abnormal milk.
- Massage udder and teats with warm water (105°F).
- Attach machine after letdown — 30 to 60 seconds after stimulation.
- Check for milkout. Do not overmilk or over-strip.
- Remove the milking unit gently with the vacuum turned off.
- Dip teats of cows after milking with a commercial teat dip solution.

This College of Agriculture publication is one in a series on dairy herd management to reduce mastitis incidence and improve milk quality. Other titles you will want to get are:

- CIS 621 Milking Equipment Design, Operation and Maintenance ..... 10 cents
- CIS 623 Milk Quality Reports ..... 10 cents
- CIS 624 Mastitis and Somatic Cells in Milk ..... 10 cents
- CIS 625 Cleaning and Sanitizing Milking Equipment ..... 5 cents
- CIS 626 Preventing Milk Adulteration and Contamination ..... 10 cents
- CIS 627 Heritability, Mastitis Incidence and Milk Production ..... 5 cents

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