Cream "tests" and butter quality

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A question often put to butter factory managers and operatives by the producers is, “What test do you want in cream delivered at the factory?” The word “test” in this case refers to the richness of the cream, or in other words to the percentage of butterfat it contains.

The answer usually given is that the factory prefers cream with a “test” or fat content of 36 per cent to 40 per cent in winter and up to 42 per cent in summer. These percentages are based on important factors. In the first place, cream of the right consistency is needed to ensure a high degree of efficiency in processing and churning, while cream that is too thick or too thin leads to wastage of butterfat or skim milk, difficulty in sampling and testing, inefficient processing and, in the case of thin cream, losses by splashing during transport.

In defining the legal limits, Regulation 45 of the Dairy Industry Act, 1922-1939, gazetted May 4, 1951, reads as follows:—

“Cream delivered at factories during the months of September, October, November, December and January, February and March for the manufacture of butter shall contain not less than 37 per cent. of butterfat, and, during the other months of the year, shall contain not less than 30 per cent. of butterfat.”

Provided it is kept under good conditions and stirred regularly, cream of the consistency advocated ripens evenly. The development of lactic acid in the cream brings about a thickening in consistency which may suggest a higher fat content to the inexperienced person.

Cream graders do not object to a marked lactic acid flavour, which is a normal condition, but the cream must show no indications of staleness in flavour or appearance.

Good first impressions count for a lot. The grader’s first impressions of the cream are just as important to the farmer as the buyer’s first impressions are to the butter manufacturer.

Attractive appearance is important and is well worth striving for. It is only natural that if one has to taste any substance, the act of tasting is made more pleasurable if the substance has an attractive appearance. The grader has to taste each batch of cream and it is to the farmer’s advantage to send in cream which is of good texture and appearance.

When cream is too thin

Apart from the losses from splashing previously referred to, thin cream, because of the excessive quantity of milk that it contains, will curdle or leave a deposit of white curd in the bottom of the can. This is most likely to occur in summer and in cream which has been inadequately stirred. Such cream deteriorates rapidly.

Curdy cream affects the efficiency of sampling and testing and extends the churning time, thus increasing operating costs.
WHEN CREAM IS TOO THICK

A cream which is too thick, by reason of an unduly high “test” or in other words a cream containing too high a percentage of butterfat soon develops a tallowy or oxidised flavour by reason of the fact that there is insufficient milk serum to afford the necessary protection to the fat globules. Where strong “feed flavours” are to be contended with it is decidedly a disadvantage to separate at too high a test.

Acidity in such cream is slow in developing and the cream takes on an insipid, characterless flavour.

The consistency does not permit of easy and adequate stirring so that the cream from various batches does not blend well in the can. Aeration of the cream depends on efficient stirring and a very rich cream is often lumpy and of uneven texture giving it an uninviting appearance.

Thick lumpy cream is difficult to sample effectively. The rich hard lumps, if missed by the sampler or picked up by it, are apt to give incorrect results in testing.

Many farmers would be surprised to learn of the alarming loss of time and degree of inconvenience caused in a factory by the handling of thick cream.

Such cream will not pour freely, in fact it is necessary in many cases to pull the cream from the cans. Time spent on this work upsets the routine of the cream-handling floor and causes serious hold-ups in the processing.

Large quantities of cream adhere to the cans, increasing the wastage figures, and adding to the rinsing time.

The average test for cream received at the factory is between 40 per cent. and 42 per cent. Some dilution takes place when rinsing the cans, in dissolving the neutralising agent and by condensation in direct steam pasteurisation. This dilution brings the test down to 34 per cent. to 36 per cent.

At one time a churning test of about 40 per cent. was advocated but with the use of modern machinery, scientific investigation has revealed an improvement in the texture and flavour of the butter when a lower butterfat percentage was used.

Sometimes more water has to be added to standardise the cream but the addition of water in excess of a certain quantity leads to the production of a flat, characterless butter.

Dairy farmers have every reason to give careful attention to this feature of their activities as a high degree of co-operation between the cream producer and the factory staffs will be reflected in an improvement of the quality of our butter and this will be mutually advantageous.
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