



# Quality Milk and Cream on the farm

MR. DAIRYMAN - - -

## FOLLOW THESE STEPS TO MARKET HIGH QUALITY MILK AND CREAM

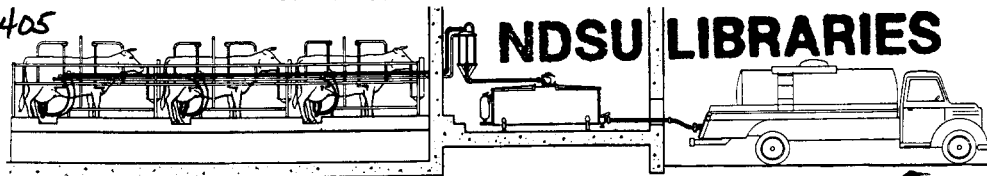
1. Have Clean Healthy Cows
2. Have Clean Milking Area and Milk House
3. Properly Wash and Sanitize Equipment
4. Protect From Off Flavors
5. Cool Milk and Cream Below 45° F. Rapidly

Dairy Equipment has moved from the plant to the farm in recent years. Dairymen must now clean milk pipelines, bulk milk tanks, milk pumps in addition to the milking machines and other equipment.

General recommendations for cleaning this equipment are given in this circular.

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EXTENSION SERVICE  
NORTH DAKOTA STATE UNIVERSITY  
OF AGRICULTURE AND APPLIED SCIENCE



## QUALITY MILK AND CREAM ON THE FARM

Quality milk and cream production on the farm begins with the operator and his equipment. Quality production demands that an operator make a determined effort to:

Maintain good clean healthful conditions. Keep cows well fed and healthy.

Keep milk and cream clean and free of "off" flavors.

Use an efficient detergent and sanitizer, and practice proper procedures in cleaning equipment, utensils and containers used in the production of milk.

Cool milk below 45° F. within 2 hours after milking and keep below 45° until delivered.

Maintain dairy facilities so as to make quality production a pleasure not a chore.

### CARE OF COWS, BARN, MILKING PARLORS AND MILK HOUSES

#### COWS

1. Keep cows clean by currying and brushing. (Stanchion barns)
2. Keep hair of cows clipped.

(a) Stanchion barns--clip area behind a line from the front of the udder to the base of the tail.

(b) Loose Housing--Clip udder if necessary to insure clean udder.

#### STANCHION BARN

1. Use enough bedding to keep cows clean and to reduce teat injury.
2. Keep stanchion barn clean and clean floor daily.
3. Provide adequate ventilation.

#### LOOSE HOUSING

1. Loafing or bedded area.

- (a) Keep loafing area clean and dry.
- (b) Provide sufficient ventilation.
- (c) Provide adequate drainage.
- (d) Use enough bedding to keep loafing area dry.
- (e) Avoid feeding, watering or cross traffic in loafing area.
- (f) Begin manure pack early.

#### HOLDING AREA

1. Keep clean and free from accumulated manure and liquids.

#### MILKING PARLOR AND MILK HOUSE

1. Wash down after each milking and during each milking if necessary.
2. Paint when needed.
3. Provide adequate ventilation.
4. Keep screened during fly season.
5. Provide adequate heat in cold weather to prevent freezing and to facilitate drying.

#### GENERAL RULES TO BE FOLLOWED

1. Wash cows' udders before milking.
  - (a) Use warm water.
  - (b) Change water often enough to keep it warm and clean; use non-irritating sanitizer in water.
  - (c) Wash udder 1 to 2 minutes before placing machine on cow. Be sure udder is clean and dry.

- (d) Use strip cup to spot udder infection or mastitis.
  - (e) Do not leave milkers on longer than is necessary.
2. Discard first streams of milk from each teat.
  3. Keep milk from fresh cows out of the milk supply to be sold for three to four days.
  4. Keep milk from cows treated with antibiotics or sulfa drugs out of the milk supply to be sold for at least 72 hours after treatment.
  5. Prevent off or strong flavors from getting into milk.
    - (a) Take cows off pasture or feed at least 2 hours before milking.
    - (b) Do not feed hay or silage while milking or just before milking.
    - (c) Separate milking barn or parlor from any feed room from which feed is ground or mixed or where feed is stored. Have a dust-tight partition.
  6. Practice effective fly and rodent control methods.

wash all parts with a good dairy cleaning solution in water 130 to 140 F. The cleaning agent is most satisfactory if directions of the manufacturer are followed in using it. Be sure to clean all parts thoroughly with proper brush. Inspect for cleanliness and milk deposits.

3. Rinse off cleaning solution with warm water (130 to 140° F.) and hang all parts to drain dry.
4. Store in clean dry place.
5. Before milking, assemble the machines and sanitize with an approved sanitizer. The strength of the sanitizer must be equivalent to 200 parts per million of available chlorine. Sanitize all milk handling equipment before each milking. Follow recommendations of state and local milk inspectors or plant fieldmen.

#### **CLEANING AND SANITIZING THE FARM BULK MILK TANK**

It is the producer's responsibility to properly clean the farm bulk milk tank to prevent bacterial contamination of milk.

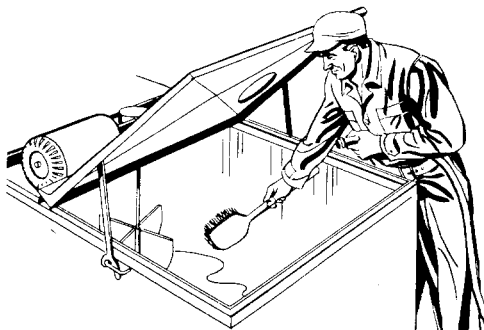
#### **MILK EQUIPMENT MUST BE KEPT CLEAN**

#### **MILKING MACHINES AND MILK UTENSILS**

1. Rinse milk utensils with warm water immediately after milking is completed.
2. Take milking machine apart after each milking and brush-

1. **Pre-rinse:** The truck driver rinses the farm bulk tank with lukewarm water (115 to 120° F.) as soon as milk is removed. He should close the lids after rinsing to keep water and residue from drying on surface of tank.

2. **Washing:** As soon as possible, after pre-rinsing, brush-wash all surfaces of the tank with a good dairy cleaning solution.



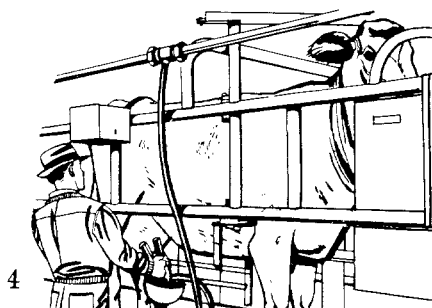
- (a) Prepare washing solution in plastic or rubber pail by adding a good dairy cleaner (suitable to the hardness of the water) to 3 gallons of warm water (120° F.)
- (b) Place the pail of detergent solution on floor of tank and wash entire inner surface, including inside of covers, with cleaning solution. Use a long handled nylon brush.
- (c) Remove milk valve, place in pail and recover cleaning solution in plastic pail. Brush-wash valve seat and openings, agitator and measuring stick with brushes designed for that purpose. Then brush-wash the outer surface of tank.
3. **Rinsing After Washing:** Rinse all suds, milk residues and cleaning solution from all surfaces of tank and accessories, using a warm water solution (120° F.) Proper rinsing is essential to remove any detergent, milk residue or grit from the tank. Milk or mineral residue in or on the tank will result in pit corrosion to stainless steel and

will also start an accumulation of milkstone. After rinsing tank thoroughly, leave covers open to facilitate drying. Leave valve, dip stick and other accessories of the milk tank exposed to air to speed up drying. Wipe moisture from outside of tank with chamois skin.

4. **Sanitizing:** Just before milk is again put into the bulk tank, treat tank with a good sanitizing agent. A sanitizing solution must contain 200 parts per million of available chlorine or its equivalent. Prepare this solution fresh before each use. Apply by spraying on all inner surfaces of tank, then drain. A strong chlorine solution may corrode stainless steel if allowed to remain an hour or longer.

5. **Weekly Cleaning With Acid Cleaner:**

**Milkstone** leads to high bacteria counts in milk and must be removed. Remove milkstone by washing surface with a mild acid milkstone remover, used according to directions of manufacturer. To prevent milkstone accumulation, use an acid cleaner at least once a week in place of regular washing procedure. Rinse acid cleaning solution from surface with cold water.



## CLEANING AND SANITIZING PIPELINE MILKING SYSTEM

1. Rinse pipeline with warm water (115 to 120° F.) immediately after milking, until rinse water is clear.

### 2. Washing Pipeline

(a) Prepare cleaning solution by using a nonfoaming dairy cleanser made specifically for use in dairy pipeline systems. The amount and temperature of water required will vary according to the length of pipeline and cleansing agent used. Use enough so entire pipeline is full, with some solution remaining in wash vat. Temperature of cleaning solution should not fall below 120° F. nor should it exceed maximum temperature recommended by manufacturer.

(b) Power wash pipeline system by circulating the cleaning solution through pipeline for 15 to 20 minutes.

(c) All parts, not directly included in power washing must be dismantled after each milking and hand brushed in solution tank and rinsed in warm water. (115 to 120° F.)

3. Rinse pipeline with enough warm water (115 to 120° F.) so entire pipeline is full, with some remaining in wash vat.

### 4. Sanitize Before Milking

Before each milking, rinse pipeline and other milking equipment with cold water containing a liquid sanitizing agent made up of 200 parts per million of available chlorine or its equivalent.

### 5. Weekly Cleaning With Acid Cleaner

Once a week, in place of regular pipeline cleaning procedure, flush-wash pipeline with an organic acid cleaning solution to remove any mineral residue from pipeline. The acid cleaning solution is made by adding pipeline acid cleanser to hot water (130° F.) according to directions for its use. Circulate this solution through pipelines for 10 minutes. Discard solution after brush-washing milk cocks and rinse pipeline with cold water.

## WEEKLY CLEANING OF INFLATIONS AND RUBBER PARTS

### MILK FAT AND MILKSOIL DAMAGES INFLATIONS

Storage of inflations and rubber parts coming in contact with milk in a lye solution facilitates removal of fat and milk-soil not removed by normal daily cleaning procedures. This treatment leaves the inflations clean and pliable, it lengthens the life of inflations and tends to restore the rubber to its original condition.

### DIRECTIONS FOR STORAGE OF INFLATIONS AND RUBBER PARTS IN LYE SOLUTION

1. Have two sets of inflations for each milking machine.
2. Store one set in lye solution while other set is in use. Alternate this procedure each week.

3. Lye solution prepared by dissolving two 13-ounce cans of lye in 4 gallons soft water.

### LYE STORAGE CONTAINER AND PRECAUTIONS

The lye solution is caustic, it will corrode most metals and will burn skin and eyes on contact. Store lye solution in a covered plastic, stainless steel or enamel container. A 5-gallon steel pail may be used but will eventually corrode and leak.

The container should be large enough to hold 4 gallons of solution plus inflations and any rubber parts coming into contact with milk. It should have a tight lid or cover so children cannot get into the lye solution.

It is recommended that you make an inflation holder to keep inflations in a vertical position. Inflation holders are easy to make by shaping bronze or stainless steel welding rods to hold 8 or more inflations and welding them together as in figure 1.

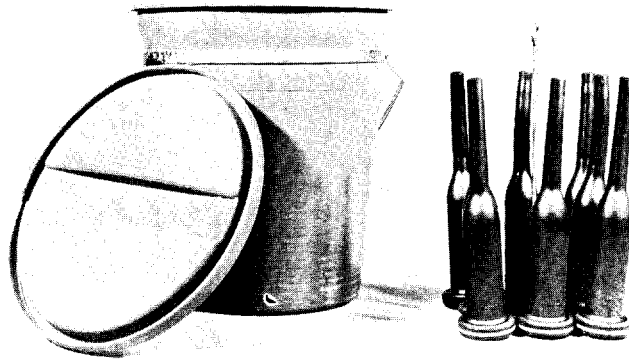


Fig. 1

Howard J. McLeod, Dairy Marketing Economist  
George R. Fisher, Dairyman

### PREPARE INFLATIONS FOR USE

After inflations have soaked in lye solution for a week, they are again ready for use. Remove inflations from solution and rinse with clean water before putting in wash tank.

Immediately after rinsing, place inflations in wash vat of warm water and scrub inner and outer surfaces thoroughly. Wash each inflation with an inflation brush to remove the fat and milksoil that has accumulated on the inner surfaces.

A washing solution prepared with a mild acid remover is more effective than water for washing inflations after removing them from lye solution.

After washing, rinse thoroughly in clean water and hang to drain dry until milking time.

\* Roger Holkesvik, Acting State Dairy Commissioner and Ernie Malm-skog, Dairy Plant Fieldman, assisted in the preparation of this circular.

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