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## Milking Machine Maintenance

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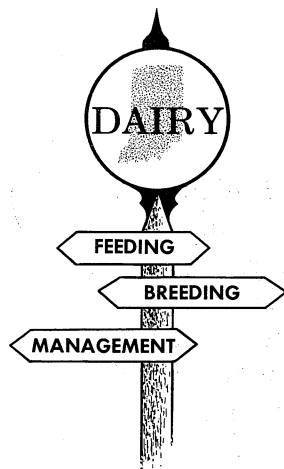
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## Milking Machine Maintenance

J. L. Albright, *Extension Dairyman*

Mastitis can result from irritation produced by physical injuries, such as abuses in mechanical milking. Any level of infection causes tissue damage, changes in milk composition and reduced milk yield. Research shows that many herds lose up to 20 percent of their potential production from mastitis.

A Western survey of 8,000 milk producers revealed that 52 percent of them blamed milking equipment for their mastitis problems, while only 13 percent charged the cause to the actual management of the machine. Neither percentage appears to be realistic. Based on current research and concepts it is difficult to derive a figure on the interaction of the machinery, cow or man on the incidence of mastitis.

Milking machine companies are aware of their responsibilities in this area and should be complimented for their recent adaptations and changes in milking machine design and vacuum stability. Even if a perfect milking machine installation existed, the dairyman must still supply the management. Dairymen should realize that a milking machine installation is not a permanent investment.

There has been a revolution in milking machine design. There has been renewed emphasis and change on the following items:

1. Vacuum pump capacity and vacuum reserve tank--rotary pumps that move more air are replacing piston types.
2. Vacuum supply lines--1 1/4 inch lines have about 2/3 more capacity than 3/4 inch pipe.

3. Pipelines--adequate slope and minimum height.

4. Pulsator action--milking vacuum--wider milk: shorter rest stroke.

5. Inflation--narrow bore vs moulded and natural vs synthetic rubber. One company has over a dozen different types of liners.

A dairyman should suspect that his milking system is overloaded or malfunctioning if any of the following symptoms occur:

1. Teat cups fall off.
2. Slow milking.
3. Drastic vacuum fluctuations.
4. Slow return to operating vacuum level after air enters the line.
5. Unsteady flow of milk from machine to pipeline.
6. Flooded milk line and excessive foaming.

Any of these symptoms should call for revamping the milking system. Unless the deficiencies are corrected, they can result in a consistently high level of mastitis or a sharp rise in the number of cases and/or alterations in milk composition and quality.

The operator of a milking machine should know:

1. How a milking machine works.
2. Testing equipment available and where to obtain it.
3. How to interpret test results.
4. Routine maintenance procedure--at least once each year.

A number of milking machine companies have the following testing equipment available to service milking machines:

1. Air-flow meter--to determine vacuum capacity or cfm (cubic feet of air per minute).
2. Vacuum recorders--to calculate the action of pulsators.
3. Vacuum gauges --to determine vacuum reserve and an indication of pulsator action. "Quick test" - allow air into teat cup for 5 seconds, vacuum level on gauge should return to normal within 2 seconds.

4. Volt meter--to calculate if electrical problems exist at stall cock or motor.

5. Tachometer--to measure rpm (revolutions per minute) of motor and pump.

6. Level--to determine slope of pipeline.

7. Stopwatch-- to measure priming and milking times and vacuum pump recovery.

Milking machines and parts do wear out. Research and better knowledge of machine milking bring about changes, improvements and improved models.