

The Dairy.

Hints for the Dairy.

The best temperature for the milk to be for the yielding of cream, as shown by the experience of the best butter-makers of a district celebrated for the high quality of the butter made, is 60 degrees, or between this and 62 degrees. If milk be raised to the temperature of boiling water, or nearly this, it will yield a much larger amount of cream than if the temperature be at 60 or 62 degrees, but the butter so made from it will not keep for any length of time. The cream that rises first from the milk is the best for butter-making purposes. Good—at least the best—butter cannot be made from cream which is allowed to remain in the milk till it is old. Cream rises best from shallow vessels, and by far the best material of which they can be made is glass. To lessen the risk of breakage of these, certainly the costliest of all milk-vessels, it is better to offer a reward for all the vessels produced whole at the end of a season, than to inflict a fine for those which may be broken.

The temperature at which the cream is to be churned should be the same as that at which the cream has been raised from the milk; it should not be allowed to exceed 64 degrees. It is a mistake to bring the butter too quickly. A consideration of the "facts" of the case will show the reason for this. The globules of butter in the cream are covered with a thin pellicle of casein; the object is to get rid of this as completely as possible; but it requires time to do this. Quick churning will bring butter, no doubt, more quickly, but as the casein will be in greater quantity than if the churning was more slowly done, the butter will not keep so well.

Much has been said as to the different methods of butter-making, some advocating churning of the whole milk, and some of the cream, and some of the cream and milk combined. A very eminent authority, who experimented largely on the churning of all these mixtures, states that (1) cream alone is more easily churned than a mixture of cream and milk; (2), that the addition of some water, during churning, facilitates the process, especially when the cream is thick and the weather hot; (3), that the butter made from sweet cream has the finest flavour when fresh, and keeps the longest; (4), that scalded cream yields the largest amount of butter, but that it does not keep long; (5), that the most economical mode is to churn the milk and cream in a condition slightly acid, and that it yields a large amount of excellent butter. The same experimenter, after an experience of thirty years, says that he has come to the conclusion that butter is yielded in the largest quantity and of the best quality, by churning the whole milk. This should be kept till it is decidedly sour, and covered with a thick skin, wrinkled or

uneven on the surface. This is churned at a temperature of 65°.

There are various modes of preparing annatto for the colouring of cheese and butter—the following is one: Mix with one and a third gallons of boiling water one pound of annatto, half a pound of concentrated potash, one and a third ounces of saltpetre. Carrot-juice yields a good colour for the purpose, but it requires to be used when perfectly fresh. When the butter is obtained from a cow properly fed there will be no fault to find with its colour.

The salting or powdering of butter requires to be done with great care. The following is the mode adopted in the dairies in which the celebrated Kiel butter is made. The salt used is of the first quality—clean and dry. The butter is made into lumps about thirty or forty pounds in weight; and over the surface of each lump some one-and-a-half or two pounds of salt is sprinkled, or at the rate—say, of three-and-a-half pounds of salt to one cwt. of butter. Allowed to lie for a short time, it is then worked slightly in with the hand. The second working is made with lumps of five or six pounds weight, the salt being well kneaded in, when the lumps are allowed to lie for twelve hours. The last working is very complete, so as to get rid of all the fluid which ought to be expelled; before the third or last working is begun, a little salt, at the rate of one pound to the cwt., is added; no working of the butter in cold water is allowed. Under ordinary circumstances the proportion of salt to butter when made for market in this country is one ounce to the pound of butter; half this quantity when the butter is to be used at once. In Scotland, as is well known, what is called "fresh butter" is largely used, having no salt at all in its composition. This system certainly affords a crucial test of the flavour of the butter, although to the palates of a large majority of butter eaters in England the flavour of saltless or unpowdered butter is insipid and flat.

The proportion of butter to milk in cream varies very much, according to the circumstances attendant upon the breed of the cow, the mode of feeding it, &c. It is generally stated that a quart of cream should yield a pound of butter; but it may be taken as decided that this will be above the average experience of dairymen. One authority gives his at 4 pounds of butter from 7 quarts of cream, little more than one-half of the above estimate. Another authority, however, has it on record that he obtained 15 ounces of butter from 1 quart of cream. The following are statements of different results from the same cows, but with different modes of feeding: 16 quarts of cream gave 12 lb. 8 oz.; 24 quarts, 16 lb. 12 oz.; 30 quarts, 20 lb. 8 oz.; 70 quarts, 49 lb. 12 oz.; 50 quarts, 32 lb.; 60 quarts, 40 lb. According to "general" authority, a quart of cream is obtained from 12 quarts of milk. One special authority, quoting the results of many returns,

states the average quantity of milk required to produce one quart of cream was ten quarts, the lowest range being eight, the highest twelve. The yield of the best out of four cows, at a public competition, was an average of 12 per cent. of cream.

Analysis of Milk.—The quantity of solid matter in 40 lbs. being shown to be 5.06 lbs. as follows: Pure casein, 2.00 lbs.; butter, 1.25; sugar, 1.75; phosphate of lime, 0.9; chloride of potassium, 0.11. Analysis of butter, the quantity of solid matter in 100 lbs. being shown to be as follows: Pure fat or oil, 82.70; casein or curd, 2.45; water with a little salt, 14.85.

The weight of hay required by a cow per day has been estimated at three per cent. of her weight. Thus twenty-four pounds of hay will be required by a cow which weighs eight hundred weight.

The quality of the water used for washing the butter in preparing it for market, is stated to have an effect upon the butter; hard spring water being the worst, soft water being the best. On this point we require more detailed information, although the facts stated in support of this opinion seem very conclusive, and it certainly is a reasonable thing to suppose that the quality of the water used for this purpose would have some influence more or less decided. In making the Kiel butter no working of the butter in water is allowed. The following is the method adopted for preparing the butter for market: As the butter is taken from the churn it is slightly pressed, to get rid of a portion of the whey, and then put on trays and carried into the cellar, where it is made ready for market. A long trough, and which is provided with a few holes at the bottom of the lower end, is placed in an inclined position, and is previously well washed with hot and finally with cold water. The dairymaid taking up, some five or six pounds in her hands, which are also washed in hot and finally cold water, keeps pressing the butter against the sides of the trough until the whey, &c., is fully expressed; as the butter gets extended in the process it is then rolled up and again pressed against the trough. The processes of pressing and rolling up are repeated again and again till the butter is perfectly freed from all whey. One churning is finished right off before another is begun.—*Mark Lane Express.*

Notes from Cheese-Makers.

Not long since I received a letter from a cheese-maker in a factory in New England, containing the following queries:—"Will you please tell me what advantage there is in letting a curd 'change' before taking it out? In cooking I raise the heat to 96 degrees or 98 degrees, but before the acid is perceptible the curd gets hard. Would the curd do as well if the heat was not carried so high—and why does it become so hard? Will a curd that is taken out perfectly sweet, cure as fast and become ready for market as soon as one that is changed?" The reply to