ABSTRACTS OF LITERATURE

Prepared in cooperation with the International Association of Ice Cream Manufacturers and the Milk Industry Foundation

BOOK REVIEWS


The editors are to be complemented on again assembling an outstanding group of reviews on subjects of great current interest. The reviewers represent not only both academic and industrial groups in this country but also a group of distinguished foreign contributors. The indexing is adequate and the quality of editing and printing up to the high standards one has come to expect of this series. The preface contains an interesting discussion of some of the problems of printing references for publications such as this. The volume certainly should be available for reference to all in biological work. F. E. Nelson


This text views marketing from the standpoint of the farmer and presents a broad view of the marketing problem. It has been well organized and lends itself to easy reading. It is not a handbook of marketing nor does it give practical pointers. It does give beginning students of agricultural marketing a general idea of agricultural production conditions in the United States. The use of practical examples to explain points greatly aids in the presentation as well as in the understanding of the material. Footnotes are included to aid in finding additional information. Almost a third of the text is devoted to the evaluation of the weaknesses in the marketing system with potential improvements.

The text is divided into 6 parts as follows: (a) The Marketing Job, (b) The Marketing System, (c) Prices and Margins, (d) Auxiliary Services in Marketing, (e) Potential Improvements in Marketing and (f) Means of Effecting Improvement. Contained in its 22 chapters are 18 tables and 64 figures. G. A. Claybaugh

ANIMAL DISEASES

W. D. Pounden, Section Editor


The ring test was developed in Germany and first announced in 1937. Much work has been done by the Univ. of Minnesota with this test and it has been found accurate in a varying percentage of cases on cows in production. However, it is not considered usable for a careful check and must be followed by the standard blood or agglutination test in order to verify the results. The test works most accurately on mixed milk from 5-10 cows and thus may be used at a receiving plant more accurately than on individual milk samples. The cost of a county-wide ring test is estimated at about 10% that of a county-wide blood test. This test is actually an agglutination test and depends on the same basic principle as the blood agglutination test. The agglutinins or antibodies, which the infected animal develops in attempting to rid itself of the disease, can be found in the milk as well as in the blood. A comparison of the milk and cream ring test with the blood test on slightly over 6,000 herds gave an efficiency of 75% for the ring test in locating infected herds. This compares favorably with an average of 82% efficiency for the ring test obtained in similar studies in Denmark. General conclusions from the proceedings of the 52nd Annual meeting of the U. S. Livestock Sanitary Association for 1948, and Public Health
Suspensions of Br. suis were injected into the teats of 10 cows. Complete case histories of the development of brucellosis in each of these cows are presented. Applying Br. suis to abraded skin of the udder did not establish an infection. Placing Br. suis into the teat orifice did establish an infection. Acute mastitis occurred in the affected quarters, followed by considerable destruction of the mammary epithelium. Br. suis also was found in the lymph nodes, but not in the blood. Very high agglutination titers resulted. Pregnant cows and heifers did not abort following the infection and no Br. suis were found in the fetal membranes. These studies indicate that brucellosis can be produced in cattle through Br. suis invasion by way of the teat, which may develop into mastitis with Br. suis eliminated in the milk.
E. W. Swanson

Immunizing efficiency of ether-killed Br. abortus was compared with strain 19 vaccine in a herd of 75 cows and heifers which had been exposed to a natural outbreak of brucellosis. All cattle were negative at the start of the experiment. 28 cows were vaccinated with strain 19, 27 with ether-killed Br. abortus combined with falba and mineral oil and 18 were left as controls. 2 from each group were challenged with a virulent Br. abortus strain and only 1 of the controls aborted. 8 of the strain 19-vaccinated animals aborted, including 1 apparently due to an infection with strain 19. Only 1 animal vaccinated with the ether-killed organisms aborted, and it was concluded that she had been infected at the time of vaccination. Only 1 of the control animals aborted, and this was a set of twins not infected with Br. abortus. The ether-killed vaccine produced a higher and more persistent blood titer than the strain 19 vaccine. No other undesirable effects were produced. These preliminary trials indicate that the ether-killed Br. abortus in falba and mineral oil may be of value as an immunizing agent in an infected herd.
E. W. Swanson

Cream is introduced into 1 end of a cylindrical casing, where it is agitated, churned and propelled toward the other end by 2 independently rotating shafts, consisting of a series of flutes and discs. The churned cream leaves the device in the form of small butter granules floating in buttermilk.
R. Whitaker

Advantages of the paraffined carton in the merchandising of butter are reviewed. These include consumer demand, better keeping quality, ease of handling, cleanliness, competition, sales appeal, appearance and brand promotion.
T. J. Claydon

CONDENSED AND DRIED MILKS; BY-PRODUCTS
F. J. Doan, Section Editor

A study is reported on fortification of skim milk with vitamins A and D and the modification of the product with various quantities of milk solids-not-fat and fat. Skim milk modified with milk solids-not-fat from either condensed skim or nonfat dry milk solids and vitamins A and D is a palatable product; 3% solids from condensed skim and 2% solids from nonfat dry milk solids produce better results than additions at other levels. Fortification with 2,000 U.S.P. units of vitamin A and 400 U.S.P. units of vitamin D/qt. produces a slight flavor change which is not objectionable to most consumers. Addition of 0.5% butterfat improves the product markedly. Pasteurization at 150° F. for 30 min. produces the best flavor during the winter season, but higher temperatures are desirable during other seasons. Homogenization pressures of 2,500 lb. result in the best flavored and smoothest product and minimize sedimentation of the added solids. The viscosity increases as the level of added solids is increased but is not affected by any other factor. Curd tension can be lowered by using a pasteurization temperature of 165° F. for 30 min. or by including at least 1% fat in the milk followed by homogenization. Curd tension increases after homogenization when condensed skim is used but decreases when nonfat dry milk solids are used.
C. J. Babcock

A device for reconstituting powders, such as skim milk, consisting of a centrifugal pump, with a screen fitted inside the housing, so that the revolving blade forces the reconstituted material through the screen just prior to the pump outlet, is described.
R. Whitaker

A new method of evaluating flavor was developed for dried milk and is based on a quality index termed a dilution number (DN). The DN of a sample is defined as "per cent of reconstituted milk in a mixture of that material with a fresh whole milk standard such that the difference in taste between it and the standard lies just above the threshold." It is determined by the concentration that can be detected by 15 correct judgments out of 20 by several judges. The method has good reproducibility and good correlation with consumer preference. The weaknesses of the regular panel method of quality evaluation also are considered.

T. J. Claydon


A pronounced cheese flavor is produced in baked goods by introducing milk-flavored cheese fortified with leucine, prior to fermenting the dough.

R. Whitaker


A concentrated milk product is described containing 30-60% water and having a heavy body, suitable for use as a spread. The proportion of solids-not-lactose to lactose is about 1:2. The lactose not in solution in the water is present as crystals of impalpable size.

R. Whitaker


To produce sweetened condensed milk having a thin body, the milk is heated to 265-310° F. prior to the addition of sugar and concentration to 70-75% total solids. The milk is not held at the high preheating temperature long enough to darken the color.

R. Whitaker


The method of Malkames, Walter and Sager, Bur. Dairy Ind., U.S.D.A. for hydrolysis of protein from Swiss cheese whey gives a smooth product that can be used in preparing spreads and as an ingredient in other foods. After precipitation and recovery of the whey protein, a commercial proteolytic enzyme (Rhozyme P11) is used for partial hydrolysis of the product which subsequently is homogenized at 2500 lb. pressure. Procedures are given for the preparation of various spreads and the incorporation of the hydrolyzed protein.

T. J. Claydon


A whey concentrate is prepared by removing weak acids and parts of weak acids by suitable ion exchange, concentrating, hydrolyzing the concentrate at 115° C. with a mineral acid and decarboxylating by means of hydroxyl ion exchange.

R. Whitaker


Products containing crystallizable substances, as for example, concentrated dairy products supersaturated to lactose, are made smooth and of very fine texture by causing the lactose to crystallize in numerous impalpable crystals. This type of crystallization is induced by flowing the product supersaturated to lactose, over large lactose crystals, through beds or pills composed of compressed lactose, or in contact with a rotating roll, the surface of which is impregnated with lactose crystals.

R. Whitaker

DAIRY BACTERIOLOGY

P. R. Elliker, Section Editor


Induced resistance may be acquired by Escherichia coli and Serratia marcescens when exposed to quaternary ammonium compounds. E. coli failed to produce gas in liquid culture media and gave atypical small colony variants on desoxycholate agar. Furthermore, the variant strains grew slower and reduced methylene blue very slowly. These observations alter the value of the coliform test when the organisms tend to develop a resistance to quaternary ammonium compounds.

H. H. Weiser


The formation of diacetyl, acetoin and 2,3 butanediol in skim milk cultured with S. lactis was...
stantially reduced by this treatment. Amounts of acetoin and butanediol were steadily increased over a 65-hr. incubation period. Acetoin is produced in much greater quantity than diacetyl after which time it gradually disappears. Butanediol slowly disappears at 10°C, retarded destruction of both diacetyl and acetoin. The practical significance of these findings as they related to butter manufacture is discussed.

H. Patton

621. Method and agent for controlling undesirable fermentation in cheese. H. Jorgensen


Anaerobic bacterial spoilage of cheese in sealed containers is prevented by incorporating a small amount of a soluble chlorite. R. Whitaker

DAIRY CHEMISTRY

H. H. Sommer, Section Editor


Experimental data were obtained that meet the mathematical equations used in the food canning industry to calculate total lethal heat effect of a process. Preheating 1 min., with straight-line heating, will add 0.40 and 29.91% of the total lethal heat when the holding temperatures are 146.3 and 163.4°F, respectively. H. H. Weiser


Lipase activity of mother's and cow's milk was followed by means of titratable acidity. During the period of study, it was shown that microorganisms were making no significant contribution to developed acidity. Agitation was observed to activate the lipase of mother's milk much more readily than that of the cow. Degree of lypolysis in mother's milk was found to increase with time of agitation and to be proportional to the extent of

H. Weiser


More uniform results may be obtained in the Babcock test if the temperature is properly controlled. By using a special thermometer, a temperature of 170°F. was recorded in the centrifuge cups as compared to 152°F. as shown by ordinary methods.

The author recommends that the temperature be checked by placing 2 maximum recording thermometers in opposite cups of the centrifuge and noting the temperature equilibrium when the tests are removed from the machine.

H. H. Weiser


Dry matter, Ca and P values for certain soft cheeses, from a preceding report are reviewed. The present paper reports these values for 4 varieties of semi-hard cheese.

The mean dry matter values are 61.11, 62.50, 51.36 and 66.15% for Holland, Cantal, Saint-Paulin and Gruyere, respectively. The Ca values (g/100 g. dry matter) were 1.271, 1.246, 1.258 and 1.528, respectively, and the P values were 0.543, 0.735, 0.691 and 0.912, respectively. The nutritional and compositional significance of these values are discussed. S. Patton

DAIRY ENGINEERING

A. W. Farrall, Section Editor


Cream of about 80-82% fat is produced by passing a low-fat cream from a separator through a 2nd separator. Uniformity of fat content is achieved by a regulating system which maintains a constant fat content in the low-fat cream, in spite of variations in the fat content of the milk.
or rate of flow of milk to the 1st separator.

R. Whitaker


Instructions are given on the operation and care of pasteurizers, milk can washers, conveyors, storage tanks, trailer or truck tanks, cheese vats, electrical equipment and on the care of stainless steel.

C. J. Babcock


The necessity of carefully selecting and training all plant personnel is stressed in order to insure a proper equipment maintenance program. Proper cleanup and lubrication are emphasized. Special instructions are given regarding freezers and homogenizers.

W. C. Cole

DAIRY PLANT MANAGEMENT AND ECONOMICS

L. C. Thomsen, section editor


An account is given of the work simplification program at H. P. Hood & Sons under the direction of H. G. Dunlap. Dunlap believes that an effective work simplification program must begin at the top; accordingly managers and superintendents became students first; later foremen and lower-level supervisors were invited to class.

The technique of work simplification is to eliminate unnecessary parts of a job. Hood's slogan is "Be alert; work smarter, not harder." Dunlap says "Work simplification isn't a list of procedures; it's a way of thinking."

As part of the program various charts are used, e.g., flow chart, tick the problem, job progress chart. Films are used extensively to study problems and illustrate improvements. Several examples accompanied by illustrations are used to show benefits from this program. Both management and employees are enthusiastic about the program—the employees because their work is made easier and their suggestions are welcome, the management because of the resulting overall benefits. No company is too small to initiate a work simplification program.

W. C. Cole


Studies show that in many plants men on the receiving decks are idle 50% of the time. The cause for the idleness is discussed and tables are presented showing: (a) Use of time on receiving deck during milk receiving period; (b) relationship of type of hauler to arrival at milk plant; (c) cans received at 2 average plants during receiving period according to type of hauler; (d) characteristics of various vehicle types which reduce to unloading efficiency. Figures are presented showing: (a) Comparison of receiving time/load and waiting time between loads under present delivery system and under a system of scheduled deliveries and (b) time needed/can declines as loads get larger up to the point that they become so large that extra time and effort are needed.

C. J. Babcock


A survey representing a cross section of the country showed that bulk milk dispensers increased sales 10-100%. In addition, they brought about saving of time, labor and handling in the plant. Locating the machines at points of greatest advantage is discussed. One report shows that dispensers immediately increased the consumption of milk in schools 50-100%. Increases ranging from 15-25% in the sale of milk to restaurants and hotels also are reported. It is concluded that especially in those markets using paper containers the dispenser, in many cases, is the answer to high packaging costs in 0.5-pt. containers.

C. J. Babcock


A survey of the Paper Cup and Container Inst., Inc., shows that 3/4 of the new factory buildings will have cafeterias, and 20% of the 240 companies queried are making plans to feed more of their workers. The survey also shows that 59% of the employees in plants having food service are customers. This is an increase of 40% over 1944. Of the plants responding to the queries, 79% had cafeterias but most had more than one type of food service. The trend in most companies is to decentralize the actual distribution of food. In other words, they will use food carts, snack bars, canteens or carry-out systems which bring food to the worker at the job. This decentralization is bringing into use the vending machines, especially for milk. In fact, vending machines are 75% more popular than they were during the war. One report on 15 plants, which provide milk between meals, shows that workers interpreted the availability of milk as an indication of management's interest in their health and one manager felt that the milk dispensing machine was an important factor in labor relations.

C. J. Babcock


The classified price plan involves the systematic segregation of milk of bottling quality in such a way as to reflect the form or manner in which it was used and to recognize differences in the value of milk according to its use. Ideally, the supply and demand for fluid milk would be equal at all times in all markets. This is impossible because the supply of milk and the demand both vary. A few specific objectives of a classified
price plan are: (a) To maintain an adequate supply of milk at all times for use in fluid milk products; (b) to reflect to producers the highest practicable blend price under current demand and supply conditions, giving proper consideration to regional and national conditions as well as local, and to keep dairymen’s incomes in line with general economic changes; (c) to distribute equitably among producers the proceeds from the sale of their milk; (d) to facilitate the utilization in other dairy products of all milk of bottling quality not needed for use in fluid milk products; (e) to encourage the utilization of milk in those products which will reflect highest returns to producers; (f) to compensate handlers adequately for functions performed in the disposition of milk not needed for fluid consumption; (g) to encourage efficiency in the marketing of milk of all classes. The problems which are concerned in developing the mechanics of the plan and those which involve human relations are discussed. The arguments in support of placing concentrated milk in class I also are given.

C. J. Babcock

HERD MANAGEMENT
H. A. Herman, Section Editor


A teat cup is described which employs a flexible casing within a rigid cylindrical cup, of such design that the inner casing collapses from the top progressively to the bottom or teat end.

R. Whitaker


A pulsator-type milker has a metering device in the milk line to the milker pail for measuring the amount of milk passing through the tube.

R. Whitaker


A closure for milk cans of the flared-top type, consists of a dish-shaped lid which fits into the flared section and is held securely to the can by bolts attached to a ring which encircles the neck of the can.

R. Whitaker

ICE CREAM
C. D. Dahle, Section Editor


A report is given of economies obtained resulting from more efficient handling of mix ingredients. Abbott’s have aided in developing a machine that will shave 80% plastic cream rapidly enough and in an economical and sanitary manner. The use of proportioning meter devices has aided in streamlining their operation.

W. C. Cole


There is considerable interest in HTST pasteurization of ice cream mix because of economies resulting from streamlining manufacturing processes. Certain types of HTST equipment have the additional advantage of improving quality of the finished product by removal of off odors and flavors during the pasteurization process, although it is claimed that choice of equipment is now a matter of personal preference.

The author reports using an unidentified micro-organism designated by the Natl. Dairy Labs. as MS-102 for evaluating the efficiency of pasteurization by the HTST methods. This microorganism has a greater resistance to heat than the tubercle bacillus. MS-102 required slightly longer holding times or higher temperatures for its destruction in ice cream mix than were required in milk.

Experimental data showed that heating ice cream mix to a temperature of 175 ° F. for 25 sec. gave slightly greater destruction of the micro-organism than resulted from 155 ° F. for 30 min. The laboratory findings were confirmed under commercial conditions. As a result of these findings, as well as the work of others, the U.S.P.H.S. has granted tentative approval for pasteurization of ice cream mix at 175 ° F. for 25 sec.

The author urges commercial cooperation in establishing this as a permanently approved standard for HTST pasteurization.

W. C. Cole


A brief review is given of the sources as well as the selection and care required for the following nuts used in ice cream: Pecan, walnut, pecan, almond, cashew, filbert and peanut.

W. C. Cole


A brief discussion is given of the essentials in controlling ice cream texture. Mix composition, processing, freezing and hardening as well as storage are considered.

W. C. Cole


The various sweetening agents suitable for use in ice cream are discussed. It is pointed out that corn sweetening agents have been used successfully to substitute as much as 45% of the sucrose in ice cream. The use of corn sweeteners has resulted in a slight improvement in body and texture of the ice cream and they are less expensive than sucrose. Bacterial, yeast and mold checks are suggested on both sucrose and corn syrups, as well as on the storage tanks, pumps and sanitary lines used for their distribution.

The importance of a high sugar ratio in fruit
ice cream is stressed as an effective aid in preserving the flavor of the fruit and in preventing hard icy particles of fruit in the ice cream. A ratio of 2 parts of fruit and 1 part of sugar has been found most satisfactory for this purpose.

W. J. Caulfield


Results of a study, conducted at 6 state colleges, to determine the amount of vanilla flavor which will produce the most desirable vanilla flavor in ice cream, indicate that there is a definite trend in consumer preference for ice cream with more vanilla than is customarily recommended. Forty per cent of the group examining the ice cream preferred the sample of ice cream prepared with 6 oz. of a single strength pure Bourbon bean vanilla extract/5 gal. of mix, one-third of the group favored the sample containing 4 oz., 17% preferred the sample containing 8 oz. of vanilla and 10% thought the sample containing no vanilla had the most desirable flavor. It was the opinion of the group conducting the experiments that either too little or too much vanilla would be equally undesirable. W. J. Caulfield


Three main problems of the ice cream industry are discussed. Maintaining desirable qualities until products reach the consumer is considered of primary importance. The main personnel problem consists of providing the individual with knowledge of what he is to do, when he is to do it, how it is to be done and why it is to be done, and giving full recognition to a job well done. The 3rd problem is defined as coordination of equipment for the most economical operation. Most of this phase of the discussion deals with refrigeration equipment.

W. C. Cole


Examination of 50 factory-filled pt. packages each of fruit and nut ice creams revealed the need for greater uniformity and improved quality in the production of fruit and nut ice creams. In several samples examined there were no fruits or nuts visible in the ice cream. More than half of the strawberry ice creams had a preserve flavor, whereas others varied widely in color and flavor quality. Artificial and imitation nut flavors were common. There was a noticeable lack of uniformity with respect to weight of the packages and in the fat and total solids content.

W. J. Caulfield


In Scandinavia the author reports that he saw more modern and more automatic ice cream equipment than we have in the United States. He describes a completely automatic stick confection machine that takes ice cream from the freezer, molds it, inserts a stick, hardens, coats, wraps and expels the product automatically.

The author concludes that Scandinavia rates as an equal and in some instances excels us in production machinery. We are ahead in sales and delivery equipment. Both countries are equal in quality merchandise, it is stated.

W. C. Cole


This device softens ice cream by means of a motor-driven beater. The motor is located on the top of an ice cream cabinet and a shaft extends down into a specially constructed chamber where the beater softens and maintains the ice cream in a soft condition.

R. Whitaker


Ice cream in cylindrical bulk paper containers is forced out of the container by a piston pressing on the bottom. The container is rolled back as the ice cream is extruded.

R. Whitaker


The operation of rural retail delivery routes has proved to be a profitable venture of the Sunlight Dairy, Oshkosh, Wis., and Dairyland Ice Cream Co., Sheboygan, Wis. The Sunlight Dairy started operation with a panel truck and a 12-hole refrigerated cabinet in the summer of 1950. Since that time an additional truck has been added and a 3rd truck is contemplated. The company reported that the drop in winter sales amounted to only 5%. Although in packages ranging in size from pints up to 2.5 gal. are carried on these routes, the 0.5-gal carton has proved to be the most popular seller.

The Dairyland Ice Cream Co., of Sheboygan has been operating 2 trucks on their rural delivery routes. This company reports daily sales ranging from $75-$90/day during the summer and $30-$35/day during the winter with a greatly reduced routing. Both firms are of the opinion that the rural business will continue to increase as better facilities are provided in the farm homes for ice cream storage.

W. J. Caulfield


According to Food Fair's ice cream specialist, Harry Blask, their ice cream volume remains relatively constant throughout the year, although there is a seasonal switch from one variety of ice cream to another. In their 129 stores, all of which sell ice cream, in-store merchandising is the
key to their success. Cabinet placement, point-of-sale material and tie-in sales are the 3 major factors in their promotion program. Free insulated bags are supplied with ice cream purchases.

The Eastern Div. of the Great Atlantic and Pacific Tea Co. offered ice cream for sale in 300 super markets in June, 1951. Four brands of ice cream are being featured. Natl. Dairy Products is supplying 2 brands—Sealtest and Wallesley Farms. The Borden Co. is supplying the other 2 brands, viz., Borden and Dairy Made. Insulated bags are given free to each purchaser of ice cream.

W. C. Cole


With the large number of home freezers and mechanical refrigerators now in use there is an opportunity to sell ice cream to both city and country dwellers. Selling ice cream on the retail milk route is a natural outlet, according to the report. House-to-house selling of ice cream should include the following: (a) company advertising, (b) monthly ice cream specials, (c) having the milk driver carry an empty ice cream carton on all deliveries, (d) having ice cream of good quality and (e) delivery of clean and neat packages.

W. C. Cole


A survey by Paper Cup and Container Institute, Inc., in which 240 factories participated, showed that over half of the companies who told what they would do if they had to expand, mentioned plans which decentralized food service. 23% said they would add mobile food carts, 17% said they would put snack bars in the plant and 12% would try to give their workers more supplementary food in vending machines which make no demand on factory management. Only 10% would build a new cafeteria.

The survey shows that decentralized food services are more apt to break even financially and require fewer hands to operate. It is further claimed that one food service worker can handle 159 customers at a snack bar or canteen, 127 from a food cart, 61 in a cafeteria and 28 in a waiter service restaurant.

Ice cream is a popular favorite on food carts but individual portions in paper containers are essential to this type of service, it is claimed.

According to the survey there are more types of vending machines now than there were at war peak production. Providing more food in vending machines is a good way to get nourishing food into the diets of employees who bring their lunches from home.

W. C. Cole

MILK AND CREAM

P. H. TRACY, SECTION EDITOR


A description of the method using high-speed continuous sterilization and canning of milk, perfected by Dr. Martin of Redwood City, Calif., is given. The method has shown great promise in both pilot plants and in full-scale installations. The Martin Aseptic Fill Method is designed to sterilize, cool and can milk in seconds. The milk is raised to a temperature of about 300° F., and other dairy products to even higher temperatures. With instantaneous heating and immediate cooling, there is little change in flavor. In sterilizing, all of the milk is heated to the same temperature. There is no localized over-heating. This makes it possible to process milk at a higher temperature and for a longer time than the minimum safe limit, so that the sterilization treatment can be several times as stringent as the minimum requirement without affecting quality. Milk, concentrated milk and dairy drinks processed in this manner probably will serve to supplement rather than replace present fluid milk deliveries and may do much to put our surplus milk production into use.

C. J. Babcock


Measured amounts of milk are dispensed from milk cans by operating this sanitary piston-type pump which is mounted in the lid of the milk can.

R. Whitaker


A wire handle for carrying glass milk bottles, which is easily snapped on and removed from the bottle, is described.

R. Whitaker

SANITATION AND CLEANSING

K. G. WECHEL, SECTION EDITOR


Antibac 25 and Lo Bax 21 were not superior in germicidal effectiveness to BK and Dalglish. Escherichia coli, Micrococcus pyogenes var. aureus and Pseudomonas aeruginosa were the test organisms used.

H. H. Weiser


The design, installation and cleaning instructions are given for cleaning permanent stainless steel lines by employing a recirculating system. The following cleaning instructions are given: (a) Remove all connections between permanent lines and processing equipment. (b) Rinse lines thoroughly with clear warm water. (c) Circulate for 30 min. an acid solution heated to 145-165° F. (d) Rinse with warm water. (e) Circulate for
SANITATION AND CLEANSING

30 min. alkali solution heated to 140° F. (f) Rinse lines, remove all caps, cuts and plugs to hand clean and examine lines and brush when necessary. (g) Reassemble and rinse lines with hot water, gradually reducing to cold water temperature. (h) Circulate for 20 min. sterilizing solution 200 ppm. available chlorine. (i) Rinse with clear cold water. (j) Clean outside of pipes. Advantages of permanent sanitary pipe lines are as follows: (a) Lines are cleaned in place with no dependence on a variable amount of attention to each individual piece of pipe, resulting in better cleaning. The possibility of contamination after sterilization is eliminated, and thus permanent lines can be kept more sterile than assembled lines. (b) Labor costs of cleaning permanent lines are less than for assembled lines. (c) There is a considerable saving in product losses resulting from faulty gaskets, nuts and caps. (d) There is a marked saving in depreciation and maintenance of pipes and fittings. (e) Better plant appearance results. C. J. Babcock


The essentials of cleaning ice cream equipment are outlined. Chemical "sterilization" is recommended for most ice cream equipment. Even when heat "sterilization" at 180° F. for 5 min. has been used on heaters, pasteurizers and sanitary lines, chemical "sterilization" prior to use is recommended. W. C. Cole


A cream separator designed to permit washing of the bowl and discs without disassembly is described. The cleaning fluid is discharged through a valve, responsive to centrifugal force, at the bowl periphery. R. Whitaker


Good housekeeping in a plant includes every room as well as surroundings of the plant and delivery equipment. The roles of the plant superintendent and laboratory director are stressed. The author considers plant housekeeping as an index of plant profits. Cooperation of labor and management is essential to the success of any housekeeping program, and will improve products and increase sales, it is claimed. W. C. Cole


A revised list is presented of 211 cities and counties awarded milk sanitation ratings of 90% or more by the public health service from July 1, 1949 to June 30, 1951. A total of 51 communities have been added and 21 dropped from the previous list. Some communities with high-grade milk supplies have not been included because (a) no arrangements have been made for the State milk sanitation authority concerned to determine their rating, (b) some ratings submitted had lapsed since they were over 2-yr.-old and (c) certain communities showed no desire for rating or inclusion in the list even though some may have had high-grade milk supplies. D. D. Deane