

1954

EC1322 Recommended Clarification of Satisfactory Compliance for Grade "A" Milk Production

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*Recommended Clarification of Satisfactory
Compliance for Grade "A" Milk Production*

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PREFACE

Members of the Public Health Service and the Dairy Industry have been concerned with the availability and safety of milk and milk products; and in uniform standards for production and processing. Milk products are essential to the nutritional well being of the individual; but if not properly safeguarded, they may become instrumental in the transmission of disease infectious to man.

The ultimate goal of the dairy industry is to place the purest, cleanest, safest and most palatable product that can be produced on the consumer's table. This high level of performance is promoted by regulations as stated in the Milk Ordinance and Code.¹ On occasion, dairymen and sanitarians have expressed a variety of interpretations on certain phases as stated in the code. This bulletin is an effort toward clarification of those items in the code which pertain to satisfactory compliance with production standards for grade A milk on Nebraska farms.

A steering committee² was organized. Its mission was to review that portion of the 1953 edition of the Milk Ordinance and Code which pertains to the production of fluid milk for a grade A market. This group recommended the clarification as stated under the various items in this bulletin.

Each item, 1r. through 24 r., was treated individually and recorded in the same sequence as found in the original code. A statement from the code heads each item, followed in order by public-health reason, satisfactory compliance and clarification.

Contributors to this bulletin hope that producers of fluid milk may use it as a guide for grade A milk production requirements. This will be an aid to a more efficient marketing process.

Fred H. Schultz
Extension Dairy Marketing Specialist

¹Milk Ordinance and Code, 1953 Recommendations of Public Health Service. Public Health Service Publication No. 229, U. S. Government Printing Office, Washington, 1953.

The rules and regulations which are delegated to the Director of the Department of Agriculture and Inspection, State of Nebraska, under authority of L. B. 333, Legislative Session of 1951, generally comply with the Milk Ordinance and Code.

²The steering committee members were M. D. Graham, J. L. King, and L. E. Liebers, milk processors; R. E. Wagner and Dorsey Davis, producers; Willard Grant, representing the milk marketing organizations; and M. B. Crabil and Orville D. DeFrain, sanitarians. Specific consultation was requested from E. A. Olson and George Petersen, agricultural engineers; Fred H. Schultz, marketing specialist; and Gould Flagg, of the Department of Agriculture and Inspection; T. A. Filipi, and C. W. Fahrenbach of the Department of Health.

RECOMMENDED CLARIFICATION OF SATISFACTORY COMPLIANCE FOR GRADE "A" MILK PRODUCTION

The following material is in the same order as found in the 1953 Milk Ordinance and Code, pages 52 to 78.

GRADE A RAW MILK FOR PASTEURIZATION

Grade A raw milk for pasteurization is raw milk from producer dairies conforming with the following items of sanitation. The bacterial plate count or the direct microscopic clump count of the milk, as delivered from the farm, shall not exceed 200,000 per milliliter, as determined in accordance with Section 6.

ITEM 1r. COWS-HEALTH

All milk for pasteurization shall be from herds which are located in a modified accredited tuberculosis-free area, as determined by the Bureau of Animal Industry, United States Department of Agriculture, and which have been tested for tuberculosis not more than six years prior to the adoption of this ordinance and at least every six years after such test: Provided, that herds located in an area that fails to maintain such accredited status, or that has an incidence of bovine tuberculosis in excess of 0.2 per cent, shall have been accredited by said Bureau of Animal Industry as tuberculosis-free, or shall have passed an annual tuberculin test. All additions to such herds shall be free from tuberculosis. Said tests and retests shall be made, and any reactors disposed of, in accordance with the latest requirements approved by the Bureau of Animal Industry, United States Department of Agriculture, for tuberculosis-free, accredited herds in effect at the time of the adoption of this ordinance. A certificate identifying each animal, signed by the veterinarian or attested to by the health officer, and filed as directed by the health officer, shall be evidence of the above test.

Within 3 years after the adoption of this ordinance, all milk and milk products for pasteurization shall be from herds certified by the State Livestock Sanitary Authority as following either Plan A or Plan B approved by the BAI for the eradication of brucellosis. Evidence of this certification shall be filed as directed by the health officer. All additions to the herds shall be brucellosis-free. Tests and retests shall be made, and any reactors disposed of, in accordance with the latest requirements approved by the BAI, USDA, in effect at the time of the adoption of this ordinance.

A certificate identifying each animal, signed by the veterinarian and the director of the laboratory making the test, and filed as directed by the health officer, shall be evidence of the above test.

Cows which show a complete induration of one quarter or extensive induration in one or more quarters of the udder upon physical examination, whether secreting abnormal milk or not, shall be permanently excluded from the milking herd: Provided, that this shall not apply in the case of a quarter that is completely dry. Cows giving bloody, stringy, or otherwise abnormal milk, but without entire or extensive induration of the udder, shall be excluded from the herd until re-examination shows that the milk has become normal.

For other diseases, such tests and examinations as the health officer may require after consultation with State Livestock Sanitary Officials shall be made at intervals and by methods prescribed by him, and any diseased animals or reactors shall be disposed of as he may require.

PUBLIC-HEALTH REASON--The health of the cow is a very important consideration, because a number of diseases of cattle, including tuberculosis, brucellosis, Q-fever, salmonellosis, staphylococcic infection, and streptococcic infection, may be transmitted to man through the medium of milk. The organisms of most of these diseases may get into the milk either directly from the udder, or indirectly through infected body discharges which may drop, splash, or be blown into the milk.

The great reduction in the incidence of bovine tuberculosis in man in recent years indicates that the practice of good sanitation in animal husbandry, the testing of cattle and removal of the reactors from the herds, and the pasteurization of milk, have been effective in the control of this disease. The reservoir of bovine tuberculosis still exists, however; hence, constant vigilance against this disease must be continued by industry and health agencies.

The incidence of brucellosis in man, on the other hand, is increasing at the present time, and a greater effort is required to reduce the extent of infection in cattle, and its transmission to man through milk.

Q-fever is a relatively newly recognized disease of cattle which may be transmitted to man through the use of milk. Within the last few years, this disease has reached epidemic proportions in man in some parts of this country. Although no means of controlling Q-fever in cattle has yet been developed, pasteurization of the milk is the most practical safeguard against its transmission to man through milk.

Bovine mastitis is an inflammatory and, generally, highly communicable disease of the bovine udder. Usually, the inciting organism is a streptococcus of bovine origin (type B), but the disease is often caused by a staphylococcus or other infectious agent. Occasionally cows' udders become infected with hemolytic streptococci of human origin, which may result in milk-borne epidemics of scarlet fever or septic sore throat. The toxins of staphylococci, and possibly other organisms, in milk may cause severe gastroenteritis. Some of these toxins are not destroyed by pasteurization.

SATISFACTORY COMPLIANCE --(1) Tuberculosis--All milk for pasteurization shall be from herds which are located in a modified accredited tuberculosis-free area, as determined by the U. S. Bureau of Animal Industry, and which have been tested for tuberculosis not more than six years prior to the adoption of this Ordinance and at least every six years after such test. Herds which are located in areas that fail to maintain modified accredited tuberculosis-free area status, or areas in which the incidence of bovine tuberculosis is higher than 0.2 per cent, either must be accredited by the U. S. Bureau of Animal Industry as being tuberculosis-free, or must have passed an annual tuberculin test. All tests and retests for tuberculosis, and the disposal of reactors, shall be made either officially under the supervision of the U. S. Bureau of Animal Industry, or privately by a veterinarian accredited by the U. S. Bureau of Animal Industry. All additions to these herds, except calves born into the herd, shall be from herds certified by the U. S. Bureau of Animal Industry as accredited tuberculosis-free herds, or shall be negative to a test made not more than 30 days prior to the addition to the herd.

(2) Brucellosis--Within the period specified in the second paragraph of this item, all herds producing milk which is to be pasteurized shall be certified as following either Plan A or Plan B approved by the U. S. Bureau of Animal Industry for the eradication of brucellosis, or certified to be free of brucellosis by the State Veterinarian. All additions to the herd, except calves born into the

herd, or vaccinated in accordance with the provisions for calf vaccination in the following paragraph, shall be free of brucellosis as determined by a negative test made not more than 30 days prior to such addition. The certification to be furnished by the producer shall consist of a copy of the test or vaccination chart approved by the U. S. Bureau of Animal Industry and issued by the State Live-stock Sanitary Official.

This Ordinance does not prohibit the use of calf vaccination in herds required to be brucellosis-free. Calves which have been vaccinated at the age of 4-to-8 months with a vaccine approved by the U. S. Bureau of Animal Industry may be retained in the herd if they carry a blood-serum agglutination titer no higher than incomplete in a 1-to-100 dilution; and, prior to the time the animal becomes a milk producer such titer is stabilized or receding as determined by tests made at intervals of not less than 30 days or more than 60 days, and that there is no other evidence of brucellosis infection in the herd.

The health officer should follow the recommendations of the State and Federal livestock-disease-control officials, and assist them in developing brucellosis-free certified herds and areas. He should file his request for cooperative testing with the State veterinarian. Ultimately, this Ordinance will be revised to require all milk-producing herds to be under Plan A; therefore, a dairyman who has brucellosis reactors in his herd is urged to eliminate a sufficient number of such reactors each year so that all reactors will have been removed from the herd within a period of 3 years after his entry into Plan B. A longer period of time may be needed in isolated instances where the incidence of brucellosis in the herd is higher than 50 per cent.

(3) Other Diseases--The milking herd shall be observed closely for evidence of disease. Satisfactory compliance with this item, with respect to all diseases in dairy cattle, shall be based upon the diagnosis of a licensed veterinarian. With the exception of reactors for brucellosis under the U. S. Bureau of Animal Industry Plan B for the control of brucellosis, all diseased animals shall be removed from the herd and no milk therefrom shall be offered for sale.

"Induration of the udder" means replacement of the normal glandular tissue by fibrous tissue.

ITEM 2r. MILKING BARN-LIGHTING

A milking barn, stable, or parlor shall be provided. It shall be provided with adequate light, properly distributed, for both day and night milking.

PUBLIC-HEALTH REASON--With milking done elsewhere than in a suitable place provided for this purpose, the milk may be contaminated. Adequate light makes it more probable that the barn will be clean, and that the cows will be milked in a sanitary manner.

SATISFACTORY COMPLIANCE--There shall be provided a milking barn, stable, or parlor. The milking portion of the barn shall be provided with sufficient natural or artificial light, so arranged as to insure that all surfaces and working areas will be easily visible. A minimum of 4 square feet of window space for each 60 square feet of floor space is recommended for new construction.

Artificial lighting must be provided for night milking, and must be used when natural light is not sufficient. This requirement shall be considered satisfied when all portions of the barn are so lighted by natural or artificial light that cleaning and milking operations can be effectively performed.

CLARIFICATION

1. Reminders for remodeling old construction.

(a) Doors should not be included as light unless they can contain windows.

(b) As many windows as practical.

2. Requirements for new construction.

Window space--4 sq. ft. of window space per 60 sq. ft. of floor space.

ITEM 3r. MILKING BARN--AIR SPACE AND VENTILATION

Such sections of the milking barn, stable, or parlor, where cows are kept or milked, shall be well ventilated, and shall be so arranged as to avoid overcrowding.

PUBLIC-HEALTH REASON--This item is required in order to avoid overcrowding, and to insure proper ventilation.

SATISFACTORY COMPLIANCE - This item shall be deemed to have been satisfied when there is sufficient air space and air circulation to minimize odors, to prevent excessive condensation, and to permit rapid drying of floors. No overcrowding shall be permitted. It is recommended that a minimum of 400 cubic feet of air space per stallion be provided in new barns.

CLARIFICATION

1. Stallion width.

(a) Recommend 42 inches, minimum 40 inches.

2. Ventilation--Reference Bulletin 470, "Dairy Cattle Housing," University of Wisconsin. (September 1949).

(a) Windows tipped back from top; or,

(b) Install mechanical ventilation where condensation persists and other means of ventilation are impractical.

(c) Any other type of system to assure satisfactory ventilation, protection of the product, and health of the animals.

(d) Mechanical fan recommended for new construction of stables or parlor-type barns.

ITEM 4r. MILKING BARN--FLOORS--ANIMALS

The floors and gutters of that portion of the barn, stable, or parlor, in which cows are milked, shall be constructed of concrete, or other approved, impervious, and easily-cleaned material. Floors and gutters shall be graded so as to drain properly, and shall be kept clean and in good repair. No swine or fowl shall be permitted in the milking barn, stable, or parlor. If horses, dry cows, calves, or bulls should be stabled therein, they shall be confined in stalls, stallions, or pens, which shall be kept clean and in good repair.

CLARIFICATION

1. Recommend that horses also be excluded from the milking barn, stable or parlor.

4r. (a). FLOOR CONSTRUCTION

PUBLIC-HEALTH REASON--Floors constructed of concrete or other impervious materials can be kept clean more easily than floors constructed of wood, earth, or similar materials, and are, therefore, more apt to be kept clean.

SATISFACTORY COMPLIANCE -- The floors should be made of good quality concrete, but may be of other similarly impervious material. Manure gutters shall be of concrete. Only portions of milking-barn floors to which cows have access shall be required to be surfaced with impervious material. Feed alleys are included in this exemption, provided that they are floored with tight wood or its equivalent, and are protected from washings or drainage from other parts of the barn floor. It is recommended, however, that feed troughs be of smooth-surfaced concrete with rounded corners and graded to drain, in order to facilitate cleaning.

Other portions of the barn shall be separated from the milking portion by railings or partitions. When bullpens, maternity pens, or calf pens are not separated from the milking portion by a tight partition, the floors of such portions of the barn must be constructed of concrete or equally impervious material. If such other portions of the barn are not kept clean and free of dust and objectionable odors, tight partitions are required; in fact, tight partitions are recommended for all cases.

The floor should have an untroweled surface, in order to prevent slipping. When necessary to keep cattle in the milking barn, the floors may be bedded in order to prevent discomfort.

Concrete floors, in barns under construction or reconstruction, should have curbs where the floor joins the walls. These are desirable in order to promote cleanliness in the angles of the floor and walls, and to avoid rotting of wall sills and studs.

Technically, gutters are not required under the wording of this section, but they should be urged by the inspector as a means of promoting cleanliness and improving drainage.

CLARIFICATION

1. Gutters are required in stanchion-type barns.
2. Gutters need not have drains if they are kept clean and are well drained.
3. Gutters are not required in milking parlors with proper drainage.
4. Manager curb to which stanchion is attached shall be constructed in such a manner that food and debris cannot collect. Concrete construction is preferred.
5. If possible, concrete floors in barns under construction or reconstruction shall be curbed of the same material up to a minimum height

of six inches; the joints rounded at junction of the floor and walls for easier cleaning and drainage.

4r. (b). FLOOR CLEANLINESS

PUBLIC-HEALTH REASON--A clean floor reduces the chances of contamination of the milk or milk pails during milking. The presence of other animals increases uncleanness.

SATISFACTORY COMPLIANCE--This item shall be deemed to have been satisfied if the milking barn, stable, or parlor floor is free of accumulations of filth or litter, except such as have accumulated since the beginning of the last milking period, provided that the floor is clean at the beginning of each milking period; and if horses, swine and fowl are kept out of the milking barn.

When floors of milking barns are bedded, bedding containing more than one milking's accumulation of manure shall be considered as equivalent to unclean floors.

The method of cleaning is immaterial. Dairy men whose barns are provided with water under pressure should scrub the floors after each milking with a stiff-bristled brush. In barns in which water under pressure is not available, the floors may be brushed dry and lined. In the latter event, care should be exercised to prevent caking of the lime. When phosphate is used, it shall be spread evenly on the floor as a thin coating. If clean floors are not maintained by this method, the inspector should require cleansing with water.

ITEM 5r. MILKING BARN-WALLS AND CEILINGS

The interior walls and the ceilings of the milking barn, stable, or parlor shall be whitewashed or painted as often as may be necessary, or finished in an approved manner, and shall be kept clean and in good repair. Where there is a second story above the milking barn, stable, or parlor, the ceiling shall be tight. If feed should be ground or mixed, or sweet feed should be stored, in a feed room or feed-storage space which adjoins the milking space, the two rooms shall be separated by a dust-tight partition and door.

PUBLIC-HEALTH REASON--Whitewashed, painted, or properly finished walls and ceilings encourage cleanliness. Tight ceilings and feed rooms reduce the likelihood of dust and extraneous material getting into the milk.

SATISFACTORY COMPLIANCE--This item shall be deemed to have been satisfied if the walls and ceilings:

(1) Have been whitewashed, or finished with cold-water paint, one every year or oftener if necessary; or

(2) Have been painted once every two years, or oftener if necessary, and barns newly constructed of wood shall be painted when completed; or

(3) Have interior finished surfaces of concrete, concrete block, brick, tile, galvanized iron, plaster, or similar material, which may be accepted without painting; except that joints and rafters of the roof structure shall not be required to be whitewashed or painted, but must be kept clean; the use of wallboard attached to the rafters to make the ceiling tight shall be accepted; glazed windows shall be kept clean; and

(4) Are in good condition, with ceiling tight where there is a second story above the milking portion of the barn. If a hay opening is provided from the left into the milking portion of the barn, such opening shall be provided with a tight door, which shall be kept closed when not actually in use. A dust-tight partition, provided with doors that are kept closed except when in actual use, shall separate the milking portion of the barn from any feed room in which feed is ground or mixed, or in which sweet feed is stored. Feed may be stored in the milking portion of the barn only in such manner as will not increase the dust content of the air, attract flies, or interfere with cleaning of the floor (as in covered, dust-tight boxes or bins). Open feed dollies may be used for distributing the feed, but not for storing feed, in the milking barn.

When conditions warrant, the health officer may approve a barn without four walls extending from floor to roof. A shed-type barn may be approved, provided the requirement of Item 4r prohibiting animals and fowl entering the barn is satisfied. Cattle-housing areas (stables without stanchions, such as loose-housing stables, pen stables, resting barns, holding barns, loafing sheds, wandering sheds, etc.) may be of shed-type construction, provided no milking is conducted therein. (They are classified as part of the cowyard under Item 6r.).

CLARIFICATION--Painting; ceiling

(1) Whitewash not recommended.

(2) Ceiling--if feed stored above.

- (a) Tongue and groove flooring overhead; or
- (b) Sealing by sub-flooring between rafters; or
- (c) Sealed by smooth sub-flooring across rafters.

ITEM 6r. COW YARD

The cow yard shall be graded and drained as well as is practicable, and shall be so kept that there are no standing pools of water nor accumulations of organic wastes: Provided, that, in loafing and/or cattle-housing areas, manure droppings shall be removed, or clean bedding added, at sufficiently frequent intervals to prevent the accumulation of manure on cows' udders and flanks. Swine shall be kept out.

6r. (a). GRADING AND DRAINING OF THE COW YARD

PUBLIC-HEALTH REASON--The cow yard is interpreted to be that enclosed or unenclosed area in which the cows are apt to congregate, approximately adjacent to the barn, including cattle-housing areas. This area is, therefore, particularly apt to become filthy with manure droppings, which may result in the soiling of the cows' udders and flanks. The grading and drainage of the cow yard, as far as practicable, are required because wet conditions are conducive to fly breeding, and make it difficult to keep manure removed and the cows clean.

SATISFACTORY COMPLIANCE--This item shall be deemed to have been satisfied:

(1) When the cow yard has been graded and drained as well as local conditions permit; all low places are filled; and approaches to the barn door, and to stock tanks, are preferably of concrete.

(2) When the wastes from the barn and milk room are not allowed to pool in the yard.

The most satisfactory means of conducting milking-barn wastes and wash water beyond the cow yard limits is through the construction of a drain. The drain should be lined with concrete, tile, or brick, although a well-kept, open, earth ditch may be accepted. Open drains are recommended, because of the danger of frequent clogging of closed drains, unless closed drains of adequate diameter and slope can be provided.

Cow yards which are muddy due to recent rains should not be considered as defective.

CLARIFICATION:

(1) Concrete apron recommended 1 foot wider than approach door, at least 8 feet long in front of milking barn door. If slope encountered, step system is to be used at 4 foot intervals--steps from 4 to 7 inches in height, surfaced to prevent undue slippage.

(2) Drainage recommended.

(a) Gutter drainage is accepted, provided that, outside of the stable, wastes can be drained beyond cow yard limit.

(b) Open ditch drainage through cow yard is acceptable, provided no pooled wastes are evident in the cow yard.

(c) Trap drains and/or slumps are optional if part (a) is in compliance.

6r (b). CLEANLINESS OF THE COW YARD

PUBLIC-HEALTH REASON--If manure and barn sweepings are allowed to accumulate in the cow yard, fly breeding will be promoted, and the cows, because of their habit of lying down, will be more apt to have manure-soiled udders.

SATISFACTORY COMPLIANCE -- This item shall be deemed to have been satisfied when the cow yard is kept clean, and swine are not permitted in the cow yard.

Cattle-housing areas (stables without stanchions, such as loose-housing stables, pen stable, resting barns, holding barns, loafing sheds, or wandering sheds) shall be considered as part of the cow yard. Manure, soiled bedding, and waste feed may not be stored, or permitted to accumulate therein, in such manner as to permit the soiling of the cows' udders and flanks, nor be maintained in such manner that the manure pack is not properly drained or does not provide a reasonably firm footing for the animals. Excessive accumulations of waste animal feed shall be considered a violation of this item.

ITEM 7r. MANURE DISPOSAL

All manure shall be removed, and stored or disposed of in such manner as best to prevent the breeding of flies therein and the access of cows to piles thereof.

PUBLIC-HEALTH REASON--Improper manure disposal induces the breeding of flies, which are considered capable of transmitting infection, by physical con-

tact or through excreta, to milk or milk utensils. Flies visit unsanitary places, and may carry disease organisms on their bodies. They may carry living bacteria for as long as 4 weeks within their bodies, and may pass them on to succeeding generations by infecting the eggs. The virus of poliomyelitis was isolated from flies during an epidemic. Community fly control, in Hidalgo County, Texas, resulted in a significant reduction in the amount of shigella and salmonella infection in humans.

Cows should not have access to piles of manure, in order to avoid the soiling of udders and the spread of diseases among cattle.

SATISFACTORY COMPLIANCE--This item shall be deemed to have been satisfied when the manure is:

- (1) Spread upon the fields; or
- (2) Stored for not more than 4 days in a pile on the ground surface, and then spread upon the fields; or
- (3) Stored for not more than 7 days in an impervious-floored bin, or upon an impervious--curbed platform, and then spread or stored in a tight, screened, and trapped manure shed; or
- (4) Fly breeding is minimized by the maintenance of clean surroundings and the use of effective larvicides or insecticides.
- (5) Requirements (1) to (4) above shall apply only during the fly-breeding season.
- (6) Manure and soiled bedding, if stored in a pile, shall be inaccessible to the cows.

CLARIFICATION--Manure Disposal

1. Recommend discretion be used in location of manure pile with reference to cow yard sanitation.

**ITEM 8r. MILK HOUSE OR ROOM-CONSTRUCTION
AND EQUIPMENT**

There shall be provided a milk house or milk room, in which the cooling, handling, and storing of milk and milk products, and the washing, bactericidal treatment, and storing of milk containers and utensils, shall be done. (a) The milk house or room shall be provided with a smooth floor, constructed of concrete or other impervious material, maintained in good repair, and graded to provide proper drainage. (b) It shall have walls and ceilings of such construction as to permit easy cleaning, and shall be well painted, or finished in an approved manner. (c) It shall be well lighted and well ventilated. (d) It shall have all openings effectively screened, including outward-opening self-closing doors, unless other effective means are provided to prevent the entrance of flies. (e) It shall be used for no purposes other than those specified above, except as may be approved by the health officer; it shall not open directly into a milking barn or stable, nor into any room used for domestic purposes; it shall be provided with adequate facilities for heating water to clean utensils; and it shall be equipped with 2-compartment, stationary, wash and rinse vats. The cleaning and other operations shall be located and conducted so as to prevent any contamination of the milk or of cleaned equipment.

PUBLIC-HEALTH REASON--Unless a suitable, separate place is provided for the cooling, handling, and storing of milk, and the washing, bactericidal treatment, and storing of milk utensils, the milk or the utensils may become contaminated.

SATISFACTORY COMPLIANCE--The first sentence of this item shall be deemed to have been satisfied when:

(1) A separate milk house or milk room is provided for the cooling, handling, and storing of milk and milk products, and the washing, bactericidal treatment, and storing of milk utensils.

(2) The milk house or room is conveniently located, as determined by (a) the availability of water, (b) the distance milk must be carried from the barn, and (c) drainage.

(3) None of the milk-house operations is conducted elsewhere. An exception may be made in the case of pipe-line milkers which are cleaned and given bactericidal treatment in place in such manner as to comply with the provisions of Items 13r and 14r and are approved by the health officer.

8r (a). FLOORS

PUBLIC-HEALTH REASON--A well-drained floor of concrete or other impervious material promotes cleanliness.

SATISFACTORY COMPLIANCE--This item shall be deemed to have been satisfied when the floor consists of concrete, brick, tile, asphalt-macadam, or other composition material, laid so as to be impervious and to drain properly.

Drain pipes should be carefully set before the floor is laid. A grade of one-fourth to one-half inch per foot gives ample floor drainage; where the drainage is such as to produce odors, a trapped drain should be provided. The finish of the floor should be as smooth as possible, and the junction of the floors and walls should be curbed and the joints rounded to avoid angles which collect and hold dirt. When the milk house is of frame construction, all walls, including partitions, should be made of impervious material up to a minimum height of 12 inches.

Milk-house floors with depressions in which liquids stand are unsatisfactory. Smooth floors, the drainage of which is poor, are unsatisfactory.

CLARIFICATION:

(1) Trap drains are recommended for proper sanitation and drainage.

(2) Recommend that drain be placed under wash vat and wash vats placed under windows to outside in order to provide best possible lighting.

8r (b). WALLS AND CEILINGS

PUBLIC-HEALTH REASON--Construction which permits easy cleaning promotes cleanliness.

SATISFACTORY COMPLIANCE--This item shall be deemed to have been satisfied when all parts of the walls and ceiling are in good repair and, except for light openings, are composed of:

(1) Smooth-dressed lumber, sheet metal, or plaster board, well painted with a light-colored, washable paint; or

(2) Tile, cement block, brick, concrete, or cement plaster, provided that the surfaces and joints are smooth.

The milk room should not be required to be ceiled overhead, unless flies cannot otherwise be kept out (as in the case of corrugated-metal roofing, where openings under corrugations cannot easily be fly-proofed) or unless the roof construction is such that the underside cannot easily be kept clean and free of cobwebs.

Unsheathed, inside walls of the milk room may be approved, provided the inside surfaces of the outer sheathing and all framing surfaces are smooth-dressed and painted. This interpretation applies also to partitions.

CLARIFICATION:

- (1) Recommend cement-asbestos-board or its equal for lining.
- (2) All joints or cracks should be flush for easier maintenance.
- (3) Recommend that walls and ceilings be insulated with fire and water resistant insulation where practical.
- (4) Recommend for this climate that milk houses be sealed and lined on walls and ceilings.

8r (c). LIGHTING AND VENTILATION

PUBLIC-HEALTH REASON--Ample light promotes cleanliness, and proper ventilation reduces the likelihood of odors and condensation.

SATISFACTORY COMPLIANCE--This item shall be deemed to have been satisfied when the window space is not less than 10 per cent of the floor area, and light is reasonably evenly distributed, and when the milk house is adequately ventilated to minimize odors and condensation on floors, walls, ceiling and clean utensils.

Milk houses in dusty locations shall be required to have glazed windows and solid doors, which shall be kept closed during dusty weather.

Artificial lighting is also important. The milk house must be well lighted for periods when there is insufficient natural light. A minimum of 10 foot-candles of light shall be provided at all working surfaces from natural and/or artificial light sources.

CLARIFICATION: Suggested remedies for poor ventilation.

1. By pull back windows on two sides for cross ventilation.
2. Closeable vent in ceiling through louvers to outside air.
3. Ventilation duct (using studs as duct with register approximately 18" above floor) leading to open outside air.
4. Mechanical ventilation.

5. If moisture collects on ceiling, recommend ceiling be insulated.

8r (d). SCREENING

PUBLIC-HEALTH REASON--Effective screening tends to prevent the presence of flies, which are a public-health menace. Flies may infect the milk with disease germs, which may multiply and become sufficiently numerous to present a public-health hazard. For disease transmission by flies, see Item 7r (Public-Health Reason).

SATISFACTORY COMPLIANCE--This item shall be deemed to have been satisfied if all openings are effectively screened during the season when flies are present, and outer doors open outward and are self-closing, unless other effective means are provided to prevent the entrance of flies, such as electric screens or screen panels.

Broken, torn, or poorly-fitted screens shall not be considered satisfactory compliance. Fly exclusion can be made more effective when screen doors open outward and are provided with closing devices, such as spring hinge, pulley and weight, coil spring, or similar measures. Poorly-fitting doors can be provided with flaps of canvas, linoleum, or other material.

A frequently overlooked entrance for flies is an open drain through the wall of the milk house. All such openings need to be properly screened or provided with flaps.

A screened milk-house extension used for storage of utensils, if in existence at the time of the adoption of this Ordinance, shall be approved as part of the milkhouse, provided that it has a tight roof, and that the interior is not exposed to dust. If such extensions are exposed to dust, they shall be made dustproof.

Screen cloth, tacked on the outside of the window frames so as to cover the openings completely without unduly obstructing light, shall be approved. If the screens are exposed to stress of any kind, light bars of wood across them will prevent breaks or tears. Screen cloth coarser than 16 mesh to the inch shall not be used.

Screen doors to fit standard door frames may be purchased in most hardware stores. The screen cloth of such doors should be protected by strips of wood, or by a piece of hardware cloth, placed across the bottom panel and at the level where the hands or elbows are generally placed in opening the door.

CLARIFICATION: Screens should be in place at the beginning of fly season. (Fly season usually extends from April 1 to November 1, in this area).

8r (e). MISCELLANEOUS REQUIREMENTS

PUBLIC-HEALTH REASON--A well-equipped milk house which is separated from the barn and the living quarters provides a safeguard against the exposure of milk and milk utensils to infection from persons other than regular milk handlers, and from insects and dust.

SATISFACTORY COMPLIANCE--The following constitutes satisfactory compliance with this item:

1. The milk house is used for no purpose, except as may be permitted by the health officer, other than the cooling, handling, and storage of milk and milk

products, and the cleaning, bactericidal treatment, and storage of milk containers and utensils. The health officer should permit the handling of no other products in the milk room which would be likely to contaminate milk, or otherwise create a public-health hazard. Permission to handle other products should be provisional, and subject to revocation if found objectionable.

2. The milk house does not open directly into a barn or stable, or into a room used for domestic purposes; except that when the barn or milking parlor is used only for milking and the feeding of concentrates, and not for the housing of cattle, a direct opening into the milk house may be permitted when a solid, self-closing door, opening outward from the milk house, is provided.

Satisfactory compliance may be effected also by (a) complete separation of barn and milk house, (b) construction of a passage-way (breezeway) which is completely open on at least one side, or (c) construction of a vestibule between the barn and milk house.

When compliance with this requirement is effected by the construction of a vestibule, the vestibule must have two self-closing doors, so arranged that both doors will not be open at the same time. Such doors may swing inward, outward, or both ways, but at least one of them must be solid. Vestibule construction must comply with milk house requirements, with respect to screening, cleanliness, and drainage.

The delivery of milk from the barn into the milk house by use of properly-protected conductors, or the passing of pails or cans directly into the milk house through a small opening which is provided with a tight-fitting, self-closing, solid door, shall not be considered a violation of the indirect-opening requirements.

CLARIFICATION:

1. Vestibule does not have to be lined.
2. Windows are not required in vestibule.
3. Painting of vestibule is recommended.

3. Each milk house is provided with adequate facilities for the heating of water, for the cleaning of utensils, and other necessary use. Water should be piped into existing milk houses, and shall be piped into all milk houses hereafter constructed, reconstructed, or extensively altered, except where it is impractical to obtain a satisfactory supply on the premises.

CLARIFICATION: 20 gallon water heater recommended minimum.

4. The milk house is equipped with stationary wash-and-rinse vats having at least two compartments, one for washing and the other for rinsing and bactericidal treatment. Both compartments shall be of sufficient size to hold the largest milk can used.

5. Waste water from the washing of utensils and the scrubbing of the milk house is conducted away. The milk house, preferably, should be located where natural drainage is good. Wastes from the milk room shall be disposed of in an acceptable, sanitary manner approved by the health officer.

CLARIFICATION:

1. For new construction 140 sq. ft. minimum useable where practical.
2. Milk house wastes should not be allowed to pool or provide fly attraction.

ITEM 9r. MILK HOUSE OR ROOM-CLEANLINESS AND FLIES

The floors, walls, ceilings, and equipment of the milk house or milk room shall be kept clean at all times. All necessary means for the elimination of flies shall be used.

PUBLIC-HEALTH REASON--Cleanliness and freedom from flies in the milk room reduce the likelihood of contamination of the milk. For disease hazards from flies, see Item 7r (Public-Health Reason).

SATISFACTORY COMPLIANCE--This item shall be deemed to have been satisfied when:

- (1) The floors, walls, windows, shelves, tables, wash vats, and other milk room equipment are clean.
- (2) The milk room is free of trash and articles not used in milk room work.
- (3) The use of insecticides or other effective fly-control measures results in the absence of flies from the milk house while milk is being handled, and very few or no flies at other times. Care should be taken to protect the milk and milk-room equipment against contamination by insecticides.

It is recommended that gas engines, and other machinery not essential to milk-room operations, not be located in the milk room.

CLARIFICATION:

1. Vacuum pump not recommended in milk house.
2. Wall openings for pipe lines leading into milk house must have protection against entrance of flies.

ITEM 10r. TOILET

Every dairy farm shall be provided with one or more sanitary toilets, conveniently located, and properly constructed, operated, and maintained, so that the waste is inaccessible to flies, and does not pollute the surface soil nor contaminate any water supply.

PUBLIC-HEALTH REASON--The organisms of typhoid fever, dysentery, and colitis are present in the body wastes of persons who have these diseases. In the case of typhoid fever, well persons (carriers) also may discharge the organisms in their body wastes. If a toilet is not flytight, and so constructed as to prevent overflow, infection may be carried from the excreta to the milk, either by flies or through the pollution of water supplies or streams to which the cows have access.

SATISFACTORY COMPLIANCE--This item shall be deemed to have been satisfied when:

- (1) There is at least one flush toilet, connected to a sewer system or to an individual sewage-disposal plant, constructed and operated in accordance with plans and instructions of the State Health Authority; or
- (2) A chemical toilet, or earth pit privy, or other type of privy is provided, constructed and operated in accordance with plans and instructions of the State Health Authority in those States permitting the use of these types of toilets.
- (3) A toilet is convenient to the milking barn and the milk house, and there is no evidence of human defecation or urination about the dairy premises except in the toilets provided for these purposes.
- (4) The toilet wastes are inaccessible to flies, and do not pollute the surface soil, nor contaminate any water supply.
- (5) The toilet does not open directly into the milk room, and is kept clean.

CLARIFICATION:

1. Recommend on new construction no direct opening from toilet to milking barn.
2. Encourage water carriage sewage system with approved disposal system.
3. Outside privy or privy on farm with:
 - a. Self-closing lid.
 - b. No evidence of flies or rodents entering or leaving pit.
 - c. If urinal in privy, privy structure must be fly-tight and have self-closing door.

ITEM 11r. WATER SUPPLY

Water for all dairy purposes shall be from a supply properly located, protected, and operated, and shall be easily accessible, adequate, and of a safe, sanitary quality.

PUBLIC-HEALTH REASON--A dairy-farm water supply should be accessible in order to encourage its use in ample quantity in cleaning operations; it should be adequate so that cleaning and rinsing will be thorough; and it should be of safe, sanitary quality in order to avoid the contamination of milk utensils.

A polluted water supply, used in the rinsing of the dairy utensils and containers, may be more dangerous than a similar water supply which is used for drinking purposes only. Bacteria grow much faster in milk than in water, and the severity of an attack of a given disease depends largely upon the size of the dose of disease organisms taken into the system. Therefore, a small number of disease organisms consumed in a glass of water from a polluted well may possibly result in no harm, whereas, if left in a milk utensil which has been rinsed with the water, they may, after several hours' growth in the milk, increase in such numbers as to cause disease when consumed.

SATISFACTORY COMPLIANCE--This item shall be deemed to have been satisfied when:

- (1) The water supply is from a public water supply which is approved by the State Health Authority, or from a spring, dug well, driven well, bored well, or drilled well which complies with the standards of the State Health Authority and, at least, the minimum standards outlined in Appendix D, page 166, 1953 Edition of USPHS Milk Ordinance and Code.
- (2) No surface or cistern water supply is used, except under conditions approved by the State Health Authority.
- (3) There is no cross-connection between the safe water supply and any unsafe or questionable water supply, or any other source of pollution through which contamination of the safe water supply might be possible. Submerged inlets in cattle drinking cups, wash vats, etc., shall be avoided.
- (4) The water supply is adequate in quantity to promote cleanliness.
- (5) The water supply is piped into, or is easily accessible to, both the milk house and the dairy barn, for cooling milk and washing utensils, udders, floors, and hands, and for other purposes.
- (6) The well or other source of water is located and constructed in such a manner that neither underground nor surface contamination from any privy, or other source of pollution can reach such water supply.
- (7) New private water supplies, and water supplies which may have become contaminated accidentally or following repair work, are thoroughly disinfected before being placed in use.
- (8) At least one inspection is made semi-annually to determine whether or not the location, construction, and operation of the supply comply with the above requirements.
- (9) Samples for bacteriological examination are taken upon the initial approval of the physical structure, and thereafter when any repair or alteration of the water-supply system has been made. Bacteriological examinations shall be made in conformity with the standard methods recommended by the American Public Health Association, and the quality of the water shall be deemed safe by the State Health Authority.

ITEM 12r. UTENSILS--CONSTRUCTION

All multi-use containers, equipment, and other utensils used in the handling, storage, or transportation of milk or milk products shall be made of smooth, non-absorbent, non-corrodible, non-toxic material, shall be so constructed as to be easily cleaned, and shall be kept in good repair. Joints and seams shall be welded or soldered flush. Woven-wire cloth shall not be used for straining milk. When milk is strained, strainer pads shall be used and shall not be re-used. All milk pails obtained hereafter shall be of the seamless, hooded type. All single-service articles used shall have been manufactured, packaged, transported, and handled in a sanitary manner.

PUBLIC-HEALTH REASON--Milk containers and other utensils without flush joints and seams, without smooth, easily cleaned, and accessible surfaces, and not made of durable, not readily corrodible material, are apt to harbor accumulations in which undesirable bacterial growth is supported. Single-service articles which have not been manufactured and handled in a sanitary manner may contaminate the milk.

Milk pails of small-mouth design, also known as hooded milk pails, decrease the possibility of hairs, dust, chaff, and other undesirable foreign substances getting into the milk at the time of milking.

SATISFACTORY COMPLIANCE--The following constitutes satisfactory compliance with this item:

- (1) All multi-use containers, utensils, pails, and conductor pipes are constructed of smooth, heavy-gauge material, with a not readily corrodible surface which is non-absorbent and non-toxic (the use of cadmium is expressly prohibited), and are of such construction as to be easily cleaned. All joints and seams shall be flush, with a solid, welded or soldered, burnished surface. Storage vats and transportation tanks or vats shall comply with the applicable requirements of Items 5p and 10p, 1953 Edition, USPHS Milk Ordinance and Code.
- (2) All containers, utensils, and other equipment are in good repair, and free of breaks and corroded places.
- (3) Strainers, if used, are so constructed as to utilize single-service strainer pads only, and such strainer pads are not reused. Woven wire cloth strainers shall not be used.
- (4) All milk pails obtained after the adoption of this Ordinance are of the seamless, hooded type, with the opening not exceeding one-third of the area of that of an open pail of the same size. All milk pails must be of an approved small-mouth design. If milking machines are used and stripping is done by hand, small-mouth pails shall be used. The practice of hand milking into small cups and pouring into pails is not approved.
- (5) All milking machines, including pails, heads, milk claws, milk tubing, and other milk-contact parts are so constructed as to be easily cleaned. All teat-cup liners, air and milk tubing, and other flexible parts shall be of a minimum length necessary for correct operation.
- (6) All single-service articles with which milk comes into contact are manufactured, packaged, transported, and handled in a sanitary manner. (Strainer pads, parchment paper, etc.)

CLARIFICATION:

1. Recommend that aluminum not be used.
2. Threaded caps on claws not recommended.

ITEM 13r. UTENSILS-CLEANING

All multi-use containers, equipment, and other utensils used in the handling, storage, or transportation of milk and milk products shall be thoroughly cleaned after each usage.

PUBLIC-HEALTH REASON--Milk cannot be kept clean or free of contamination if permitted to come into contact with unclean containers, utensils, or equipment.

SATISFACTORY COMPLIANCE--This item shall be deemed to have been satisfied when all multi-use containers, other utensils, and equipment used in milking, or the cooling, handling, storage, or transportation of milk and milk products, are thoroughly cleaned after each usage. Cleanliness may be determined by sight, touch, or smell, by observation through a magnifying glass, by wiping with tissue or filter paper, and/or by other approved methods. Washing is facilitated by using warm water, a brush, and a detergent suitable to the hardness of the water; also, by washing or rinsing as soon as possible after each usage.

ITEM 14r. UTENSILS-BACTERICIDAL TREATMENT

All multi-use containers, equipment, and other utensils used in the handling, storage, or transportation of milk or milk products shall, before each usage, be subjected effectively to an approved bactericidal process utilizing steam, hot water, chemicals, or hot air.

PUBLIC-HEALTH REASON--Mere cleaning of containers, equipment, and utensils does not insure the removal or destruction of all disease organisms which may have been present. Even very small numbers remaining may grow to dangerous proportions, since many kinds of disease bacteria grow rapidly in milk. For this reason, all milk containers, equipment, and utensils must be treated with an effective bactericidal agent before each usage.

SATISFACTORY COMPLIANCE--By approved bactericidal process is meant the application of any method or substance for the destruction of pathogens, and of other organisms as far as is practicable, which is effective and which does not adversely affect the equipment, the milk or milk products, or the health of the consumers.

The bactericidal procedures outlined below are designed to destroy vegetative bacteria, but not necessarily spores. Spore-forming bacteria may impart undesirable flavors to the milk, or may have undesirable effects. If it should be desirable to destroy all spores, more severe treatment is necessary, such as exposure to hypochlorites (see below) for extended periods.

Steam, hot-water, or hot-air treatment shall not be accepted as fulfilling satisfactory compliance, unless the equipment or containers are completely immersed or exposed for the required time, or longer, at the required temperature, or higher, throughout the period of exposure. Pouring hot or so-called boiling water from vessel to vessel is not adequate, and shall not be accepted.

This item shall be deemed to have been satisfied if all milk containers, utensils, and other equipment, with the exception of milking machine pulsators and air hoses, have been treated by one or more of the following methods:

(1) Exposure to steam for at least 15 minutes at a temperature of at least 170°F., or for at least 5 minutes at a temperature of at least 200°F., in a steam cabinet equipped with an indicating thermometer which is located in the coldest zone.

(2) Exposure to an enclosed jet of steam for not less than one minute.

(3) Immersion in hot water at a temperature of at least 170°F. for at least 2 minutes, or exposure to a flow of hot water at a temperature of at least 170°F. (at the outlet) for at least 5 minutes, as determined by use of a suitable thermometer.

(4) Exposure to hot air at a temperature of at least 180°F. for at least 20 minutes, in a properly designed oven or hot-air cabinet which is equipped with an indicating thermometer located in the coldest zone. Traces of moisture in cans or utensils which are inverted during heating will increase the bactericidal efficiency of hot-air cabinets. However, cans must be thoroughly dried out during the heating process to prevent bacterial growth during subsequent storage.

(5) Immersion for at least 2 minutes in, or exposure for at least 2 minutes to a flow of, an approved chemical bactericide of approved strength. All milk-contact surfaces must be wetted by the bactericidal solution, and piping so treated must be filled. Bactericidal sprays may be used for large equipment. Bactericidal treatment with chemicals is not effective unless the surface has first been thoroughly cleaned. Chemical solutions, once used, shall not be re-used for bactericidal treatment on any subsequent day, but may be re-used for other purposes.

(6) All surfaces of rubber parts of milking machines which come into contact with milk may be treated by filling with, or immersing in, a 0.5 per cent (1 tablespoon per gallon) lye solution, followed by a rinse before use. A fresh supply of lye solution must be used for each storage.

The health officer should satisfy himself that the efficiency of the process is such as to produce containers having a residual bacterial plate count of not more than one per milliliter of capacity, and equipment with not over 100 colonies per 8 square inches (or 2 per square centimeter) of milk-contact surface in 3 out of 4 samples. Since some bactericides have a specific action against certain types of bacteria, but may be less effective against others, it may be desirable, periodically, to alternate types of bactericidal treatment used. Any milk-contact surface of equipment which is touched shall again be subjected to bactericidal treatment before being used.

CLARIFICATION:

1. Methods 3, 5 and 6 are the most practical methods.
2. Dry storage of rubber parts is acceptable provided bactericidal treatment is given those parts in accordance with Method number 3 or 5.

ITEM 15r. UTENSILS-STORAGE

All containers and other utensils used in the handling, storage, or transportation of milk or milk products, unless stored in bactericidal solutions, shall be stored so as to drain dry, and so as not to become contaminated before being used.

PUBLIC-HEALTH REASON--Careless storage of milk utensils which previously have been properly treated is apt to result in recontamination of such utensils, thus rendering them unsafe.

SATISFACTORY COMPLIANCE--This item shall be deemed to have been satisfied when:

(1) All milk utensils and vessels are left in the treating chamber until used; or left in the bactericidal solution; or stored in the milk house on racks, in such manner as to protect them from contamination, inverting such articles as can be inverted. However, if approved by the health officer (see Item 8r), those parts of pipeline milkers which are cleaned in place may be stored in place. Storage racks should be constructed of metal, protected against rusting, with the lowest shelf not less than 24 inches above the floor.

(2) Strainer pads, parchment papers, and gaskets are kept, until used, in the original package with covers closed, or stored in a suitable container or cabinet and protected from contamination.

(3) Utensils (including strainer disks, gaskets, inflations, parchment papers, etc.) are stored in such manner and in such location as not to be contaminated by an insecticides, drugs, or other toxic substances.

(4) Clean cans or other containers are stored in the milk house within a reasonable time after delivery to the dairyman. Unprotected storage along the highway shall be considered a violation of this item.

CLARIFICATION:

1. Containers should not be nested.
2. Can lids shall be stored, plug down, on rack.

ITEM 16r. UTENSILS-HANDLING

After bactericidal treatment, containers and other milk and milk product utensils shall be handled in such a manner as to prevent contamination of any surface with which milk or milk products come into contact.

PUBLIC-HEALTH REASON--Handling milk pails by inserting the fingers under the hood, carrying an armful of milk-can covers against a soiled shirt or jacket, or similar handling of utensils, will nullify the effect of bactericidal treatment.

SATISFACTORY COMPLIANCE--This item shall be deemed to have been satisfied when none of the above or similar practices is in evidence.

ITEM 17r. MILKING-UDDERS AND TEATS-ABNORMAL MILK

Milking shall be done in the milking barn, stable, or parlor. The udders and teats of all milking cows shall be clean and wiped with an approved bactericidal solution at the time of milking. Abnormal milk shall be kept out of the milk supply, and shall be so handled and disposed of as to preclude the infection of the cows and the contamination of milk utensils.

PUBLIC-HEALTH REASON--If milking is done elsewhere than in a suitable place provided for this purpose, the milk may become contaminated.

Cows frequently contaminate their udders by standing in polluted water, or by lying down in the pasture or cow yard. Unless the udders and teats are carefully cleaned just before milking, particles of filth are apt to drop into the milk. Such contamination of the milk is particularly dangerous because cow manure may contain the organisms of brucellosis and tuberculosis, and polluted water may contain the organisms of typhoid fever and other intestinal diseases. Rinsing or wiping the udders and teats with bactericidal solution has the advantage of giving an additional margin of safety, with reference to such disease organisms as are not removed by ordinary cleaning, and it is helpful in the control of mastitis.

Abnormal milk may indicate a disease of the udder and should, therefore, be kept out of the milk supply and away from the cows and the milk utensils.

SATISFACTORY COMPLIANCE--This item shall be deemed to have been satisfied when:

- (1) Milking is done in the milking barn, stable, or parlor; and
- (2) The cows' udders and teats look and feel clean, and have been rinsed with an approved bactericidal solution just prior to milking; and
- (3) Any abnormal milk is kept out of the milk supply, and is so handled and disposed of as to preclude the infection of the cows and the contamination of the milk utensils.

It is recommended that the first streams of milk from each teat be discarded, and that the strip cup be used daily to examine this milk.

ITEM 18r. MILKING-FLANKS

The flanks, bellies, and tails of all milking cows shall be free from visible dirt at the time of milking. All brushing shall be completed before milking commences.

PUBLIC-HEALTH REASON--Cleanliness of the cows is one of the most important factors affecting the bacterial count of the milk. Under usual farm conditions, cows accumulate on their bodies quantities of manure, caked mud, dust, chaff, loose hairs, etc. Practically all of these materials carry bacteria, and are apt to fall into the milking pail during the process of milking. This may result in contaminating the milk with bacteria.

SATISFACTORY COMPLIANCE--This item shall be deemed to have been satisfied when:

- (1) Flanks, bellies and tails are free from dirt at the time of milking, as shown by sight and touch.
- (2) Brushing is completed before milking is begun.
- (3) Flanks, bellies, udders, and tails are clipped to facilitate cleaning, when the cows are stabled for the winter.

ITEM 19r. MILKERS' HANDS

Milkers' hands shall be washed clean, rinsed with an effective bactericidal solution, and dried with a clean towel, immediately before milking and immediately after any interruption in the milking operation. Wet-hand milking is prohibited. Convenient facilities shall be provided for the washing of milkers' hands. No person with an infected cut or lesion on hands or arms shall milk cows, or handle milk or milk utensils.

PUBLIC-HEALTH REASON--The reasons for bactericidal treatment of the hands of milkers are similar to those for bactericidal treatment of the udders. In the course of the preparation for milking, the hands of the milkers come into contact with almost identically the same kind of materials as may have contaminated the udders. During the course of his duties and natural habits outside of the milking barn, the dairyman's hands must be assumed to have been exposed to body discharges. Washing facilities are required in order to increase the assurance that milkers' hands will be washed.

Wet-hand milking increases the possibility of contaminating the milk.

If persons with infected sores on hands or arms handle milk or milk utensils, these may become contaminated with staphylococci which may cause entero-toxin poisoning in humans.

SATISFACTORY COMPLIANCE--The following constitutes satisfactory compliance with this item:

(1) There are no open sores or infected cuts on any milkers' hands or arms.

(2) Before milking is begun, the milkers' hands have been thoroughly washed, and rinsed with water to which an approved bactericide has been added.

(3) Hands are clean and dry during milking. Hands are considered dry when they have been wiped with a wrung-out cloth that has been used to apply bactericidal rinse to the udder.

(4) Hand-washing facilities are provided, in or convenient to the barn at the time of milking. These shall include either running water or a suitable vessel, an adequate supply of clean water and soap, and a clean cloth for each milker, or clean paper toweling. When the hand-washing facilities provided are in the milk house, they must be adequate and convenient to the barn. Wash and rinse vats are not considered suitable hand-washing facilities.

(5) The milkers' hands are rinsed in an approved bactericidal solution, whenever they become contaminated at any time during the milking period.

The hands of all milkers must be dipped and rinsed in a standard bactericidal solution, and wiped dry, before milking is begun. This applies to the stripper and to the person who handles the milking machines and attaches them to and removes them from the cows. A bucketful of bactericidal solution should be in the barn during hand-milking. Each time that a milker has finished milking a cow, has carried out the milk, has moved his stool to the next cow, and has applied the cow hobblers or anti-kickers (if used), he should rinse his hands in the solution. The first rinsing in the solution does not afford protection against

recontamination from the cow's flanks, or even from the clothes and person of the milker.

CLARIFICATION: The use of paper towels is recommended.

ITEM 20r. CLEAN CLOTHING

Milkers and milk handlers shall wear clean outer garments while milking or handling milk, milk products, containers, utensils or equipment.

PUBLIC-HEALTH REASON--Because the hands of all workers frequently come into contact with their clothing, it is important that the clothes worn during the milking and the handling of the milk be clean.

SATISFACTORY COMPLIANCE--This item shall be deemed to have been satisfied when milkers are seen to be wearing outer garments that are not excessively soiled.

Washable overgarments are not required, but milkers should be urged to have one suit of overalls for milking and another for general work, and the suits should be changed just before milking. If milkers wear clean aprons, this shall be considered satisfactory.

ITEM 21r. MILK STOOLS

Milk stools and surcingles shall be kept clean.

PUBLIC-HEALTH REASON--Clean milk stools, and clean surcingles (or belly straps) reduce the likelihood of contamination of milkers' hands between the milking of one cow and the milking of another.

SATISFACTORY COMPLIANCE--This item shall be deemed to have been satisfied when:

(1) Milk stools are without padding, and are so constructed as to be easily cleaned, and

(2) Milk stools and surcingles look and feel clean at all times.

(3) Milk stools and surcingles are stored above the floor in a clean place in the barn or milk house, when not in use.

CLARIFICATION--Recommend metal stools; if other material is used, it shall be kept clean.

ITEM 22r. REMOVAL OF MILK

Each pail or can of milk shall be removed immediately to the milk house or straining room. No milk shall be strained or poured in the barn, unless it is protected from flies and other contamination.

PUBLIC-HEALTH REASON--Keeping the milk in the barn until all or a large part of the herd has been milked is apt to expose it to flies and dust, and to delay cooling. Straining milk in the barn likewise exposes it to dust and flies.

SATISFACTORY COMPLIANCE--This item shall be deemed to have been satisfied when:

(1) Each pail or can, when full, is immediately removed to the milk house.

(2) Straining of the milk is done in the milk house, or in a small, effectively screened straining room in or near the barn or stable, but not opening into it (although the latter method is not recommended because it delays cooling); or

(3) Milk is poured and/or strained from the milk pails or milking-machine pails into a 5 or 10 gallon clean milk can provided with a well-fitting cover over the strainer or can, and the cans are placed at such distance from the cows, or raised above the floor (as on a dolly or cart), as to be protected against manure and splash, with the cover closed except when milk is being poured; self-closing covers are recommended.

(4) Milk is poured into conductors which protect the milk from contamination.

(5) Milk is not poured or strained in feed rooms.

ITEM 23r. COOLING

Milk for pasteurization, unless delivered to a milk plant or receiving station within 2 hours after completion of milking, shall be cooled immediately to 50°F. or less and shall be maintained at that temperature as determined in accordance with Section 6, until delivered.

PUBLIC-HEALTH REASON--Milk produced by disease-free cows and under clean conditions usually contains relatively few bacteria immediately after milking. These multiply to enormous numbers in a few hours unless the milk is cooled. When the milk is cooled quickly to 50°F. or less, however, there is only a slow increase in numbers of bacteria. In order to understand this, it is necessary to recall merely that bacteria are actually infinitesimal plants, and that most plants do not grow in cold weather.

Usually, the bacteria in milk are harmless, and if this were always true there would be no reason to cool milk, except to delay souring. There is, however, no way for the dairyman or health officer to be absolutely sure that no disease bacteria have entered the milk even though observance of the other items of this Ordinance will greatly reduce this likelihood. The likelihood of transmitting disease is much increased when the milk contains large numbers of disease bacteria. Therefore, it is extremely important for milk to be cooled quickly, so that small numbers of bacteria which may have entered will not multiply.

SATISFACTORY COMPLIANCE--This item shall be deemed to have been satisfied when:

(1) Milk for pasteurization is cooled to 50°F. or less within 2 hours after the milking of the herd is completed, and is maintained at 50°F. or less until it is delivered; or

(2) The milk is delivered to a milk plant or receiving station within 2 hours after the completion of milking of the herd.

The health officer shall determine the temperature of the milk in accordance with Section 6 and the procedures outlined in Appendix B, p. 180.

The specifications for inspectors' general-purpose thermometers (Appendix H-1, p. 206) are designed to provide a thermometer suitable for determining both refrigeration temperatures and bactericidal treatment temperature at dairies and restaurants.

ITEM 24r. VEHICLES AND SURROUNDINGS

All vehicles used for the transportation of milk or milk products shall be constructed and operated so as to protect their contents from the sun, from freezing, and from contamination.

The immediate surroundings of the dairy shall be kept in a clean, neat condition.

PUBLIC-HEALTH REASON--To protect milk during transportation, delivery vehicles must be properly constructed and operated. The surroundings of a dairy should be kept neat and clean to encourage cleanliness, and to increase the consumers' confidence.

SATISFACTORY COMPLIANCE--This item shall be deemed to have been satisfied when:

(1) Vehicles used for the transportation of milk are kept clean, both inside and outside.

(2) No substances capable of contaminating the milk are transported with it.

(3) Vehicles are so constructed as to protect the milk or milk products from the sun, from freezing, and from contamination.

(4) The immediate surroundings of the dairy are kept neat and clean, and free of rodent harborages and insect-breeding places.

CLARIFICATION:

1. Vehicles -- "be required to have a rigid, permanent, enclosed box with a double roof with insulation between or adequate dead air space as a minimum requirement. . . ."

2. "All trucks, except pickup trucks, used on bad roads be insulated, dust tight and so maintained. Minimum insulation-double wall; recommended insulation, 1" of light weight mineral material."

"Pickup trucks to be covered dust tight and so maintained."

"All trucks be permitted as required by 1953 recommended Milk Ordinance and Code".

"Where milk is taken to road by producer, producer supply platform shelter to protect milk and empty cans."

"Recommend good hauling practice, hauler remove lids from cans and properly rack cans and lids.

3. "Dust tight construction of box."

"Insulated box--sufficient to protect milk from extreme heat and cold."

"Box should be kept clean".

"Regular inspections by proper health agency."