

## The Makers' Corner

Butter and Cheese Makers are invited to send contributions to this department, to ask questions on matters relating to cheese making, and to suggest subjects for discussion.

### Acid in Cream

It is a generally accepted theory that the production of good butter necessitates the development of a certain amount of acid in the cream, for two reasons—to develop a desired flavor and to improve the keeping quality, says the New Zealand Dairyman.

It is ascertained, however, that butter made from pasteurized cream has better keeping qualities and remains free from objectionable flavors for a longer time than butter made from sour cream. A study of the changes which butter undergoes in storage, and especially the influence of acidity and of cream on the keeping qualities, to determine the best method of making butter for storage, is instructive.

Butter kept in cold storage, and examined at certain intervals by men skilled at had no previous knowledge of how, when or where the butter was made, have found that butter frequently undergoes marked changes even when stored at very low temperatures, and that these changes are more marked as the acidity of the cream from which the butter is made is increased.

### Bacteria Not Responsible.

No bacteria were found in the cream or the butter which could reasonably be expected to be the cause of the more rapid deterioration of the high acid butter. Further, the changes in the high acid butter were not checked by heating the ripened cream. The results also indicated that acid which develops normally in the cream by the action of certain bacteria, or which is added directly to the cream in the form of pure acid, brings about or assists in bringing about a slow decomposition of one or more of the compounds of which butter is largely composed.

What may be referred to as of special importance is that butter can be made from sweet pasteurized cream without the addition of a starter. Fresh butter made this way is found to have a flavor too mild to suit the average dealer, but it changes less in storage than butter made by the ordinary methods, and sells after storage as high grade butter.

At the present time many butter makers are using sweet pasteurized cream without a starter, and others with a starter, but without ripening. The statements in regard to butter from unpasteurized cream do not hold for butter made from unpasteurized cream churned without ripening, because butter made in this way has poor keeping quality. Butter for the market is being made from sweet cream, and is giving satisfaction. A box of sweet cream butter fourteen months old, on exhibition at the National Dairy Show, London, last December, had no storage or fishy flavor, and was pronounced first class in quality.

### Standardizing Cream

There are three ways in which heavy cream may be standardized to a lighter grade. First, by the addition of skim milk; second, by the addition of water; and, third, by the addition of a "lighter" or less rich cream. Although the same principle is used, illustrations of all three methods will be given, using the metric method devised by Pearson.

Draw a square and place in the center the per cent. of fat in the

cream desired. At the upper left-hand corner place the per cent. of fat in the heavy cream, and immediately below, at the lower left-hand corner, place the per cent. of fat in the standardizing medium. Working diagonally across the square, subtract the smaller numbers from the larger and place the differences in the upper and lower right hand corners. The upper right hand figure indicates the number of pounds required of the standardizing medium to produce the standardized product.

To make 20 per cent. cream from 42 per cent. cream and skim milk:

Cream	42	20
	.....	20
	.....	20
	.....	20

Skim milk 0 22  
From this diagram it is seen that 20 parts of 42 per cent. cream and 22 parts of skim milk will produce 20 per cent. cream. If a given quantity, say 25 pounds, of 20 per cent. cream is desired, the following formula should be used:

20 divided by 42, multiplied by 25, equals heavy cream. 23 divided by 42, multiplied by 25, equals skim milk. This gives 11.9 pounds of heavy cream and 13.1 of skim milk. (The factor 42 is obtained by adding the total number of parts, as 20 plus 22.)

II.

To make 40 pounds of 18 per cent.

cream from 32 per cent. cream and 4 per cent. milk.

32	4	14
.....	.....	14
.....	.....	14
.....	.....	14

Or, equal weights of 32 per cent. cream and 4 per cent. milk will make 18 per cent. cream.

III.

To make 35 pounds of 25 per cent. cream from 40 per cent. cream and 20 per cent. cream:

40	5	6
.....	.....	6
.....	.....	6
.....	.....	6

Therefore, use 5 divided by 20, multiplied by 35 pounds of 40 per cent. cream, and 15 divided by 20, multiplied by 35 pounds of 20 per cent. cream.

In standardizing cream the following points should be carefully observed:

1. The milk and cream to be used in standardizing should be accurately tested.

2. Great care should be exercised in figuring the quantity to be used.

3. All vats, stirrers, etc., which come into contact with the milk or cream should be sterilized. Standardization should be done in a clean room and the product should be guarded from a fly and dust contamination.

4. It is important to see that the materials used are thoroughly mixed.

—U. S. Bulletin.



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