

## Cheese Department

Makers are invited to send contributions to this department, to ask questions on matters relating to cheese making and to suggest subjects for discussion. All letters to The Cheese Maker's Department.

### Satisfied with the Test

Fred McKee, Peterboro Co., Ont. My opinion of the system of paying for milk by test at the cheese factory? In the first place, I think it is the fairest way. A man is paid for the quality of milk, and this is the proper basis for payment in any line of production.

Pay by test induces patrons to try to secure a better standard of milk. This helps the cheesemaker to produce a more uniform quality of cheese. It means much more satisfactory business for the salesman when all the buyers are after your factory's cheese.

Our factory has paid by test for about 12 years. We find it away ahead of the old pooling system. We have found that it has put us up to the problem of better cows and a higher test.

While acting as auditor for our factory I compared two patrons' milk for a month. One man sent 1,132 pounds more milk in the month than the other and by having a lower test just had \$1.10 less money. Had he a right to any more?

### The Pasteurization of Cheese Factory Whey.\*

F. Hens, Chief Dairy Instructor, Western Ontario

Scientific investigations have shown that various diseases, especially tuberculosis, may be transmitted through raw factory whey. Practical experience in addition to similar investigations points out that many off-flavors (including yeasty, fruity, bitter and whey flavors) in cheese may be traced directly or indirectly to returning ordinary factory whey in the milk cans.

Some cheese factories return the whey, the tanks receive little or no attention and the cheese are usually accepted without much complaint, but this does not prove that the whey did not transmit disease. It does not alter the fact that losses have been occasioned through abnormal fermentations in milk due to the distribution

\*An address before the Dominion Dairy Conference, Ottawa, Dec. 6th, and 7th.

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of undesirable organisms through the common whey tanks. From a sanitary standpoint and various other reasons, frequent cleaning of tanks is to be commended, but the method followed does not completely eliminate the risk of spreading organisms detrimental to the quality of the cheese and more especially disease germs likely to infect the calves and pigs to which the whey may be returned.

### STERILIZATION OF CANS UNCERTAIN

If all the patrons could be depended on to sterilize the milk cans, the risk of turning out defective cheese from returning the whey in the cans could be reduced to the vanishing point, but this would not prevent the transmission of disease. It is, however, well known that a certain percentage of patrons neglect this important detail of thorough can washing.

In the absence of live steam, sterilizing the cans is an uncertain process. Under average farm conditions, boiling water must be depended on, and it often cooks before it reaches the can. When old, sour, ill-smelling whey is returned little inducement is offered to be particular. The patrons are continuing to insist on having the whey returned (in Western Ontario about 95 per cent of the factories return the whey), and there appears to be no other general practical method of returning whey except in the milk cans. The pasteurization of milk for cheese making is not likely to be adopted for some years. Pasteurization of the whey, therefore, has been generally advocated by bacteriologists and dairy experts as a means of diminishing the dangers from disease germs and the defects referred to in the cheese. Pasteurization is not strictly the proper term as this means heating and cooling, but cooling is not practical under factory conditions and so far as can be seen, is unnecessary.

### OTHER DAIRY COUNTRIES PASTEURIZE

Dairy countries, such as Denmark and portions of Germany, pasteurize factory by-products, and several states of the United States have compulsory pasteurization. New Zealand has also lately taken up the matter. At the last Dominion Dairy Conference, pasteurization of the whey was advocated, but no data seemed at hand dealing directly with the practical side of the question. Simply stating the whey without paying attention to details does not entirely solve the problem.

The results and data obtained during four seasons' work have given some information. In 1907, in Western Ontario, out of 205 factories, five voluntarily began heating the whey; in 1908, 23; 1909, 58; 1910, 100; in 1911 about 55 per cent of the factories. In Eastern Ontario, in 1910, out of 933 factories, 125 or 14 per cent practised heating.

### KINDS OF WHEY MET WITH

The kinds of whey met with under factory conditions may be defined as follows:

1. Sweet or fresh whey as it comes from the vats, temperature 98 degrees, containing many classes of bacteria, about .18 per cent acidity, .21 per cent to .25 per cent of fat, .85 per cent of casein and albumen, 5.2 per cent of sugar, .7 per cent of ash and about 93 to 95 per cent of water.

2. Ordinary whey is No. 1 run into tanks usually containing a portion of the mixed whey of many previous days, the whole rapidly becoming sour and fermented in proportion to the neglect of the tanks. Recently collected data shows this kind of whey may contain from 3 per cent to 1.5 per cent acidity—an average of 1.2 per cent fat in some cases as low as .03 per cent—average about .09 per cent (practically gravity skimmed), about five per cent of sugar (it is estimated that one per cent or over of sugar has been changed to lactic acid); quantities of water and dirt if the wash water is run into the whey

tanks as is a common practice at many cheese factories.

NOTE.—In many cases the fat rises, becomes rancid, the sour whey is drawn from under. Sometimes if the whey is "short" this greasy material may be run into the patron's cans at a temperature of 80 degrees or lower, making them difficult to clean. Under such conditions the tanks are also hard to clean, and if no provision is made for disposing of the surplus whey and wash water, this may overflow near the factory or into nearby water courses. Flies are then encouraged and sanitary conditions around the factory are then difficult to deal with. "A bad example is set the producer." (An effort has been made during the past years to clean most of these tanks over.)

3. Skimmed whey is similar to ordinary whey but it contains little or no fat, for when drawn from the vats it has run through a cream separator before reaching the whey tank.

4. Casein whey is from the skim-milk (heated to about 120 degrees before coagulation), from which casein is made. It is much the same as skimmed whey, except that it may contain small quantities of sulphuric acid used for precipitating the casein. 5. Properly pasteurized sweet fresh whey is held in the whey tanks overnight, heated and kept at high enough temperature for a sufficient time to (1) preserve so far as possible the food constituents; (2) keep the fat evenly distributed; (3) partially or entirely free the whey from disease germs and other undesirable organisms; (4) return the whey to the farm in a condition nearly like that drawn from the vats.

(Continued next week)

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This is to be the place and date of the  
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OF THE  
Eastern Ontario Dairymen's Association

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Write to the Secretary for a copy of the programme

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