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## Farm Standards for the Production of Manufacturing Milk

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# Farm Standards for the Production of Manufacturing Milk

This publication is designed as a reference for producers, fieldmen, county extension agents and others interested in the dairy industry of South Dakota. The recommendations are prepared as a guide for producers of manufacturing milk.

Cooperative Extension Service: South Dakota  
State University and U. S. Department of  
Agriculture



# Farm Standards for the Production of Manufacturing Milk

Materials presented in this section are farm requirements

## Rules and Regulations

### ANIMAL HEALTH

- A. All animals in the herd shall be maintained in a healthy condition.
- B. All milk sold to milk plants shall be from herds which are located in a Modified Accredited Tuberculosis Area as determined by the U. S. Department of Agriculture: Provided, that herds located in an area that fails to maintain such accredited status shall have been accredited by said Department as tuberculosis free, or shall have passed an annual tuberculosis test.
- C. All milk sold to milk plants shall be from herds under a brucellosis eradication program which meets one of the following conditions:
  1. Located in a Certified Brucellosis-Free Area as defined by the U. S. Department of Agriculture and enrolled in the testing program for such areas; or
  2. Located in a Modified Certified Brucellosis Area as defined by the U. S. Department of Agriculture and enrolled in the testing program for such areas; or
  3. Meet U. S. Department of Agriculture requirements for an individually certified herd; or
  4. Participating in a milk ring testing program which is conducted on a continuing basis at intervals of not less than every 3 months or more than every 6 months, with individual blood tests on all animals in herds showing suspicious reactions to the milk ring test; or
  5. Have an individual blood agglutination test annually with an allowable maximum grace period not exceeding 2 months.
- D. Mastitis and drug residues. Milk from cows known to be infected with mastitis or milk containing residues of drugs used in treating mastitis or any other infection shall not be sold or offered for sale for human food. Milk from cows treated for mastitis by infusion of the udder (treatment of infected

quarters by the introduction of drugs into the udder through the teat canal) shall be excluded from the supply for at least 72 hours after the last treatment, unless the label of the antibiotic container states otherwise. Drugs administered by injection into the blood stream or muscular tissue that leave a residue in the milk longer than 96 hours after injection shall not be used.

### MILKING FACILITY AND HOUSING

- A. A milking barn or milking parlor of adequate size and arrangement shall be provided to permit normal sanitary milking operation. It shall be well lighted and ventilated. New and remodeled units shall have floors and gutters in milking area constructed of concrete or other impervious material. The facility shall be kept clean, the manure removed daily and no swine or fowl shall be permitted in any part of the milking area.
- B. The yard or loafing area shall be of ample size to prevent overcrowding, shall be drained to prevent forming of water pools, insofar as practicable, and shall be kept clean.

### MILKING PROCEDURE

The udders and flanks of all milking cows shall be clipped of long hairs. The udders and teats shall be washed or wiped immediately before milking with a clean damp cloth or paper towel moistened with a sanitizing solution and wiped dry, or by any other sanitary method. Cows treated with antibiotic shall be milked last and the milk excluded from the supply as required in Section D (Animal Health). Milk stools and surcingles shall be kept clean and properly stored. Dusty hay shall not be fed in milking quarters immediately before or during milking. Strong flavored feeds shall be fed after milking.

### COOLING

- A. Milk in farm bulk tanks shall be cooled to 40°F. or lower within 2 hours after milking and maintained at 50°F. or lower until transferred to the transport tank.



B. Milk in cans shall be cooled immediately after milking to 60°F. or lower unless delivered to the plant within 2 hours after milking. The cooler, tank, or refrigerator shall be kept clean.

#### **MILKROOM OR MILKHOUSE**

A milkroom or milkhouse shall be provided that is conveniently located, properly constructed—including one or more outside walls, lighted, ventilated, and heated to above freezing for the handling and cooling of milk in cans or bulk tanks, and for the washing, handling, and storing of utensils and equipment. It shall not be used for any other purpose and shall be equipped with a method of heating water of sufficient quantity and to such temperature for effective cleaning of all equipment and utensils, wash and rinse vat, utensil rack and cooling facilities. If a part of the barn or an adjoining building, it shall be separated by a solid partition that shall include a tight-fitting and self-closing solid door hinged to open into the barn or parlor, ceiled and walled with a smooth and easily cleaned material. The floor shall be of concrete or other impervious material and graded to provide proper drainage. There shall be a trapped floor drain with the waste being piped away from the building to avoid pooling and creating other unsanitary conditions. All openings shall be screened to prevent the entrance of flies or rodents and all doors and windows closed during dusty weather. All outside doors shall open outward, be solid and self-closing unless they are provided with tight fitting screen doors that open outward and are self-closing.

**Materials presented in this section are guidelines—not farm requirements—for new construction or remodeling present dairy buildings**

## **Housing and Milk Handling Guidelines**

#### **MILKING FACILITY AND HOUSING**

Provide a concrete holding area where cows may assemble before milking. Slope it to drain away from the milking area. Allow 15 square feet per cow.

Separate the holding area from the resting area with a fence, plank, skirt, concrete block wall, or other similar structure. This separation prevents manure and straw from collecting in the holding area which must be kept clean and free from accumulated manure or liquids.

Slope the holding area floor to form a ramp to the milking stall level. Or, if you prefer steps, make treads 16 to 24 inches deep with a rise of no more than

If a farm bulk tank is used, it shall be properly located in the milkhouse for access to all areas for cleaning and servicing. It shall not be located over a floor drain, under a ventilator, or light fixture.

A properly centered suitable port opening in the wall for milkhose connection shall be provided. The opening shall be fitted with a tight self-closing door. The truck approach to the milkhouse or milkroom shall be properly graded and surfaced to prevent mud or pooling of water at point of loading.

#### **UTENSILS AND EQUIPMENT**

Utensils, milk cans, milking machines (including pipeline systems) and other equipment used in the handling of milk shall be maintained in good condition, shall be free from rust, open seams, milkstone, or any unsanitary condition, and shall be washed, rinsed, and drained after each milking, stored in suitable facilities, and sanitized immediately before use. All new utensils and equipment shall comply with applicable 3-A Sanitary Standards.

Farm bulk tanks shall meet 3-A Sanitary Standards for construction at the time of installation and shall be installed in accordance with regulations of the South Dakota Department of Agriculture.

#### **WATER SUPPLY**

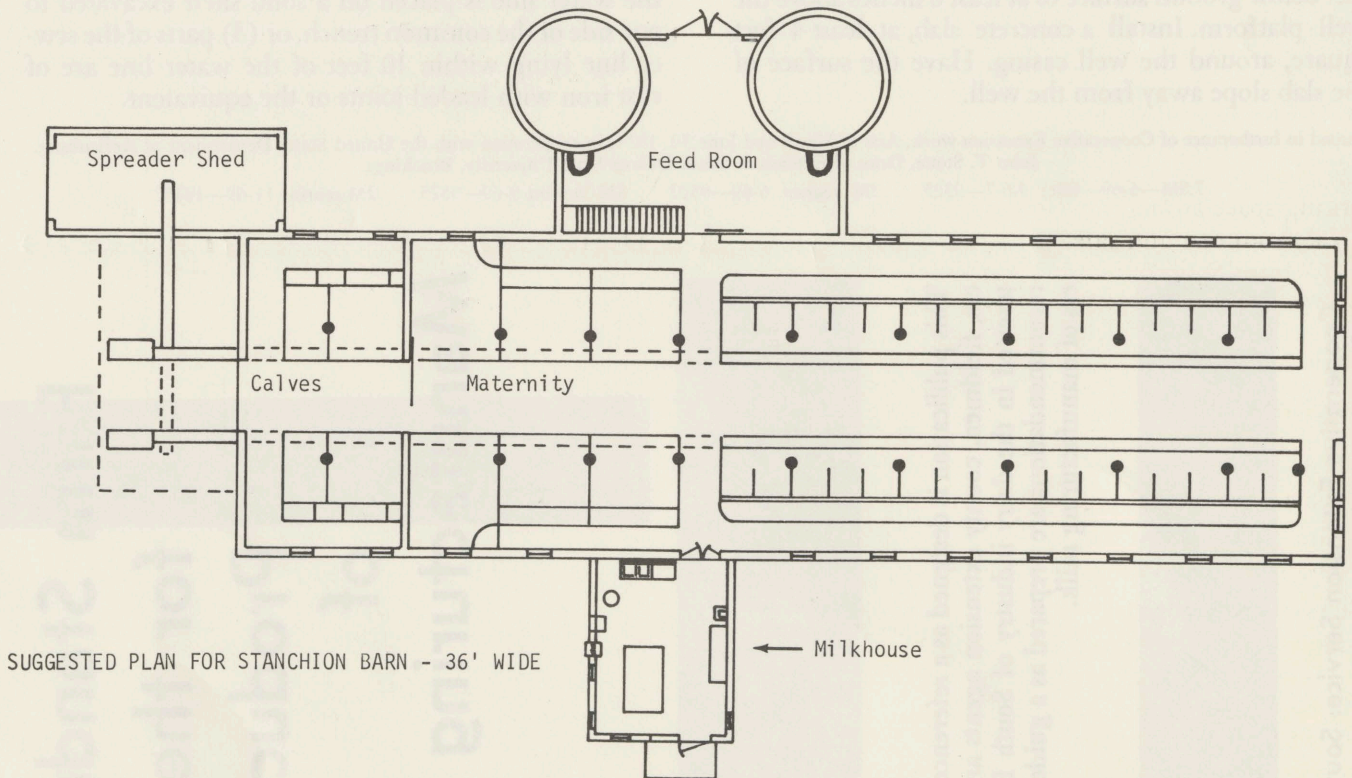
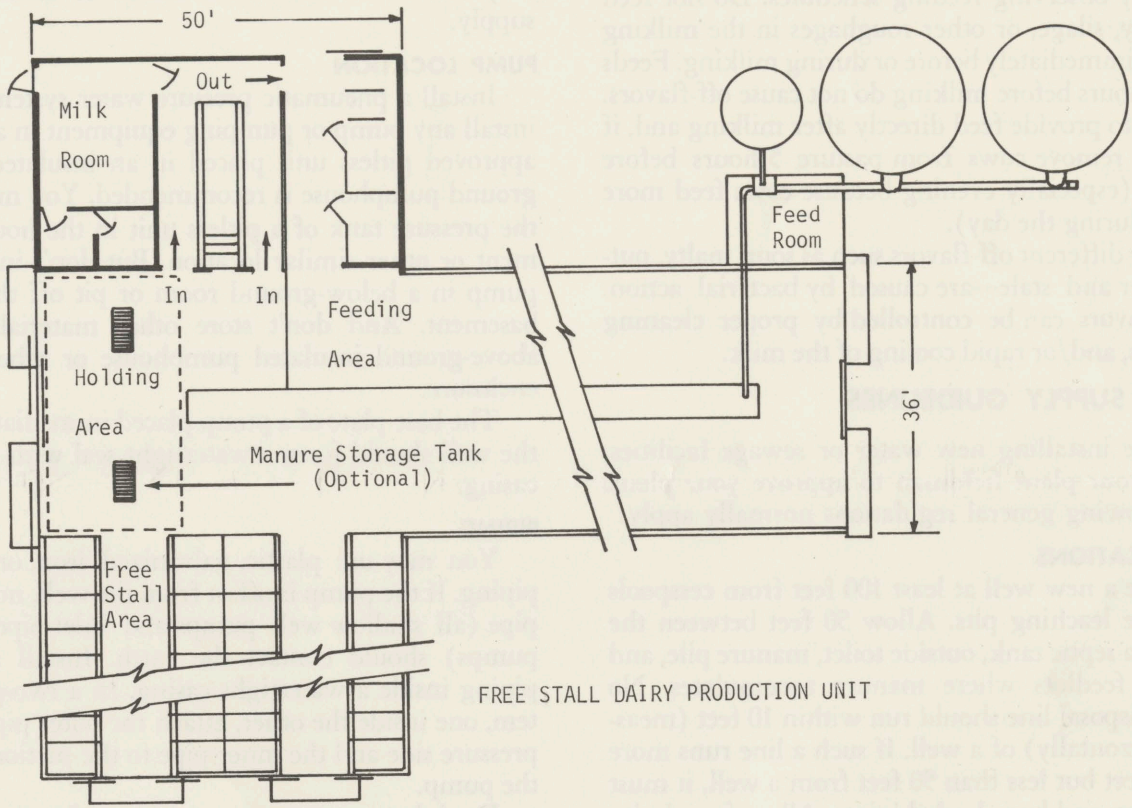
A dairy farm water supply shall be safe, clean, and ample for the cleaning of dairy utensils and equipment.

8 inches. For outlet ramp, a slope no steeper than 1:4 (3 inches per foot of run) is recommended.

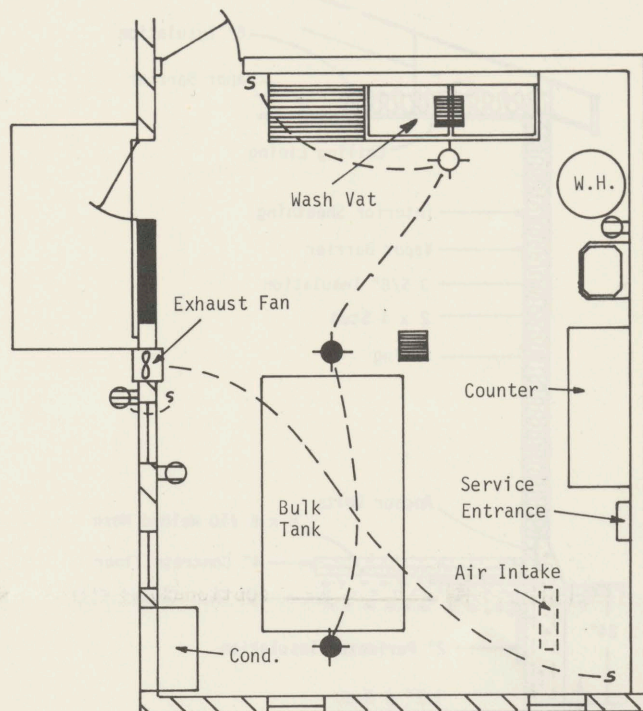
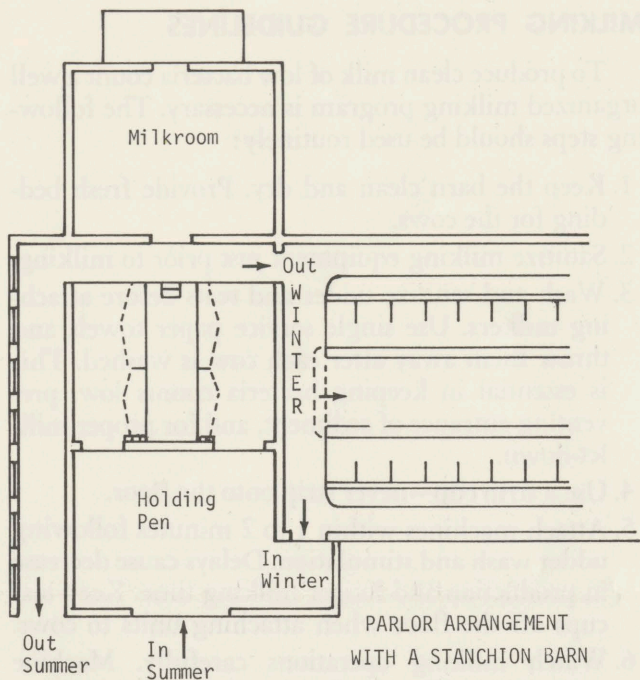
Grade and drain the cowyard and feeding area and keep them free of standing pools and manure accumulations. A paved area of 100 square feet per cow is recommended or 400 square feet if unpaved. If you don't pave the entire lot, minimal paving should cover: (1) a 10-foot wide strip in front of the barn, and (2) at least 7 feet around the feeders.

Whenever possible, slope the lot 2 to 4 feet per 100 feet (¼ to ½ inch per foot) away from loafing, holding, milking, and milk-handling areas.









FLOOR PLAN FOR MILKROOM INSIDE OF BARN  
(Plan No. 6063)

## MILK ROOM GUIDELINES

### Recommendations for Size

#### FLOOR AREA

Milk Production, Gal. Per Day	Floor Area Square Feet	
	Bulk	Can
50 to 100	216	168
100 to 160	240	192
160 to 225	250	
225 to 300	270	
300 and above	320	

#### BULK TANK CAPACITY

Hold five milkings at peak production for every other day pickup.

Working space around tank—

24" from rear and side.

36" from outlet valve and working side.

#### LOADING PLATFORM

4' x 8' concrete or slab on grade.

Provide self-closing hose port for bulk pickup trucks.

#### FLOORS AND DRAINS

Slope— $\frac{1}{4}$ " per foot to drain.

Drain location—

All floor surfaces within 12' of drain.

Drain under wash vats.

Drain 24" from bulk tank outlet valve.

#### LIGHTING AND WIRING

Window glass area—equal to 10% of floor area.

Swivel lights to light inside bulk tank.

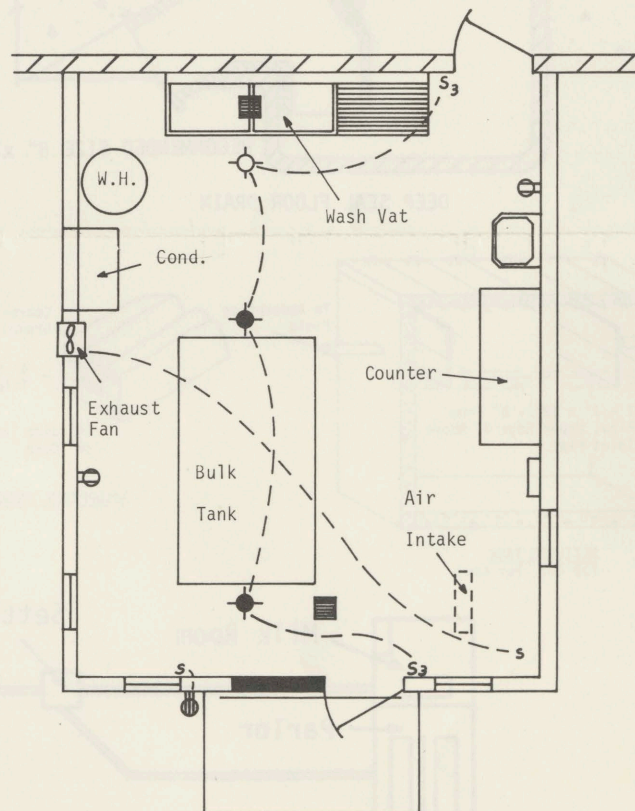
Light over wash vat and loading platform.

Outlets for all machines used.

Ground conductors to all electric equipment.

#### Legend

S	Single-Pole Switch	⊖	120 Outlet
S <sub>3</sub>	Three-way Switch	▨	Barn Wall
⊙	Light Bulb Outlet	□	Milk House Wall
●	150 - Watt Flood Light	■	Removable Panel
⊖	240 Weatherproof Outlet	▧	Floor Drain



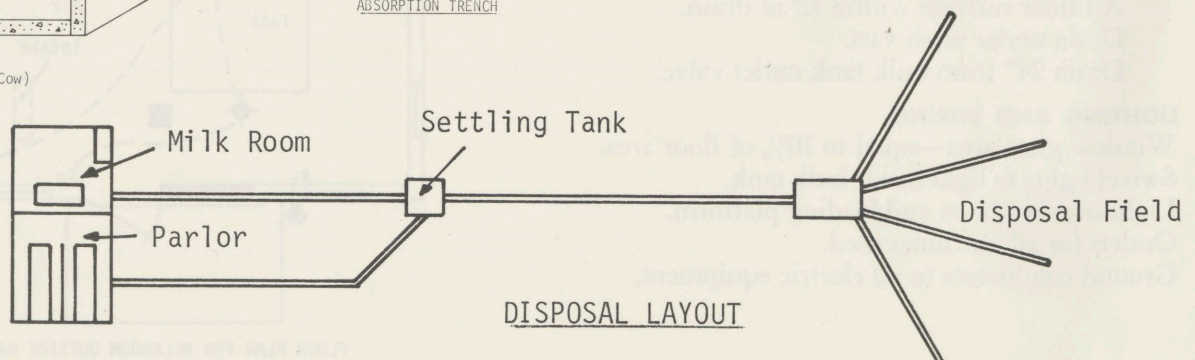
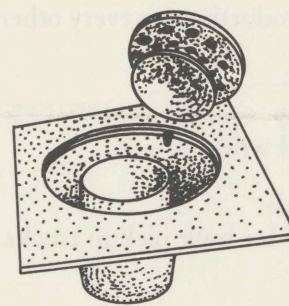
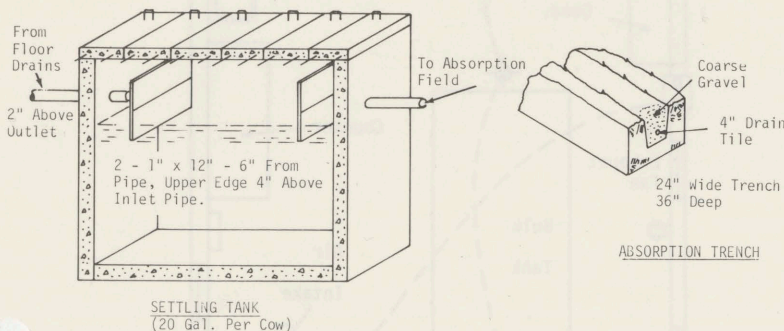
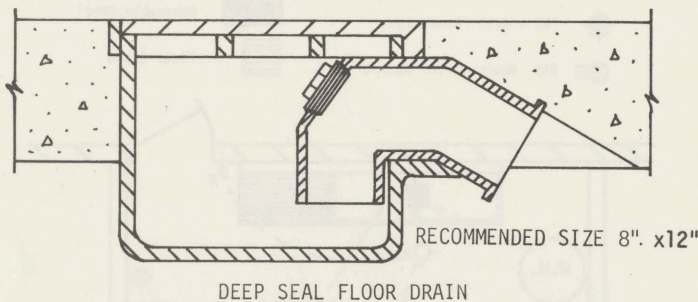
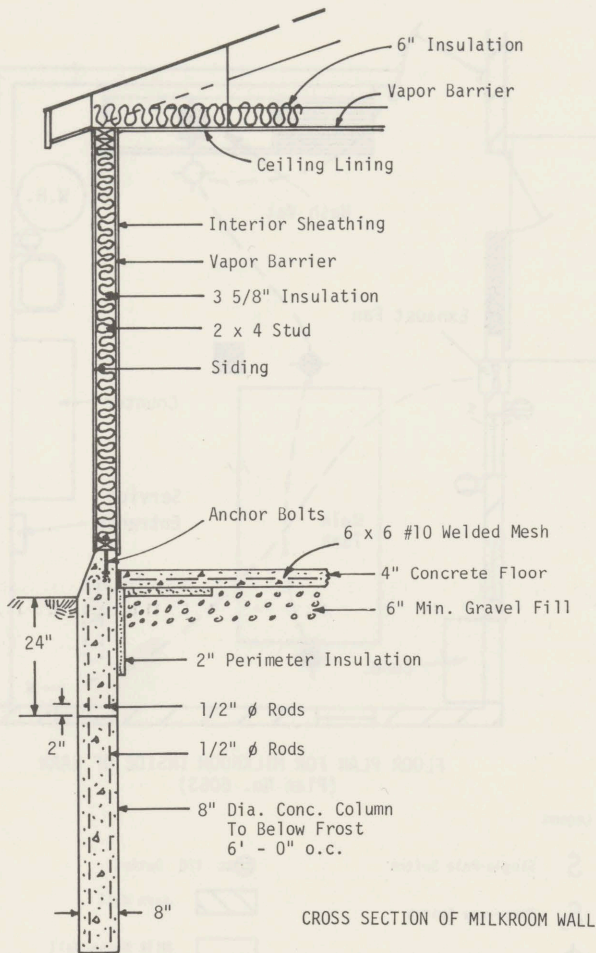
FLOOR PLAN FOR MILKROOM OUTSIDE BARN  
(Plan No. 6063)



## MILKING PROCEDURE GUIDELINES

To produce clean milk of low bacteria count a well organized milking program is necessary. The following steps should be used routinely:

1. Keep the barn clean and dry. Provide fresh bedding for the cows.
2. Sanitize milking equipment just prior to milking.
3. Wash and sanitize udder and teats before attaching milkers. Use single service paper towels and throw them away after each cow is washed. This is essential in keeping bacteria counts low, preventing entrance of sediment, and for proper milk let-down.
4. Use a strip cup—never strip onto the floor.
5. Attach machines within 1 to 2 minutes following udder wash and stimulation. Delays cause decrease in production and longer milking time. Keep teat cups off the floor when attaching units to cows.
6. Watch milking operations carefully. Machine strip when milk stops flowing. Remove the unit as soon as cows are milked out.
7. Immediately after milking, rinse equipment with lukewarm water. Don't let milk solids dry on equipment—they'll be more difficult to remove later.
8. Dismantle equipment. Wash in dairy cleaning solution prepared according to manufacturer's recommendations and using proper sized hard bristled brushes. Never use metal sponges or abrasive materials that may scratch or damage surfaces.
9. Rinse in hot water.
10. Store units upside down to drain and dry.





## OFF-FLAVORS IN MILK

Highly flavored feeds and weeds cause the most common off-flavors in milk. Feed flavors can be controlled by observing feeding schedules. Do not feed dusty hay, silage, or other roughages in the milking quarters immediately before or during milking. Feeds given 5 hours before milking do not cause off-flavors. It is best to provide feed directly after milking and, if possible, remove cows from pasture 5 hours before milking (especially evening because cows feed more heavily during the day).

Many different off-flavors such as sour, malty, putrid, bitter and stale—are caused by bacterial action. These flavors can be controlled by proper cleaning sanitizers, and/or rapid cooling of the milk.

## WATER SUPPLY GUIDELINES

Before installing new water or sewage facilities, contact your plant fieldman to approve your plans. The following general regulations normally apply:

### WELL LOCATIONS

Locate a new well at least 100 feet from cesspools or sewage leaching pits. Allow 50 feet between the well and a septic tank, outside toilet, manure pile, and unpaved feedlots where manure accumulates. No sewage disposal line should run within 10 feet (measured horizontally) of a well. If such a line runs more than 10 feet but less than 50 feet from a well, it must be cast iron and have leaded joints. All surface drainage must slope away from the well area. Provide a fill if natural drainage does not exist.

A sealed well casing must extend from at least 10 feet below ground surface to at least 6 inches above the well platform. Install a concrete slab, at least 4 feet square, around the well casing. Have the surface of the slab slope away from the well.

No pit or unfilled space may be within 10 feet (measured horizontally) of the well. This requirement does not apply to a residential basement which may be located closer to a driven or drilled water supply.

### PUMP LOCATION

Install a pneumatic pressure water system—don't install any pump or pumping equipment in a pit. An approved pitless unit placed in an insulated above-ground pumphouse is recommended. You may place the pressure tank of a pitless unit in the house basement or other similar location. But don't install the pump in a below-ground room or pit off the house basement. And don't store other materials in an above-ground insulated pumphouse or other pump enclosure.

The base plate of a pump placed immediately over the well should form a watertight seal with the well casing.

### PIPING

You may use plastic, galvanized iron, or copper piping. If the pump is offset from the well, no suction pipe (all shallow well pumps and inlet pipes on jet pumps) should contact the earth. Install all such piping inside a watertight casing. In a two-pipe system, one inside the other, attach the outer pipe to the pressure side and the inner pipe to the suction side of the pump.

Don't locate a water pipe within 10 feet (measured horizontally) of any sewer, drain, or other pipe that carries polluted water unless: (1) the bottom of the water pipeline is above the top of the sewer line, (2) the water line is placed on a solid shelf excavated to one side of the common trench, or (3) parts of the sewer line lying within 10 feet of the water line are of cast iron with leaded joints or the equivalent.

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