

## The Dairy.

### Butter-Making Temperatures.

We do not think an abundance of running water absolutely essential to the best results in butter-making, if you can keep the temperature of the milk room at the right point. It is only necessary to reduce the temperature of the milk to about 70 degrees soon after it is drawn from the cow, if you can set it in a room with a temperature of 58 or 60 degrees. Indeed, it is our impression that surrounding milk and keeping its temperature down with cold water, while exposing the surface to a temperature varying with the weather, is injurious to the flavor and the keeping qualities of the butter.

The best temperature for raising cream, it is admitted by our best butter makers, is about 60 degrees. The variation should not be much above or below this. At this point we should prefer, if possible, to keep the temperature of the milk room the year round. In it we would keep the milk and cream until it was ready to churn. If you go below this, it retards the rising of the cream and we think injures the butter. It is a pretty well established fact that the best cheese can not be made out of milk that has gone much below 65 degrees. Below that the sweet nutty flavor disappears. We think that when we begin to go below 60 degrees, we begin to lose the rosy smell and aromatic flavor of our butter. It may remain sweet, but it has forever lost that delicious, creamy taste which is a peculiarity of fancy butter, and when afterward exposed to a higher temperature, decay is more rapid because of the chilling it had received. We would not, therefore, if we could as well as not, let milk go below 60 degrees—certainly not below 58 degrees.

The best temperature for churning is somewhere between 60 and 65 degrees—about 62 or 63 in summer, and 65 in winter. If you begin churning at 60, even in a room of that temperature, you will raise the temperature of the cream two or three degrees in a very short time, and increase the bulk. It is not the season alone which demands a variation in the temperature of the cream between summer and winter—that you should churn it warmer in winter and colder in summer. It is true that in warm weather the tendency of the temperature is to rise, and in cold weather to sink. But there is another reason why a higher temperature is required in winter than in summer. It is found in the composition of the butter. In summer, there is more oil and less hard fat in the butter. In winter, there is more hard fat and less oil. In winter, the proportion of hard fat to oil is about 69 parts fat to 4 parts oil. In summer, this proportion is reversed, and we have about 49 parts of hard fat to 60 parts of oil. Hence, butter at the same temperature is harder in winter than it is in summer. This is of itself sufficient reason for churning at a higher temperature in winter than in summer.

It is well known that the flavor of butter made in the summer is better than that of butter made in winter. It is not because there is more oil in summer and less hard, tasteless fat. It is not exactly known what gives butter its peculiar flavor. We suspect the flavor is imparted by some quality in the oil, and that where we diminish the quantity of oil and increase the quantity of hard fat, we weaken the flavor and make the butter insipid. We would like to see some experiments tried to decide this point. If we are right, the butter from a cow noted for the high flavor of the butter, will contain a larger proportion of oil than the butter from a cow whose product is comparatively tasteless. —*Utica Herald*

### A Creamometer.

It is frequently desirable to know the comparative value of the milk in the different cows of a given herd. Sometimes it is the case that in a herd of 10 or 12 cows one or two will be almost valueless, by reason of a poverty of cream, and where the milk is all mixed together, it is impossible to tell what cow it pays to keep, and those it does not. The creamometer is easily constructed, and will show both the relative and the actual value of each sample of milk. Take any straight glass vessel, such as a test tube, or what answers an equally good purpose, a glass bottle whose sides are even, and on this paste a half inch strip of paper, first marking a scale of tenths or hundredths upon it. When filled with milk, these marks will indicate the per cent. of cream.

We have one before us which has been filled twenty-four hours, and the cream marks 12 per cent. flush. Is this unusually rich?—*Ex.*

### How much Milk to a Pound of Butter.

Having asked several of my old friends, in the same business as myself, the above question, and not being able to obtain very satisfactory answers, I found myself compelled to solve it alone. The course of reasoning pursued was, that a fair answer could only be obtained from a comparison of the product of a large number of cows, and that it would not do to base an answer upon the doings of one cow or even one dairy though a large one. I obtained the report of seven butter factories in New York, representing 108,873 pounds of butter per annum from over 800 cows; from these I found that a careful average showed that one pound of butter required *twenty-three and one-half pounds of milk*; it was also evident that either there was a difference in the quantity of the milk furnished to the different factories, or else in the perfection of the plan pursued by each one in separating the butter, for these averages varied from twenty pounds of milk at the Davis Factory, Herkimer Co., to twenty-five pounds at the Berry Factory, at Malone. Although not properly in place, I may state that the average price of the 108,873 pounds of butter was thirty and one-quarter cents per pound.

The Davis Factory is essentially a cheese factory, but by an accident to their boiler, were compelled to convert one day's delivery of milk into butter; this amounted to 4000 pounds and to the surprise of those engaged in the manufactory, made 200 pounds of first class butter. The Keeler factory reports an average of *twenty and three-quarter pounds of butter from twelve quarts (wine measure) of milk*.

Experiments with my own dairy of twenty cows, during last month, has convinced me that one pound of butter from twenty-three pounds of milk is a fair average, and yet I could select individual cows from my dairy whose average would require much less milk.

It is but reasonable to suppose that other items being equal, it will require more milk to make a pound of butter in June than in December; that the same comparison will hold good with regard to the milk of a fresh cow, and one nearly dry; and also, with a cow kept on dry fodder and meal, and one fed altogether upon green clover, though I have not found green corn to decrease the average of butter in anything like the proportion that good clover pasture will. —*Journal of the Farmer*.

### Butter Making.

Milk for butter-making should be handled gently and put at rest as soon as possible. A reduction of temperature is desirable as soon as the milk is drawn, but this should be effected with the least possible amount of stirring. The more it is stirred the less will be the yield of cream. When set, it should be protected from even the least jar. Churning in a milk room, or any work that jars the building, will retard the rising of the cream. Milk, to get the best yield of cream, requires absolute and undisturbed rest.

Should milk be set in deep or shallow vessels? This is still a disputed point. Many experiments have been made, and the evidence seems to show that it makes little or no difference in the yield, whether set deep or shallow. It is more convenient and saves labor to set in pails, or in large pans that will hold the entire milking of a dairy. The tendency is, therefore, to deep setting, or to setting in large masses. Good results are obtained by both methods. We have had no experience and but little observation in regard to the matter; but from what little we have seen and from the testimony we have read and have received from the lips of dairymen, we are inclined to favor setting in large pans—large enough to hold a whole milking—and not over four to six inches deep. In this way, the cream, having less distance to rise, will separate from the milk sooner, and we get the benefit of the action of more light on the milk and cream, which our fancy butter makers consider essential. But there is no doubt that the cream will rise through any depth, if we keep the milk sweet long enough. It is a very little lighter than milk, and rises slowly, by virtue of the law of gravitation. It will therefore rise a short distance sooner than it will a longer one; but it always has an upward tendency so long as the milk remains in a fluid state, and even separates partially in the cow's bag. This is the reason why the first milk drawn is the poorest, and the strappings the richest—almost clear cream. As the milk stands in the cow's bag, the bottom is drawn first, and the top or cream last. —*Utica Herald*.

### Old Pastures for Cheese.

An English correspondent of the *Country Gentleman* says:—"Under no circumstances would an old established dairy farm, famed for fine flavored cheese, suffer the peculiar rich and mellow taste imparted by the particular herbage grown in the dairy fields, to be tainted by the product of inferior grass, or, on the other hand, permit the cheese of other parties to be benefited at the expense of this sweet and most pleasant flavor. In parts of England where arable land prevails, and where the land in permanent grass has never produced any cheese of a quality beyond mediocrity, it is possible factories may arise, for doubtless the management in making is superiorly far to where only second-class cheese is manufactured. Good second-class cheese can not be made from clover pasture, or any of the temporary grass land under the usual style of manufacture there, for it will not keep to get old enough to suit the best customers, and cheese which requires eating while comparatively new, has to be consumed by the working classes, who will not and can not pay high prices."

The writer, after complimenting the American system of manufacture, and giving due credit to the excellent quality of our cheese, again goes on to say: "It is an utter impossibility to impart the flavor given by the old natural grasses growing in century-old dairy fields, to cheese made from clover or any artificial or temporary pastures. This is so well known in England, that the dairy cows on the best dairy farms are always, when in milk, confined to the old dairy land, and on most of these farms there are fields which only a fence divides, which would spoil the uniformity of the cheese by giving the cows access thereto. It makes a difference in butter-making, too, for though not quite so quickly shown, yet there is land which will not do to graze with milch cows, from which a genuine good article is required; and though, of course, both butter and cheese must be manufactured in a cleanly and proper manner, yet much depends on the food the cows eat, as the best managers can not get rid of impurities which have been brought into the milk from rank, sour or unsuitable forage."

### Packing Butter for Transportation.

J. T. Ellsworth, of Barre, at a meeting of the Massachusetts Board of Agriculture last year, being asked to state his mode of packing and transporting the butter which he makes to market, said—"My whole aim is to keep it from the air. I do not want any kind of air to reach it. If it is pure air, it will abstract the sweet flavor; if it is bad air, it will do harm, of course. I cover it from the air from the time it is salted until it is worked. Then it is boxed as soon as it can be, and covered. I have three different sizes of boxes. My shipping box is something like an old-fashioned tool-chest, and holds four boxes of thirty pounds each. The shipping-box is two boxes high and two boxes wide. They are the common round butter boxes, but the shipping-box is a square box, with handles at each end. A rod comes up at each end, and there is a thumb-screw outside on the cover. Lifting, such as comes on the sides of cloth, is tacked around the edge of the box. When the cover is screwed down the box is pretty tight. You will see that there is a vacant space between the two boxes, something like a three-square. I had two galvanized iron boxes three-square or nearly so, that just fit into that cavity, and these were filled with broken ice, about the size of a hen's egg, the butter put in, and the cover screwed down tight, in time to meet the express train, and my butter gets to the stall at half-past eleven, a. m. Two-thirds of the ice is in the boxes, and the butter, I have been told, is apparently as hard as when it started. —*Vermont Farmer*.

NEW STYLE OF MILK PANS.—The *Jeffersonian*, of West Chester, Chester county, Pa., describes some extraordinary milk pans lately made at that place for the dairy of Enos Bernard. They each measured twelve feet in length and four in width, and were about six inches in depth. They were double bottomed, with a vacuum of about one inch between, which space was divided into four compartments by partitions running lengthwise, and were so constructed as to allow water to pass up and down the length of the pan, thus keeping the milk cool or warm at the option of those having it in charge. The four pans had capacity sufficient for containing the milk of one hundred cows, which number Mr. Bernard keeps. It is said, by those who have tried this new kind of pan, that a much greater amount of cream is obtained from the same quantity of milk, besides obviating considerable trouble and labor. When the cream is skimmed from the surface, the milk is drawn off at the bottom of the pan.