

New Sweetened Cream Product Can Be Held Without Refrigeration

Sugar preserved dairy cream that keeps well unrefrigerated, just as do sweetened condensed and evaporated milk, is a promising new product of dairy research.

The manufacturing process is a simple one that any well-equipped dairy plant can carry out. It produces a sweetened cream product containing 40 per cent butterfat, additional nonfat milk solids and sugar in sufficient concentration to preserve it at room temperature for at least six months. Further storage tests are under way.

Delicious ice cream can be made when the product is used as the source of milk fat. It can be whipped, or used as a source of cream and sugar in coffee and in other ways. Pale yellow in color, it has a consistency and flavor much like those of sweetened condensed milk, however, it is less sweet.

Dr. Arjen Tamsma, chemist of USDA's Agricultural Research Service, described the new product

to the International Association of Ice Cream Manufacturers meeting in San Francisco, Calif. Since ice cream manufacturers now use much frozen cream as a source of milk fat in their mixes, the new un-frozen product could save them considerable expense and frozen storage space.

Dr. Arjen Tamsma and Dr. Raymond W. Bell — both engaged in USDA research in Washington, D. C., to increase and improve use of dairy products — are chiefly responsible for development of the cream preservation process. A public service patent for the product and process has been applied for.

The cream remains stable for the same reason that jams, jellies, syrups and honey do — bacteria cannot grow in a concentrated sugar solution. To fresh cream with a high fat content are added nonfat dry milk and cane sugar. The mixture is stirred and heated until pasteurized, and packed while warm. Vacuum packing is desirable. Flavor remains good when stored at about 60° F., although it is acceptable after months of storage at higher temperatures. After being opened, it remains usable without refrigeration for at least a week, or longer if kept in a refrigerator.

The product takes added flavor well, without masking the taste of orange, lemon, and other fruit

and nut flavors. Some of the scientists think caramelization (heating at 240° F. for 1½ hours) gives a pleasing butterscotch flavor.

In addition to its use in ice cream, it can be diluted with milk and used on breakfast cereals and in coffee and tea. It furnishes stable, easy-to-use butterfat for baking and candy-making, and might become a soda fountain or export item. It might be welcome wherever refrigeration is limited or lacking — on planes and boats, in camping, in the armed services — and for stocking air raid shelters.

Equipment for producing the cream product is simple, any well-equipped dairy plant would have it. Only a cream separator and pasteurizing and packaging equipment are required.

The final product contains about 30 per cent sugar, 10 per cent nonfat milk solids, 20 per cent water, and 40 per cent butterfat. (Whipping cream contains 30 per cent butterfat, coffee cream 18 per cent.)

Packaging of the product has not been worked out by the developers, but should not present difficulties. It has kept best for them in tin cans from which air was evacuated before sealing. Containers of glass or of plastic are other possibilities since the Department has developed the product and demonstrated its practicality, it is expected that commercial and perhaps other research agencies may develop their own packaging, recipes, and consumer acceptance and marketing tests.

Virus Diseases Least Understood Enemies of Living Things Today

Virus diseases of plants and animals, while shaping man's destiny for centuries, are still among the least understood enemies of living things, says John S. Boyle, associate professor of plant pathology at Pennsylvania State University.

"Viruses might be called the smallest and simplest of living things, except no one is sure that they are alive," Dr. Boyle states. "They don't grow, they have no respiration, and they multiply only within living cells," he explains.

Viruses cause human diseases, such as mumps, measles, small pox, yellow fever, polio, influenza, and other diseases. While vac-

cines are effective in the control of some diseases, viruses are among the most serious parasites of man and animals.

Approximately 12 plant viruses have been chemically purified and crystallized. Structurally, the particles are rod shaped or spherical.

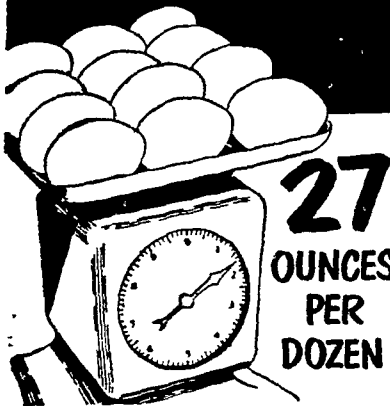
Most recently, scientific reports indicate that the tobacco mosaic virus may be disassembled and reassembled. This excites the imagination, Dr. Boyle points out. Viruses are so small that they pass through bacterial-proof filters.

Tobacco mosaic virus was recently shown by Dr. Boyle to be the cause of internal browning of tomatoes, a disease which has caused great losses some years in Pennsylvania canning crops. This virus attacks both tobacco and tomato plants. This is not the only known case where a virus attacks more than one species of plants or animals.

Several hundred virus diseases of plants are known, an average of two or three per crop requiring control measures, Boyle reports. Control measures include developing plant resistance, planting non-infected plants or seeds, and destroying insects which transmit the virus.

Proportions of ingredients can be varied rather widely without destroying the keeping qualities of the sweetened cream. Research is still underway on viscosity, color, and flavor changes at various storage temperatures, and on "shelf life" of the product. Homogenization may be desirable for some uses, especially for whipping.

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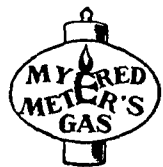
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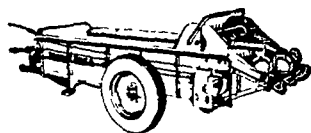
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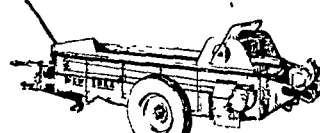
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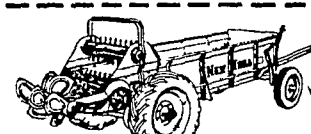
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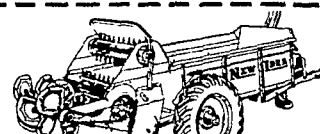
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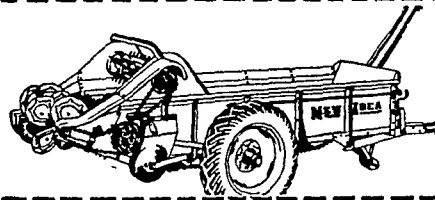
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