

Recent Amendments of the U. S. Public Health Service Milk Code*

A. W. FUCHS

Chief, Milk and Food Section, U. S. Public Health Service, Washington, D. C.

THE 1939 edition of Public Health Bulletin No. 220, the *Milk Ordinance and Code* recommended by the U. S. Public Health Service, has remained current longer than any previous edition. At the request of Army authorities no new edition was issued during the war period in order to avoid complications in the procurement of milk by the Quartermaster General under specifications based on the USPHS standards. A few minor changes were adopted as Amendments No. 1 and No. 2 by the USPHS Sanitation Advisory Board in July 1941 and December 1942, but these were issued as multilithed separates.

After the war ended, numerous requests were received from state and local health authorities for the issuance of a revised milk ordinance and code. Some municipalities which were contemplating the enactment of the ordinance hesitated to adopt the 1939 edition if a new edition was imminent. Nevertheless, the Public Health Service preferred to postpone consideration of any revision until the standards being prepared over a period of several years by the Committee on Milk Regulations and Ordinances of the INTERNATIONAL ASSOCIATION OF MILK SANITARIANS became available for study by the USPHS Advisory Board. It was the aim of the Public Health Service, in the interest of nation-wide uniformity of milk regulations, to attempt a revision of its recommended

ordinance that would be acceptable not only to USPHS Milk Ordinance areas but also to those operating under other standards.

Over the years since the 1939 edition was first issued there have been accumulated hundreds of proposed changes suggested by state and local health agencies, the dairy industry, equipment manufacturers, the IAMS Committee on Milk Regulations and Ordinances, and the staff of the USPHS. In accordance with the recommendation of the 1938 Committee on Milk of the Conference of State and Provincial Health Authorities, the more important of the proposed changes were summarized and submitted early in May of this year as a 16-page mimeographed pamphlet to the several USPHS District offices and to state and city health officers of areas operating under the USPHS milk ordinance for their comments. The comments received were then summarized for the consideration of the USPHS Advisory Board. In addition, a complete and detailed compilation of all accumulated proposed changes was prepared in the form of an agenda and submitted to the members of the Advisory Board for study several weeks in advance of the meeting.

The USPHS Milk and Food Sanitation Advisory Board which met June 25-27, 1947, to consider proposed amendments to the milk ordinance and code was a new board appointed early in 1947, although some of its members had sat on previous boards. When the Sanitation Section was established in the Domestic Quarantine Division of the USPHS in 1940, to be followed

* Presented at the annual meeting of the New York State Association of Milk Sanitarians, Utica, N. Y., Sept. 19, 1947, and at the thirty-fourth annual meeting of the International Association of Milk Sanitarians, Milwaukee, Wis., Oct. 18, 1947.

by its transformation into the Sanitary Engineering Division of the Office of the Surgeon General by the Reorganization Act of 1943, the 16-member Milk Sanitation Advisory Board which had assisted the former Office of Milk Investigations in the preparation of the 1939 Milk Ordinance and Code was replaced by a 7-member Sanitation Advisory Board of consultants in all fields of environmental sanitation. This was the Board that was called upon in the preparation of Amendments No. 1 and No. 2 to the 1939 milk code and of the 1943 Ordinance and Code Regulating Eating and Drinking Establishments. Later it became apparent that the work of the Milk and Food Section would be benefitted by having its own board of specialists, and the Milk and Food Sanitation Advisory Board was accordingly appointed by the Administrator of the Federal Security Agency. Following is a list of its membership. Those designated by an asterisk are also members of the general Sanitation Advisory Board.

C. A. Abele, Director, Country Dairy Inspection Section, Chicago Board of Health

C. J. Babcock *, Market Milk Specialist, Bureau of Dairy Industry, USDA, Washington, D. C.

Dr. F. A. Clark, formerly Director, Division of Inspection, Alabama Department of Health; now School of Veterinary Medicine, Alabama Polytechnic Institute, Auburn, Ala.

Mrs. S. V. Dugan, Director, Division of Foods, Drugs, and Hotels, State Department of Health, Louisville, Ky.

H. A. Kroeze *, Director, Division of Sanitary Engineering, State Board of Health, Jackson, Miss.

Sol Pincus *, Senior Sanitary Engineer, New York City Health Department.

C. L. Senn, Engineer-Director,

Bureau of Sanitation, Los Angeles City Health Department.

W. D. Tiedeman *, Chief, Bureau of Milk Sanitation, State Department of Health, Albany, N. Y., Chairman.

A. W. Fuchs, Chief, Milk and Food Section, USPHS, Washington, D. C., Secretary

Although wide geographic distribution was desired and achieved, the Board has been kept small in the interest of economy and efficient administration. A small board is more informal, less unwieldy, and can accomplish more in a limited time than a large one. The membership has been limited to those who are or have recently been in official positions in federal, state, or municipal agencies. It was obviously impossible to provide membership to all the geographic areas and to all the branches of the milk and food industry that would like to be represented. As the Board's sessions are limited to a few days, in order to avoid undue interference with the normal duties of the members, it cannot hold open hearings on the numerous proposals submitted but must instead deliberate in closed meeting. Nevertheless, consideration is being given to the suggestion that at future sessions a representative from the industry or industries affected be invited to the meetings as observers to be consulted by the Board when occasion arises.

During its three-day meeting in June, the Advisory Board was unable, despite a minimum of discussion and several night sessions, to complete its consideration of the 150-page type-written agenda of proposed changes. Some of the less important proposals which could not be considered will be included in the next milk agenda. In the time available, the Board accomplished even more than could reasonably have been expected. The remainder of this paper will be devoted to a discussion of the most important amendments approved by the Board.



GENERAL REVISIONS

All previous editions of the recommended ordinance provided three different methods of enforcement—by degrading, or suspension of permit, or court action. Experience has shown that a dairy that has been degraded will lose customers, and that competition for public patronage through grade labeling serves to promote compliance by the industry. Furthermore, degrading promotes better enforcement by the control agency, as the health officer is more likely to resort to degrading a dairy for minor violations than to revoke or suspend its permit and thus put it out of business. Nevertheless, some health officers who are not familiar with the advantages of degrading object to it. To meet their objections, the revised ordinance contains both a degrading form, enforceable by degrading or permit suspension or court penalties, and a non-degrading form, enforceable by permit suspension or court action only. The two forms are presented as one text, with all references to degrading shown in parentheses, so that the degrading form is obtained by deleting the parentheses signs only, while the non-degrading form is obtained by deleting all passages within parentheses. The grade A designation is retained in both forms. Similar provision for the two forms of enforcement is made in other ordinances recommended by USPHS, including the restaurant ordinance and the frozen desserts ordinance.

A new departure will be the simplification of the interpretative code by removing all material that is not actually public health reason or satisfactory compliance, and placing such material in an appendix. The appendix will, therefore, contain detailed instructions and suggestions to the dairyman and to the inspector formerly scattered throughout the code, as well as many new features.

Several changes are to be made in the methods of computing milk sani-

tation ratings. Such ratings should not be confused with grading. Grades of individual milk supplies are established by the local control agency under the terms of the ordinance. Milk sanitation ratings, on the other hand, are made by state agencies to determine the weighted percentage compliance of an entire milk shed, or of a group of producers, with the grade A standards. One change in the rating procedure will be to assign twice as much weight to the plant rating as to the producers' rating in computing the pasteurized milk rating of a community, thus acknowledging the greater importance of pasteurization in the production of safe milk. Another change will be to assign 20 percent, instead of the present 15 percent, to bacterial quality, on the grounds that a series of at least four bacterial counts affords a better history of the production conditions than a single inspection made in the course of a rating survey.

Since half-and-half, cottage cheese, and creamed cottage cheese are fresh milk products usually produced in the same plants as milk and cream, some cities prefer to include some or all of these products in their milk ordinance. For the benefit of such municipalities definitions of these products are given in a footnote, with the suggestion that these products be listed in the definition of milk products thus making them subject to the same grade standards as other milk products. Definitions have also been added of light cream, whipping cream, light whipping cream, and heavy cream, conforming to those of the Food and Drug Administration.

The unavailability of adequate supplies of graded whole milk has led to the extensive use of ungraded concentrated milk in the production of buttermilk and milk drinks, particularly in the South, where large volumes of these products are consumed. Difficulties were reported in enforcing grade labeling of these products. Accordingly, reconstituted buttermilk and re-

constituted milk beverages made from concentrated milk have been defined separately from buttermilk and milk beverages made from fresh milk or skimmed milk, and have been omitted from the definition of milk products and from the grading provisions. Of course, where the state law prohibits the sale of reconstituted milk products, these and similar definitions should be deleted when the ordinance is adopted.

As in previous editions, the grades of milk which may be sold are left blank in Section 8 and are to be inserted by the adopting community. For those municipalities which are in position to require the pasteurization of all milk or of all except certified, a footnote in the revised edition will list the changes to be made in the ordinance in order to remove unnecessary and confusing references to raw milk.

ENFORCEMENT PROVISIONS

The watering of milk is classed as an adulteration even when the butterfat and solids-not-fat content still conform to the definition of milk.

In an emergency the sale of ungraded milk or milk products may be authorized by the health officer, upon the approval of the state health authority, in which case such milk or milk products must be labeled "ungraded." An emergency may be declared for a limited period only, and is defined as a general and acute shortage in the milkshed, not simply one dealer's shortage. In many cases it was necessary to utilize ungraded milk supplies during the war, and this condition still exists in a few areas.

Adulterated, misbranded, or ungraded milk or milk products may be impounded by the health officer and disposed of in accordance with state law.

The usual labeling requirements are waived, and only the identity of the producer will be required, on cans delivered to a milk plant which receives only raw milk for pasteurization of

only one grade and which immediately dumps, washes, and returns the cans to the producer. In the case of vitamin D milk, the label must show the number of units per quart (at least 400 U.S.P.), in addition to the designation "Vitamin D Milk" and the source of the vitamin D.

The former requirement that restaurants, soda fountains, etc., shall display a placard stating the lowest grade of milk sold is deleted, as the advantages of such placards are considered as not worth the time and effort required for the inspector to post grades and change placards upon change of grade.

Where funds are insufficient for adequate official inspection, the health officer may accept the results of periodic industry inspections of producer dairies provided that such inspections have been officially checked periodically and found satisfactory. Similarly, the results of examinations by commercial laboratories may be accepted in the case of raw milk for pasteurization if officially checked periodically and found satisfactory.

Producers and distributors must permit the inspector access to all parts of the establishment, and distributors must furnish for official use, when requested, a true statement of the quantities of each grade purchased and sold, a list of all sources, records of inspections and tests, and recording thermometer charts.

Compliance with bacterial and cooling temperature standards in previous editions has been based entirely on averages of the last four samples, with logarithmic averages used for plate counts and direct microscopic counts and arithmetic averages for reduction times and cooling temperatures. The new edition permits the adoption of the 3 out of 4 method instead by communities which prefer to do so. It is simpler to understand, requires no calculation of averages, and where direct microscopic counts are made less time is required to count clumps to determine compliance.

A new provision of Section 10 prohibits the mixing of homogenized milk or cream with unhomogenized milk or cream. This so-called "partial homogenization" of milk was reported as being practiced by a few plants to increase the apparent butterfat content.

Under the revised Section 11 milk and milk products from distant points may be accepted without inspection by the receiving city if produced and/or pasteurized under standards that are substantially equivalent and are enforced with equal effectiveness as indicated by milk sanitation ratings.

STANDARDS FOR RAW MILK FOR PASTEURIZATION

Of particular interest to areas not operating under the USPHS milk ordinance are the changes in the production standards for raw milk for pasteurization, for it is in respect to these, rather than in the pasteurization plant standards, that the greatest differences between the USPHS and other standards were to be found. Many of these revisions were suggested by the IAMS Committee on Milk Regulations and Ordinances. It is believed that with these new standards and with the changes previously described, the ordinance can now be adopted by non-USPHS Milk Ordinance areas without creating undue hardship. On the other hand, it will be possible for areas now operating under previous editions of the USPHS milk ordinance to adopt the new edition without any material change in procedures. In this way it is hoped that the goal of country-wide uniformity of standards and of enforcement may eventually be achieved, to the benefit of both the public health and the industry.

Several changes have been made in the bacterial standards for grade A raw milk for pasteurization. While the plate count and the direct microscopic clump count of this milk as delivered from the farm remain at 200,000 per

ml., the methylene blue reduction time is reduced to 5 hours, as determined by the modified inverted test prescribed in the forthcoming ninth edition of Standard Methods, and a resazurin reduction standard of $2\frac{1}{2}$ hours to P 7/4 has been inserted. A new standard has also been added limiting the count of this milk after delivery but before pasteurizing to 400,000 per ml., 4 hours by methylene blue, or 2 hours by resazurin. These figures are tentative and subject to change as a result of an investigation now under way. The Advisory Board was convinced that the inevitable increase in count between delivery and pasteurization, particularly where the milk is transported from a receiving station, must be recognized and provided for.

Cows which show a complete induration in one quarter need not be excluded from the milking herd if the affected quarter is completely dry and inactive.

Milking stable floors of tight wood will hereafter be acceptable only if such floors are in existence when the ordinance is adopted locally. New floors must be of concrete or other approved and easily cleaned material. Horses, dry cows, calves, and bulls may be permitted in the milking stable provided that they are confined in stalls, stanchions, and pens which are kept clean and in good repair.

The previous provision concerning feed rooms in the milking barn has been relaxed somewhat by requiring them to be separated by a dust-tight partition and door from the milking space only if feed is ground or mixed or sweet (fly attracting) feed is stored in the feed room.

A provision has been inserted that milking must be done in the milking stable or milking parlor. The acceptance of loafing, resting, or pen type stables, formerly in the Code only, is now a part of the ordinance, with the same provision relative to the removal of manure droppings or the addition of

clean bedding with sufficient frequency to prevent the accumulation of manure on cow's udders and flanks and the breeding of flies.

One of the controversial issues in the past has been whether milk utensils used on producing farms may be washed in the farm kitchen instead of the milk house. The USPHS ordinance has always required washing in the milk house because of the communicable disease hazard involved in kitchen handling to which the entire family has access. While admitting the advantages of washing in the milk house, the IAMS Committee suggested a compromise whereby this ideal would be attained eventually but which would permit northern areas to adopt the ordinance without having to rebuild their milk houses immediately. This compromise was approved by the Advisory Board as an alternative wording in a footnote to item 8r, requiring that in milk houses hereafter constructed, reconstructed, or extensively altered, facilities shall be provided for the washing and rinsing of utensils, including an adequate water heater and stationary wash and rinse vats. Where these facilities are available, washing and rinsing of utensils must be done in the milk house. In all cases, utensils must be given bactericidal treatment and storage in the milk house.

Another compromise suggested by the IAMS Committee and approved by the Advisory Board was on milk pails. It was agreed that small-top milk pails keep much dirt out of the milk and that difficult cleaning is due largely to open seams. Accordingly, the revised wording requires that all milk pails obtained after the ordinance is adopted locally shall be of the seamless hooded type, thus permitting the use of existing open-top pails until replacement is needed.

The revised ordinance provides that if milk is strained, single-service filter pads shall be used and shall not be re-used.

The thorough rinsing of the inner surfaces of pails and cans with a solution containing chlorine or other approved chemicals is accepted as bactericidal treatment in lieu of immersion. The revised code will also permit the treatment of milking machine rubber parts in a 0.5 percent lye solution followed by a water rinse before use.

Straining milk in the milking barn will be permitted under conditions which protect the milk from flies, dust, and other contamination, as by means of a can set on a dolly and provided with a pedal-operated self-closing cover.

Milk for pasteurization must be cooled immediately after completion of milking to 60° F. or less (instead of the former 70°) and maintained at that temperature until delivered and dumped, except morning milk delivered and dumped before a stated hour and night milk delivered and dumped before another stated hour. The adopting municipality is instructed in a footnote to fill in the time to suit local condition but should not allow more than four hours after completion of milking as locally practiced. Milk which does not comply with the temperature standard is subject to rejection.

The revisions described in the preceding four paragraphs were suggested by the IAMS Committee on Regulations and Ordinances.

STANDARDS FOR PASTEURIZED MILK

Numerous changes were made in the standards for Grade A pasteurized milk. Very few of these were drastic, however, most of them being for purposes of greater clarification or improvement in technical requirements.

The revised code will recommend that monthly platform tests of each producer's milk be made by the milk plant or its receiving station, including odor, strainer-dipper, sediment, and temperature. It will be further recommended that milk found unsatisfactory by these tests be rejected and that follow-up inspections be made by the

plant to discover and correct the cause. Official inspectors will be urged to check the plant's platform test procedures.

In the 1939 edition the use of the phosphatase test to determine the efficiency of pasteurization was recommended in a footnote. In the revised edition the phosphatase test is made mandatory in the ordinance definition of grade A pasteurized milk. Because of the supreme importance of proper pasteurization, a violation of the phosphatase test requirement will be treated differently from other types of violations. Section 6 will provide that in case of violation of the phosphatase test standard the cause of underpasteurization shall be determined and removed before any pasteurized milk or milk products can again be sold from this plant.

A coliform standard for pasteurized milk of not over 10 per ml. has been added, for the purpose of detecting post-pasteurization contamination when phosphatase tests are negative. The Advisory Board felt that this was a liberal standard which may be made more stringent in future editions, but which is justified for an initial program.

For plant lighting either natural or artificial light will be accepted in the Code if 10 foot-candles intensity is provided either on the work or on a plane 30 inches above the floor, with greater light intensities at special points where necessary.

Control and elimination of rodents and roaches from the plant has been provided in Section 5p, and the Code will require poisonous substances to be stored and handled so as to prevent the accidental contamination of milk, milk products, or containers.

With regard to water supplies, a recommendation will appear in the Code that the water supply of pasteurization plants and producer-distributor dairies be sampled for bacteriological examination at least twice a year. Section 11p of the ordinance also provides that all plumbing and equipment shall

be so designed and installed as to prevent contamination of the water supply and of milk equipment by backflow. No interconnection will be permitted between a safe and an unsafe water supply.

A suggestion will be inserted in the Code under item 10p that health officers accept new equipment complying with the 3-A standards as reported from time to time in the JOURNAL OF MILK AND FOOD TECHNOLOGY. It is not intended, however, to recommend the immediate replacement of existing equipment with that conforming to 3-A standards. A list of 3-A sanitary standards thus far approved and those under consideration will appear in the appendix. Similarly, reference will be made to standards on paper packaging materials* prepared at Syracuse University with the aid of a public health advisory council for the self-policing of the industry, with the suggestion that health officers utilize Dr. Sanborn's plant inspection and laboratory reports.

A table will be inserted in the Code showing approved caustic strengths for certain soaking times and temperatures in soaker-type bottle washers.

The testing of pasteurizer thermometers by inserting a test thermometer into the milk in the vat for comparison will be discontinued and is to be replaced by testing in a can of hot water.

For the sake of greater clarity, the detailed requirements of the Code applicable to high-temperature short-time pasteurization will be segregated from the requirements applicable to other automatic pasteurization equipment. Provision is made to prohibit high-temperature installations from being equipped with any device for short-circuiting a portion of the holder section.

It may interest you to know that there will be included a sketch and description of at least one design of a 3-way plug-type leak-protector inlet valve developed by the USPHS.

* See this JOURNAL, Jan.-Feb. issue, p. 31-35.

(Continued on page 161)

equipment where samples of solutions to be checked are obtained.

Germicidal rinse solutions can be quickly checked for the approximate parts per million of available chlorine with the use of Germicidal Test Papers. These papers are impregnated with starch potassium iodide and turn blue in color when dipped into rinse solutions containing available chlorine. After dipping the test paper into the germicidal solution the approximate number of parts per million of available chlorine contained in the solution can be ascertained by matching the blue color of the test paper with the colors on a standard color chart.

Since chloramine-T germicidal solutions do not bleach, the color of the test paper does not change. However, as solutions of sodium and calcium hypochlorite chlorine have a bleaching ac-

tion, the blue color of the test paper bleaches or fades soon after it is used for checking the available chlorine content.

Many times it is of interest to know whether a solution is alkaline or acid in reaction, or whether a surface has been completely rinsed free of cleaning solution. This information can quickly be obtained with the use of an Alkacid Test Paper. These papers have a range from a pH of 2, a strongly acid reaction, to a pH of 10, a strongly alkaline reaction.

Just as the "rule of thumb" days have passed in dairy plant operation so too have they passed in checking sanitary procedures. Testing equipment of this type has been well proved over a period of years as a practical aid to efficient sanitation.

Amendments to USPHS Milk Code

(Continued from page 155)

The lip-cover cap requirement has been changed so as to require that single-service containers shall be so constructed that nothing on top thereof can contaminate the contents or the pouring lip when the container is opened.

A new provision is made in the ordinance governing milk tank cars and tank trucks, and detailed specifications covering construction, cleaning, bactericidal treatment, storage and handling will appear in the Code.

Many other changes have been adopted to improve the specifications of items 16p and 17p on insurance of adequate holding time, regenerator pressures, other features of automatic systems, equipment tests, and pasteurizer valves, but these are too technical and lengthy to discuss at this time.

SUMMARY

In June 1947 the USPHS Milk and Food Sanitation Advisory Board met to consider several hundred proposals from public health officials and the dairy industry for amending the 1939 edition of the USPHS Milk Ordinance and Code. The most important changes adopted have been discussed. A tentative draft of the revised ordinance, subject to change, was issued in mimeographed form in August 1947, and the complete revised ordinance and code will be issued as a printed bulletin by the middle of 1948. It is believed that certain changes contributed by the Committee on Milk Regulations and Ordinances of the International Association of Milk Sanitarians will make this ordinance more universally acceptable, thus promoting national uniformity of milk standards to the benefit of both the public health and the industry.