

Montana Extension Service in Agriculture and Home Economics

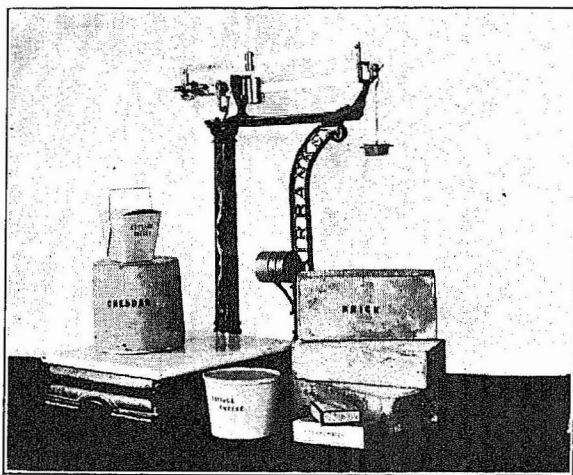
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Home Cheese Making



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Home Cheese Making

The making of cheese in the home is getting to be a common practice in many parts of the rural communities. There are several varieties that can be made to advantage if the milk is of a high grade and the directions for manufacturing are followed with care.

As a source of nutriment in the dietary and a practical substitute for meat, the use of cheese is growing in popularity. It contains nearly twice as much of the tissue-building material and more energy value than beef, pork, mutton, or chicken. The use of any cheese is economical, for there is no waste as there is with meats. It is always ready to serve and may be combined advantageously in the preparation of other foods.

There is always a brisk local demand for high grade cheese of uniform quality and the manufacture and use of it in the home will not only conserve the meat supply but it will also furnish a profitable source of the family income.

Equipment.—There is no satisfaction in attempting to make any kind of cheese without proper equipment. The average home kitchen has all the necessary equipment for making cheese of the cottage or the Neufchatel type, but brick and Cheddar cheese require more apparatus. A small complete outfit for making Cheddar cheese may be obtained at a minimum cost from any dairy supply house. The outfit usually consists of a jacketed vat, oil stove, screw press, hoops, curd knives, bandages, coloring, and rennet. A small vat may be made at a tinshop and placed inside a wooden tank with a sufficient amount of intervening space to hold several gallons of water. Knives for cutting the curd, similar to those in figure 5, may be made in a blacksmith shop at a small cost by bending a piece of iron in the form indicated; then attaching a handle and winding the frame with a fine steel wire, making one perpendicular and the other horizontal.

Hoops may be made from sheet iron 7 inches in diameter and 10 inches high, inside measurement.

An improvised press constructed in a manner similar to figure 6 will very well answer the purpose in pressing the Cheddar cheese.

If brick cheese is manufactured, the molds can be made at home. These can be made from any wood that is free from knots or pitch. The molds are made 10 inches long by 5 inches wide by 6 inches high, inside measurement, and bottomless. Saw parallel slits an

inch apart and a sixteenth of an inch deep on the inside of the mold. These will facilitate the removal of the whey. Next cut a board to fit loosely in the mold to serve as a follower in pressing the cheese.

A dairy thermometer is an instrument which is absolutely necessary when making any kind of cheese. The simplest kinds of cheese are frequently ruined by overheating in the process of cooking. Thermometers are inexpensive and indispensable, as one must know at all times the exact temperature of the milk.

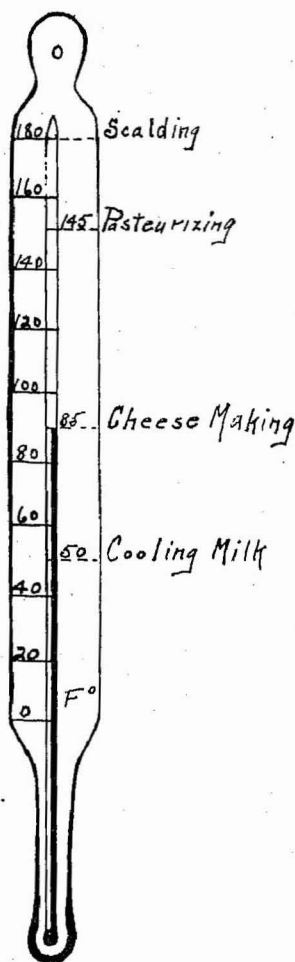


FIG. 1. Dairy thermometer.

Unless the thermometer is accurate, it is worse than useless. To test the thermometer for accuracy, place the bulb in finely crushed ice for ten minutes and see if it registers 32° F., or freezing. Next put it into boiling water and see if it registers 212° F. High altitudes may affect the latter reading as water often boils at a lower temperature than 212° F. in the mountainous parts of the State. Standardized thermometers can be secured from dairy supply houses.

COTTAGE CHEESE

A good way to utilize the surplus skim-milk or buttermilk is to manufacture it into cottage cheese. This cheese is very easy to make, is nutritious and furnishes an economical substitute for meat. The United States Department of Agriculture has this to say relative to the use of cottage cheese: "A pound of cottage cheese daily would supply all the protein required by the ordinary adult engaged in a sedentary occupation." The following list shows that cottage cheese is much cheaper than most meats in furnishing protein for the diet.

For supplying protein, one pound of cottage cheese equals:

1.27 lbs. sirloin steak	1.44 lbs. smoked ham
1.09 lbs. round steak	1.58 lbs. loin pork chop
1.37 lbs. chuck rib beef	1.31 lbs. hind leg of lamb
1.52 lbs. fowl	1.37 lbs. breast of veal
1.46 lbs. fresh ham	

In addition to protein, energy for performing body work must be furnished by food. As a source of energy also, cottage cheese is cheaper than most meats at present prices. The following list shows the comparison when energy is considered.

On the basis of energy supplied, one pound of cottage cheese equals:

8 1-3 oz. sirloin steak	5 oz. smoked ham
11¼ oz. round steak	6 oz. loin pork chop
11¼ oz. chuck rib beef	7 1-3 oz. hind leg of lamb
10¾ oz. fowl	12¾ oz. breast of veal
5½ oz. fresh ham	

Equipment.—The equipment needed for making cottage cheese is very simple and can be found in any home kitchen. A pan, kettle, double boiler, thermometer, large spoon and cloth strainer will be sufficient. The directions should be followed carefully and a few trials with slight modifications to fit conditions will result in securing a good finished product.

Common method of making.—This cheese is made either from sour whole milk, skim-milk, or buttermilk. The milk used for cottage cheese should have a clean, pleasant acid flavor. If it is allowed to age too long or become too sour, a bitter flavor may appear in the cheese. If not enough sour or clabbered milk is on hand, mix a pint of sour milk or buttermilk with a gallon of sweet milk and let it stand at a temperature of 70° to 80° until well clabbered. After the milk is clabbered, warm it up to about 98° F. and hold it at this temperature for 25 to 35 minutes. Be careful at this point not to stir the curd too much or to overheat it for a dry, mealy, crumbly cheese may result.

Dip off the whey next, or as much of it as possible without breaking the curd; then pour the remainder into a piece of muslin or a doubled cheese-cloth strainer supported on a frame or in a collander. Let the curd drain until the whey ceases to drip. A little stirring of the curd at intervals will hasten draining.

Rennet or junket method.—A quick method of making cottage cheese is to use liquid rennet or a junket tablet. The use of either one of these will hasten the curdling of the milk, require less time in making and give a finer and more uniform quality of cheese. This method is not much different from the former except that, after the milk has stood for several hours at 80° F. and has become a little sour, two or three drops of liquid rennet or one-eighth of a junket

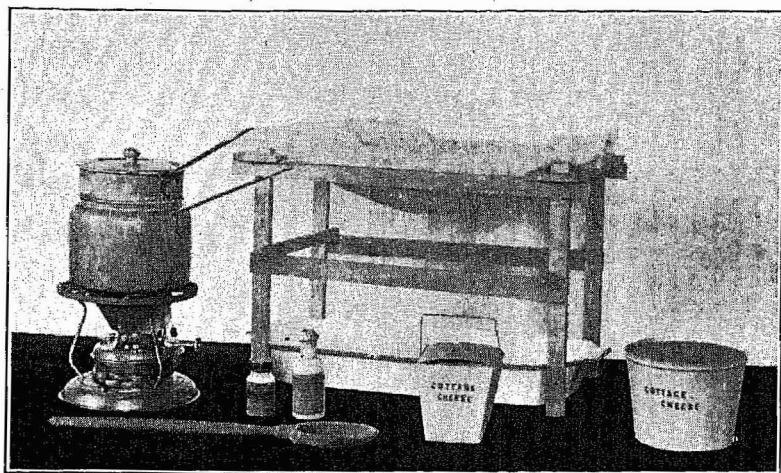


FIG. 2. Cottage cheese equipment.

tablet, broken fine and diluted in an ounce of water, is added per gallon and mixed well with the milk. This method requires no further heating. Let the curd stand until the whey begins to appear on the surface when it is ready to be poured into the draining cloth. If the whey does not drain readily, twist the ends of the cloth together, place between two boards, add a weight and allow it to press for some time.

In order to make the cheese smooth and fine grained, do not allow it to drain too dry; after draining, place it in a pan and work it with a butter paddle. Salt is then added to suit the taste and cream may be added to soften it and improve the flavor.

Serving.—Often chipped olives, pimento, caraway seeds or nuts are added in small amounts to lend additional flavors.

A large number of delicious cottage cheese dishes are described and recipes given in Circular 109, published by the United States Department of Agriculture, which will whet the appetite, cut down the food bills, and save the meat.

Marketing.—The yield of cottage cheese will be about one and one-half pounds per gallon of milk. It usually retails for from 10 cents to 20 cents per pound and is a splendid way to utilize the skim-milk and buttermilk. A good sanitary way to prepare it for market is to put it up in pasteboard cartons, fiber cups or ice cream pails, on which may be printed the name of the dairy. These containers can be packed into large pasteboard boxes and sent by parcel post. A fancy local trade may be worked up which many city folks will appreciate and which will add a source of revenue to the family budget.

AMERICAN NEUFCHATEL CHEESE

The Neufchatel type of cheese is coming to be a popular home cheese in this country. It is easily made from clean, fresh, whole milk and in appearance is very similar to cottage cheese except it is finer in grain, smoother in texture and is usually more free from lumps. In flavor it is mild, delicious and appetizing.

This cheese is usually made in small quantities, requires from 12 to 18 hours' time and, being a soft cheese, is usually marketed locally. Any container in which the milk can be kept at a uniform temperature may be used for making the cheese. A double boiler, pan or gallon-can set into a fireless cooker will serve the purpose.

The temperature of the milk is raised to 75° F. For a gallon,

or each $8\frac{1}{2}$ pounds, of milk add one pint of clabbered milk or an equal quantity of pure sour milk starter and stir in well.

For each gallon of the milk use three drops of liquid rennet or the amount of pepsin that will remain on the end of a pen knife blade; or, better still, one-eighth of a junket tablet, pulverized. Dissolve the coagulum in an ounce of cold water, then add and stir it into the milk. Set the milk aside and allow it to remain undisturbed at a uniform temperature of 75° until the curd becomes firm and the whey begins to separate. If set in the evening, it will be ready to drain the next morning; or, if set in the morning, it will be ready to drain in the evening.

In removing the whey, pour the contents of the can gently into a muslin-covered strainer or double cheese-cloth in the same manner as described in making cottage cheese. It will facilitate the removal of the whey and insure uniform drainage to occasionally stir the curd gently or scrape the cloth with a knife, care always being taken not to break up the curd any more than is necessary. Allow the cheese to drain until the whey ceases to drip or to hasten the process

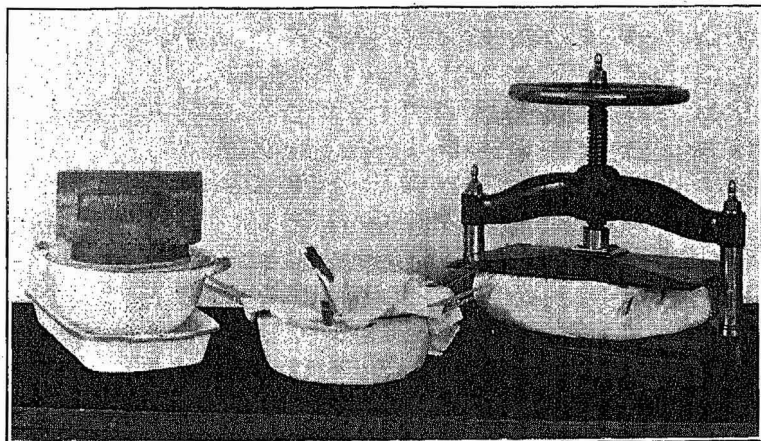


FIG. 3. Methods of straining and pressing.

bring the corners of the cloth together and put it into a collander or on a block of wood, then cover with a small board and place one or two bricks on top to weight it down.

Neufchatel cheese is salted to taste, is usually served fresh and can be substituted for cottage cheese in any of the recipes given in

Circular 109 of the United States Department of Agriculture. It may be modified in appearance and flavor the same as cottage cheese, by using chipped olives, pimento, caraway seeds or nuts. When prepared for the market, it is usually molded into quarter or half-pound prints, wrapped in parchment paper and tinfoil or put into pasteboard cartons. Paraffined cups, pails, or glass jars furnish an economical and practical method of preparing this type of cheese for the market. It is a very fine sandwich cheese and should become popular.

BRICK CHEESE

The brick cheese gets its name from the shape into which it is molded or from the fact that a brick is used as a weight in pressing the cheese.

The method of making brick cheese is very simple and easy to learn but requires close application to details. In order to secure the best results the milk must be of the best quality and free from all contamination. Clean, fresh, sweet milk is heated to 86° F. The acidity should not be over 0.16 per cent, hence little or no starter is added.

Setting.—Put the milk into a vat or container and add $\frac{1}{2}$ to 1-3 ounce or from 1 to 1½ teaspoonfuls of rennet diluted in cold water, for each 100 pounds of milk. When the curd is firm, which it should be in from 25 to 35 minutes, cut it into small cubes with curd knives made for the purpose.

Cooking.—After cutting, stir the curd carefully for ten minutes, then gradually raise the temperature to 100° or 115° at the rate of 1° a minute. Continue stirring after the temperature has reached the limit until the curd becomes firm and springy. Care is necessary at this point not to overheat the curd or a dry, corky cheese may result.

Filling molds.—Put a piece of burlap cloth on a draining board and place the molds on it close together. Dip the same amount of curd into each of the molds. After they are filled, lay the follower in position and place one or two bricks on top. During the next few hours turn the cheese and the molds upside down occasionally to facilitate draining.

Salting.—Remove the cheese from the molds after twenty-four hours and rub dry salt over the surface. Repeat the salting for three days and pile the cheeses three or four high on a table in the curing

room or cellar. The salt penetrates the cheese and at the same time facilitates in expelling the moisture.

Ripening.—After the fourth day, place the cheeses on edge a few inches apart on the shelves. The curing room should be kept at a uniform temperature of about 65° to 70° F. and somewhat moist. To keep off the molds, dip the cheeses in very hot paraffin after they have been on the shelves for ten days or more. Under proper conditions brick cheese will cure in from two to four weeks. Good brick cheese will appear smooth in texture, have more elasticity than Cheddar and mold like wax in the fingers. It is rich and delicious in flavor, rather mild and sweetish, and is relished by many people.



FIG. 4. Hoops for different types of cheese.

CHEDDAR CHEESE

The milk for making Cheddar cheese needs to be as clean as possible and free from any taints or flavors. Every precaution in the care and feeding of the cows, handling of the milk and care of the utensils is necessary in order to secure the best results. In winter the milk may be kept for two days or longer if it is not allowed to freeze or become sour.

It is well always to weigh the milk at the start in order to know how much coloring, rennet and salt to use. A gallon of milk on the average weighs eight and one-half pounds.

Adding coloring.—After the milk is put into the vat, it is heated to a temperature of about 85° F. It is very necessary to have a dairy thermometer when making cheese as a great deal depends on

having proper temperatures and keeping it under control. The coloring of cheese is not necessary but if done, use about one-eighth ounce of coloring for 100 pounds of milk. If rennet tablets or junket tablets are used they often contain the coloring matter.

Coagulating.—The milk is coagulated or “set” by means of rennet which may be in liquid or tablet form. The directions for using rennet tablets or junket tablets usually are given on the box. If liquid rennet is used, add about one-fourth of an ounce, or a teaspoonful, for each 100 pounds of milk. The rennet may weaken with age so the amount may need to be increased—the point being to use enough to “set” the milk in from 20 to 25 minutes. Dilute the rennet in a pint of cold water, then stir it into the milk and let the milk remain undisturbed until ready to cut.

Cutting.—In order to tell when it is ready to cut, allow the milk to thicken until it is quite firm, then insert the fore finger under the curd and by means of the thumb, start the curd to breaking as the finger is raised. If fine particles of curd are left sticking to the finger, it is too soft to cut but when ready the curd should break over the finger with a smooth cleavage.

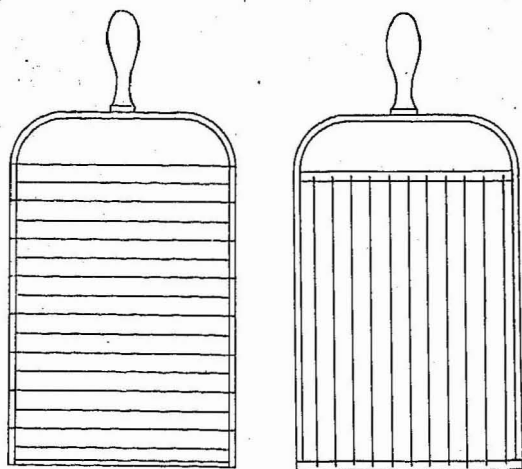


FIG. 5. Curd knives.

At this point cut the curd into small cubes about half an inch square in order to let the whey escape. Regular curd knives, which cut both ways, are the best for this purpose. A wire bread-toaster is sometimes used with small amounts of milk.

Heating.—The whey will readily escape from the curd as the cubes contract. At first the curd is very tender and should be stirred gently, but as the heating continues it becomes firm. Ten minutes after cutting begin to raise the temperature of the vat about 2° at intervals of five minutes until 100° is reached. Continue stirring the curd during the process of heating so that no particles stick to the sides of the vat or to each other. Hold the temperature of the vat at 100° until the proper acidity has been developed. This may require from a half hour to an hour of occasional stirring to maintain a uniform temperature throughout.

It is very important to remove the whey at the right time in order to have the proper amount of acidity. This may be determined by pressing a handful of curd. If it appears rubbery and tends to fall apart, it is time to remove the whey. Another test is to touch a piece of the curd to a hot iron. If on removing the curd from the iron a fine thread strings out for half an inch, there is sufficient acid present.

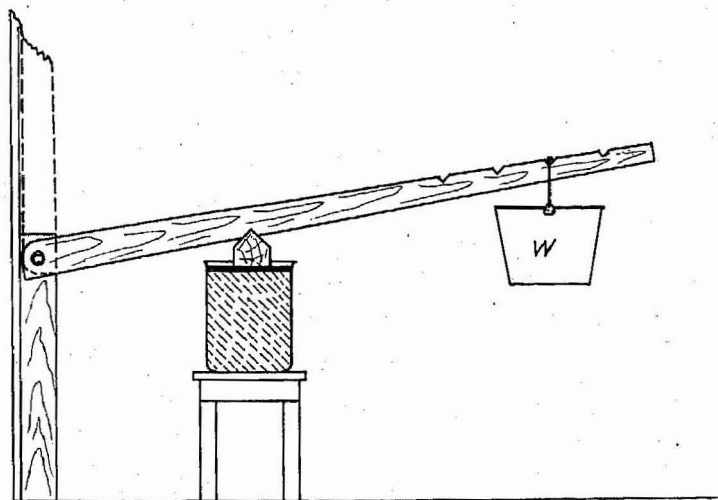


FIG. 6. Improvised cheese press.

Salting and pressing.—After the curd is well-drained, cut it into pieces with a knife and add salt at the rate of from 3 to 5 ounces per hundred pounds of milk. Sprinkle it evenly over the curd and mix it in thoroughly. In preparing the hoops, line them with cheese-cloth, which can be obtained already cut to fit them. After filling,

place the follower in position, then put the cheese to press, and apply the pressure gently at first but sufficiently to close up the particles of curd. After an hour or two remove the cheese from the press, then take out the follower and turn the edge of the bandage over the top of the cheese neatly, put on a cap cloth, and replace the follower. Put the cheeses back into the press, apply strong pressure, and leave them for twenty-four hours, after which remove them from the hoops and place on shelves in the curing room.

Curing.—The curing cellar should not be too damp nor too dry, with a temperature of from 50° to 65° F. After placing the cheeses on the shelves they need to be turned over daily until the surface is dry, when they should be dipped into melted paraffin. The paraffin should be very hot so that only a very thin coating is left on the cheese. The paraffin prevents loss of moisture and cracking of the rind, and guards against the entrance of molds. This type of cheese may be used after curing for ten days, but many prefer to allow it to cure on the shelves for several months, until it ripens and becomes mellow.

Write to the Department of Dairy Husbandry, Montana State College, Bozeman, Montana, for information relative to dairy supplies or anything desired along dairy lines.