

the working or the separation of the butter is assisted by the addition of a quantity of cold water. By churning the sour milk in one or other of these ways, the butter is said to be sound, and well-flavored. If it be greater in quantity it is according to Sprengel, because the fatty matter carries with it from the milk a larger quantity of casein than it does in most cases from the cream alone.

Sourness of Cream.—For the production of the best butter it is necessary that the cream should be sufficiently sour before it is put into the churn. Butter made from sweet cream (not clouted,) is neither good in quality nor large in quantity, and longer time is required in churning. It is an unprofitable method.

Quickness in Churning.—The more quickly milk or cream is churned, the paler, the softer, and the less rich the butter. Cream, according to Mr. Ayton, may be safely churned in an hour and a half, while milk ought to obtain from two to three hours. The churning ought always to be regular, slower in warm weather than the butter may not be soft and white, and quicker in winter than the proper temperature may be kept up. A barrel-churn, lately introduced into this country, being placed in a trough of water of the proper temperature, readily imparts the degree of heat required by the milk or cream without the necessity of adding warm water to the milk, and churns the whole in ten or twelve minutes. It is said also to give a larger weight of butter from the same quantity of milk. If the quantity be really as good by this quick churning, the alleged inferiority in the quality of butter churned quickly in the common churn can not be due to the mere rapidity of churning alone.

Over Churning.—When the process of churning is continued after the full separation of butter, it loses its fine yellowish, waxy appearance, and becomes soft and light colored. The weight of the butter, however, is considerably increased, and hence in Lancashire over-churning is frequently practised in the manufacture of fresh butter for immediate sale.

Temperature of the Milk or Cream.—Much also depends upon the temperature of the milk or cream when the churning is commenced. Cream when put into the churn should never be warmer than 55 deg. Fahrenheit. It rises during the churning from 4 deg. to 10 deg. F. above its original temperature. When the whole milk is churned, the temperature should be raised to 65 deg. F. which is best done by pouring in hot water into the churn while the milk is kept in motion. In winter, either of these temperatures may be easily attained. In cold weather it is often necessary to add hot water to the cream to raise it even to 55 deg. But in summer, and especially in hot weather, it is difficult, even in cool and well-ordered dairies, (without the use of ice,) to keep the cream down to this comparatively low temperature. Hence if the cream be then churned, a second rate butter, at best, is all that can be obtained.

The alleged advantages of churning the entire milk may be thus stated. The proper temperature can be readily obtained both in winter and summer. A hundred gallons of entire milk will give in summer five per cent. more butter than the cream from the same quantity of milk will give. Butter of the best quality can be obtained without difficulty both in winter and summer.—No special attention to circumstances or change of method is at any time required. The churning in winter and summer is alike simple and easy. The butter is not only of the best quality while fresh, but is also best for long keeping, when properly cured or salted.

Cleanliness is peculiarly necessary to the manufacture of good butter. Cream is remarkable for the rapidity with which it absorbs and becomes tainted by any unpleasant odors. It is very necessary that the air of the dairy should be sweet, that it should be often renewed, and that it should be open in no direction from which bad odors can come." (Johnston and other authorities.)

The statement of J. T. Tansing, who received the first premium for butter from the New York State Agricultural Society, is as follows:

1. The number of cows kept is ten.
2. Keep them stabled through the inclement season; feed them from three to four times per day with good hay or green stalks; when near coming in, add some oats, barley, or corn cracked. In summer, good pasture, with living water accessible at all times, add plenty of salt.

3. **Treatment of milk and cream before churning;** Strain the milk in tin pans, place them in a cool cellar for the cream to rise. When sufficiently risen, separate the cream from the milk; put in stone jars, well prepared before churning.

The mode of churning in summer; Rinse the churn with cold water, then turn in the cream, and add to each jar of cream put in the churn, half one fourth of the same quantity of cold water. The churn used is a patent one, moved by hand with a crank, having paddles attached, and so constructed as to warm the milk, if too cold, with hot water, without mixing them together.—The milk and cream receive the same treatment in winter as in summer; and in churning, use hot instead of cold water if necessary.

5. The method of freeing the butter from the milk, is to wash the butter with cold water till it shows no color of the milk, by the use of a ladle.

6. **Salting the Butter.**—Use the best kind of Liverpool sack salt; the quantity varies according to the state in which the butter is taken from the churn; if soft, more, if hard, less, always taking the taste for the surest guide.

Add no saltpetre, nor other substances.

7. The best time for churning is the morning, in hot weather, and to keep the butter cool till put down.

8. The best mode of preserving butter in and through the summer and winter, is as follows:

The vessel is a stone jar, clean and sweet. The mode of putting it down is to put in a