

1963

EC63-641 Mastitis the Menace : The Milking Machine and Mastitis

Follow this and additional works at: <http://digitalcommons.unl.edu/extensionhist>

"EC63-641 Mastitis the Menace : The Milking Machine and Mastitis" (1963). *Historical Materials from University of Nebraska-Lincoln Extension*. 3618.

<http://digitalcommons.unl.edu/extensionhist/3618>

This Article is brought to you for free and open access by the Extension at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Historical Materials from University of Nebraska-Lincoln Extension by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

AGRI

S
85
E7

H63.641

E.C. 63-641

MASTITIS

THE MENACE



The Milking Machine and Mastitis

EXTENSION SERVICE
UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE
AND U. S. DEPARTMENT OF AGRICULTURE
COOPERATING
E. F. FROLIK, DEAN E. W. JANIKE, DIRECTOR

The Milking Machine and Mastitis

Your milking machine, so vital in dairy operations, can play a big part in mastitis control.

Proper installation, maintenance and operation—management problems—are essential. Any one of these factors, when done incorrectly, can cause irritation to the udder and teats—and give mastitis a head start in your herd.

The key to mechanical milking is the vacuum system. The vacuum draws milk from the cow's teats, causes the rubber inflation to open and close and is used in most pipelines to lift and move the milk.

Each part of the vacuum system is important. Each part should be cleaned and serviced periodically for proper functioning and long life.

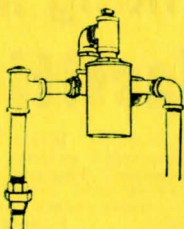
The Vacuum Pump

The vacuum pump is an air pump. Place your pump where it can get plenty of clean air and so that it is easy to reach for maintenance. Lubricate and service according to instructions in your operator's manual.

The vacuum pump must be big enough to handle all milker units and all other accessory equipment. If too small, air will not be removed fast enough. This may lead to irritation of the teats because of a variation in the vacuum. Increasing the pulsation rate above the number recommended by the manufacturer will only make the problem worse. If the pump is too small, the only thing to do is to install a larger one.

We recommend that vacuum pump capacity be one-third greater than needed by the system.

Vacuum Level Controller



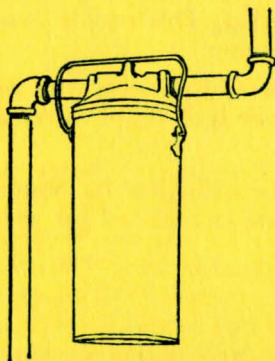
This unit maintains a constant vacuum level in the system. The controller closes when too

much air enters the system, and opens wider to admit more air when a milker is removed from the line. As more units are added, less air is admitted through the controller. There should always be air entering the controller when all the units are operating.

On bucket systems, the controller should be located between the first stall cock and the vacuum pump. On pipeline systems, the controller should be installed on the vacuum side of the sanitary trap.

Inspect the controller every two weeks. Clean it when necessary. Remember, the key to good udder health is to keep the vacuum at the end of the teat at a uniform level.

Vacuum Reserve Tank (or Sanitary Trap)



The vacuum reserve tank helps reduce vacuum drop when air is suddenly admitted. In addition, it catches the cleaning solution. Tank size will depend on number of units being used and the size of the vacuum line. It should have at least a five gallon capacity for each milking unit. Install the reserve tank so you can reach it easily, usually near or with the pump-motor unit.

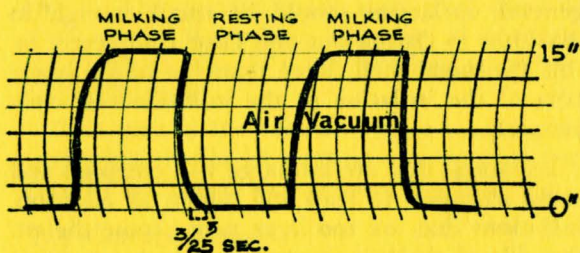
Vacuum and Milk Piping

An adequate pump is of no value if the vacuum piping is too small and restricts the airflow. For up to eight units, use 1½" minimum standard pipe from the pump to the vacuum tank or tee where the vacuum system divides and goes to the milk and pulsator systems. From the tank 1¼" pipe is sufficient.

Piping should be kept as straight and short as possible. Low points and lines should have automatic drains or manual pet cocks.

Pipes carrying milk should be installed as low as possible and slope towards the milk receiving unit (pump or tank). The valves that control the entry of milk into the pipes should be located so milk enters upper half of pipe.

The Pulsator



The graph shows how the pulsator controls the length of the milking and resting phase of your machine. Milk-rest ratios between 50:50 and 60:40 are desirable. Probably the most efficient "milk-rest" ratio is 55:45.

Pulsators vary in: (1) the speed with which the air is permitted to close the inflation, often referred to as its "snappiness"; (2) the speed with which the air is evacuated; (3) the length of time the liner is allowed to remain closed; (4) the length of time the liner is allowed to remain open; (5) the ratio of time between these cycles; and (6) the rate of pulsations per minute. Wear, mechanical adjustments or alterations, dirt, and voltage differences will alter these variations.

Improperly operating pulsators may cause mastitis through an uneven or improper milking or resting phase. In addition, teats and udders can be irritated by irregular and inconsistent vacuum.

Pulsator Servicing

Take your pulsator apart, clean, and oil it (if recommended by the manufacturer) twice monthly. Some may require more frequent servicing. A good suggestion is "*never let it get dirty.*" Check your service manual for proper procedures. Some pulsators use a pad to filter the air as it enters

the pulsator. This type may require less frequent servicing, but the filter pads should be changed frequently.

If milk or water enters the pulsator, clean it immediately.

Teat Cup Liners

Teat cup inflations require special attention. There are many sizes and kinds of inflations from which to choose. The size is important. In general, inflations should be small enough in diameter to flatten out and close completely inside the metal shell. Keep teats out of the lower part of the inflation so the inflation can close properly.

Inflations that are too large will creep up and cause irritation to teats and udder. In addition, inflations that are too large may expose the entire side of the teat to vacuum, which can cause teat ballooning, or may not close properly, causing an improper or incorrect milking-resting phase.

Inflations that are rough or cracked on the inside can harbor bacteria which may be carried from cow to cow. It is best to replace teat cup liners with a full new set, not just one of the four.

Follow this procedure for longer inflation life, better milking, lower bacteria counts and more comfortable cows:

- *Have two sets of inflations—alternate them each week.

- *After a week's use, boil inflations in a lye solution for 15 minutes. Use eight heaping teaspoonfuls of lye in a gallon of water. Always add the lye to the water.

- *Let inflations soak overnight.

- *Rinse thoroughly after boiling and store in a cool dark place for a week.

It is also wise to check the short air tubes for breaks or leaks and rotate them at the same time the liners are changed. They, too, can be boiled in the lye solution with the liners.

Clean stanchion hoses frequently and whenever it is known that milk has entered them.

Claws or bowls from which the milk is lifted should have air admission holes. Keep these air holes clean.

Recommended Line Cleaning Procedure

1. Prepare cleaning solution. Dissolve one 13 oz. can of lye or sodium hydroxide in 5 gal. of the hottest water from your tap. *CAUTION*: Always add the lye flakes to the water. *NEVER* add the water to lye.

2. Start the vacuum pump. Draw at least two quarts of the cleaning solution into the stall cock nearest pump. Greater amounts may be necessary for 1-inch lines or larger.

3. Repeat at each stall cock, working slowly away from the pump end of the line. Be careful not to overflow the reserve tank with this cleaning solution. This could cause damage to the vacuum pump.

4. Drain the entire system with vacuum pump off. Check to see if all drain valves are operating properly.

5. Rinse line with clear hot water. Follow the same procedure as outlined for using the cleaning solution.

Caution

Do not use lye solution in aluminum pails. Use earthenware or porcelainized containers.

The subject of mastitis will be covered in six circulars. Information in the circulars will be as follows:

EC 63-639 Mastitis and Your Dairy Herd

EC 63-640 Preventing Mastitis by Better Herd Management

EC 63-641 The Milking Machine and Mastitis

EC 63-642 Preventing Mastitis with Better Milking Practices

EC 63-643 Preventing Spread of Mastitis

EC 63-644 You Can Control Mastitis

Prepared through the cooperation of the Nebraska Mastitis Committee, C. W. Nibler, chairman, P. H. Cole, secretary.