



Making Cottage Cheese at Home

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University of Missouri-Columbia
Extension Division

Making Cottage Cheese at Home

You can count on cottage cheese—it's a tasty, nutritious, easily digested, and surprisingly low-calorie food. Eat it plain. Add a little salt and pepper or a dash of some other seasoning. Combine it with fruits or vegetables in a refreshing salad that's a main dish or a dessert. Keep a supply in your refrigerator for a snack.

Cottage cheese—a soft, unripened cheese—can easily be made at home from skim milk or reconstituted nonfat dry milk. The freshly made curd has a mild acid flavor and a smooth texture. Cottage cheese contains about 20 percent milk solids, and many of the same nutrients found in fresh milk.

Most homemakers who make their own cottage cheese like having a steady supply of cheese with homemade flavor. Families that have large quantities of surplus skim milk for making into cheese may save money, too.

TYPES OF COTTAGE CHEESE

With and without rennet

The two major types of cottage cheese are small-curd, high-acid cheese made without rennet, and popular large-curd, low-acid cheese made with rennet.

Rennet is a substance that speeds curdling and keeps the curd that forms from breaking up easily. Adding rennet shortens the cheese-making process, results in a less-acid and larger-curd cheese, and reduces the amount of curd poured off with leftover liquid.

With cream

Cottage cheese made either with or without rennet can be creamed. Adding cream to cheese increases its smoothness and improves its flavor and texture. Creaming cottage cheese also adds calories and slightly lowers protein content.

Fruits, vegetables, or other flavorful foods are often added to cottage cheese, to make a variety of side dishes and salads.

INGREDIENTS

Milk

Use pasteurized skim milk or reconstituted and pasteurized nonfat dry milk. *One gallon (8.25 pounds) of milk will yield about 1 pound of cottage cheese.* The equipment specified in this bulletin will conveniently handle about 1½ gallons of milk.

The milk should be fresh, because you cannot make high-quality cheese from poor-quality milk. Even if milk is stored for only a few days at a temperature as low as 40° F., undesirable bacteria can develop and cause off-flavors or odors in cheese made from the milk.

You can make cottage cheese from whole milk if you first let it stand a few hours, and then skim off the cream that rises to the surface.

Note: You cannot skim cream from whole milk that has been homogenized.

You can make satisfactory cottage cheese from reconstituted instant skim milk. The noninstant type of skim milk often used by commercial bakers will not make good cottage cheese.

Starter

You must use a starter to get the cheese-forming process underway. The starter may be either a commercially produced lactic culture (a partial list of sources appears below),¹ or very fresh cultured buttermilk.

*Dairy Laboratories
2300 Locust Street
Philadelphia, Pa. 19103

Chr. Hansen's Laboratory
9015 West Maple Street
Milwaukee, Wis. 53214

Klenzade Products
Beloit, Wis. 53511

*Marschall Dairy Laboratory
14 Proudfit Street
Madison, Wis. 53703

New Jersey Dairy Laboratories
P.O. Box 748
New Brunswick, N.J. 08903

Rennet

Use rennet if you plan to make a large-curd cheese. Rennet is available either in tablet form (junket tablets), or as an extract. You can sometimes buy tablets in drug or grocery stores; the extract is available only from rennet companies.

Laboratories selling lactic cultures may also supply rennet. Those laboratories marked with an asterisk (*) in the list above will sell you the small quantities of rennet you need for making cottage cheese at home.

¹Dairy laboratories are listed below merely to provide homemakers with specific information as to where to obtain lactic culture and rennet for making cottage cheese. Mention of a laboratory does not constitute a U.S. Department of Agriculture guarantee or warranty of either the laboratory or the products from it. Neither is this an endorsement over laboratories not mentioned.

Salt

Salt improves the flavor and keeping quality of cottage cheese.

Cream

Adding cream to cottage cheese makes a smoother and more flavorful product.

EQUIPMENT

You probably already have most of the necessary equipment for making cottage cheese. You'll need—

An *8-quart container* for the milk. One made of stainless steel is best, but you can use any acid-resistant enamelware or heavily tinned container. A milk pail or water-bath canner would be satisfactory. But *do not use* any kind of galvanized metal or aluminum container.

A *somewhat larger container*, to serve as the bottom part of an improvised double boiler for heating water. A large galvanized pail, tin lard can, or dishpan will do.

A *thermometer* that measures temperatures between 75° and 175° F. The floating, dairy-type is best, though a candy or jelly thermometer is acceptable.

A *long-handled spoon* or stirrer that reaches to the bottom of the 8-quart container.

A *measuring cup*.

Measuring spoons.

A *knife* with a blade long enough to reach to the bottom of the 8-quart container.

A piece of *cheesecloth*, 18 inches square.

A *colander*, and a *pan* big enough to hold the colander.

A *mixing bowl* made of anything but aluminum or galvanized metal.

A *covered container* for storing cheese in refrigerator.

MAKING SMALL-CURD CHEESE

Preparing starter culture

Starter culture should be prepared a day or two before you intend to make cottage cheese. If the skim milk you are using is not already pasteurized, pasteurize 2 pints. Use directions at right.

Refrigerate 1 pint of the pasteurized milk. To the other pint, add a lactic culture (either liquid or powder) according to manufacturer's directions. Or add 1 tablespoon of buttermilk, if you can be sure it's fresh. Either procedure will "inoculate" your milk with the microorganisms that cause milk to curdle into cottage cheese.

Hold the inoculated milk at 70° to 75° F. for 16 to 24 hours, or until it curdles.

With a scalded and cooled teaspoon, add a teaspoon of the curdled milk to the pint of pasteurized milk you've been keeping in the refrigerator.

When this second culture has also curdled (in 12 to 18 hours) it is ready for use as a starter to ripen milk for making into cottage cheese.



Figure 1.—Warming skim milk in an improvised double boiler. (BN-29313)

How To Pasteurize Milk

All the milk you use in making cottage cheese should be pasteurized. Pasteurization will kill harmful bacteria and most of the organisms that may produce off-flavors in cottage cheese.

Almost all fluid skim milk that you buy has already been pasteurized, so you probably won't have to pasteurize it yourself. However, if you are using reconstituted nonfat dry milk, first mix it as directed on the package (or dissolve 1 pound of milk solids in a gallon of water at 65° to 75° F.); then pasteurize.

If you have an electric, commercially made pasteurizer, simply follow the manufacturer's directions for use. Otherwise, improvise a large double boiler (fig. 1), and follow this method:

- Heat water in outer container until the temperature of the milk in the inner container reaches 145° F.

- Keep milk at this temperature for 30 minutes. (You'll probably have to adjust the heat, to maintain the temperature of the milk at 145° F. throughout the half hour.)

- Cool the milk to 72° F. You can do this simply by emptying the outer container and refilling it with cold water.

- Either start making cottage cheese immediately, or cool the milk to at least 50° F. and refrigerate for later use.

Preparing the milk

Just as the milk you use for preparing the starter culture, the milk you plan to make into cottage cheese should be pasteurized. See directions above.

Warming the milk

Milk to be made into cottage cheese should be at room temperature (about

72° F.). You should maintain this temperature throughout the cheese-forming process until curd is formed, cut, and ready for final heating.

Warm the milk indirectly, by placing it and its container inside a larger container filled with water. Heat the water until milk reaches room temperature.

Add $\frac{1}{8}$ to $\frac{1}{4}$ cup of starter, prepared according to directions on page 4, for each gallon of milk. If you are using fresh buttermilk as a starter, instead of a special lactic culture, add $\frac{1}{4}$ cup or more.

Cover the container of milk with a clean, loose-fitting cover, or with a clean cloth.

Curdling the milk

Do not stir the milk. Let it stand at room temperature for 16 to 24 hours. (You may have to occasionally reheat the water in the outer container, to maintain the temperature at 72° F. in the inner one.)

For the best cheese, your milk should curdle during this 16- to 24-hour standing period. If your milk curdles before this, use less starter the next time you make cheese. If it does not curdle satisfactorily during this time, use more starter next time.

When curdling occurs, a jelly-like,



(BN-29315)

Figure 2.—Curd is ready to be cut when it pulls quickly and smoothly away from the side of the container.

firm substance (curd) forms, and a small amount of watery liquid (whey) usually appears on the surface. To determine if the curd is ready for cutting, insert a knife or spatula into the curd at the side of the container and gently pull the curd away from the container side (fig. 2). If the curd breaks quickly and smoothly, it is ready to be cut.

Cutting the curd

Cutting the curd into $\frac{1}{4}$ -inch pieces requires the four steps in figure 3.

- Insert knife blade through the curd to the bottom of the container on the side opposite you. Then pull the knife, held

Positions of Knife in Cutting the Curd

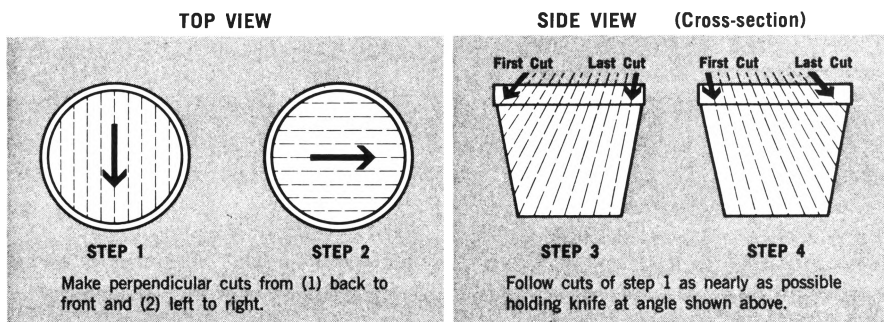


Figure 3.

vertically, toward you as shown in step 1. Withdraw the knife and repeat the cutting, every $\frac{1}{4}$ inch.

- Turn the container a quarter-turn, to step 2. Repeat the first step, again cutting the curd every $\frac{1}{4}$ inch.

- Turn the container to its original cut line and cut the curd at the angle shown in step 3.

- Again turn the container and repeat the cutting, as shown in step 4.

When the curd is cut roughly into $\frac{1}{4}$ -inch pieces, let it stand for 10 minutes. During this time, whey separates from the curd and the curd begins to become slightly firm (though it is still much too soft to be stirred).

Heating the cut curd

This is a critical step in making cottage cheese.

Add water (72° F.) to the outer container until its level is slightly above the level of curd and whey in the inner container (fig. 4).

Heat the water slowly and as uniformly as possible, to raise the temperature of the curd and whey to 100° F. in 30 to 40 minutes—a temperature increase of about 1° per minute.

During heating, stir the curd gently with a large spoon—about a minute at a time, every 4 or 5 minutes. This helps heat the curd uniformly and prevents curd particles from sticking together.

When the curd and whey reaches a temperature of 100° F., heat it faster and stir it more frequently. The temperature of the curd and whey should reach 115° in 10 to 15 minutes. Then hold at this temperature for 20 to 30 minutes, or until the pieces are firm and do not break easily when squeezed.

If the curd doesn't become firm enough at this temperature, heat it to 120° F., or even to 125°.



(BN-29317)

Figure 4.—Heating the cut curd.



(BN-29319)

Figure 5.—Dipping off whey with a measuring cup.

Stir the curd and whey constantly and test the curd often for firmness. When the curd is firm enough, stop the heating process.

Removing the whey

When the curd has firmed sufficiently, dip off most of the whey (fig. 5).

Pour the remaining curd and whey onto a fine-meshed cheesecloth spread over a colander that you've set into the sink or another pan. Let the curd drain for 2 or 3 minutes (fig. 6).

Note: Don't let the curd drain too long, or curd particles will stick together in large clumps.

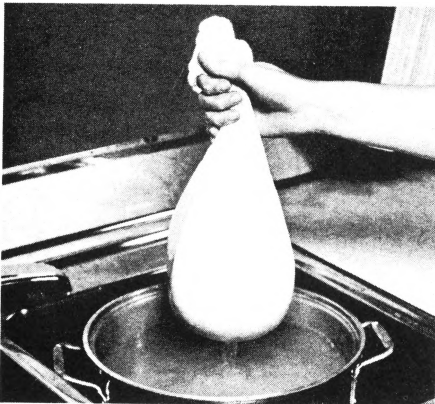
Washing and cooling curd

Gather together the corners of the cheesecloth containing the curd. Immerse both cloth and curd in a pan of clean, cool water (fig. 7). Raise and lower the "bag" of curd several times, for 2 or 3 minutes, to rinse whey from the curd and to cool the curd.



(BN-29316)

Figure 6.—Draining off the last of the whey. Curd is placed in a cheesecloth "bag," and set in a colander.



(BN-29318)

Figure 7.—Rinsing the curd, in a cheesecloth "bag," by dipping it into cool water.

Rinse the curd again, for 3 to 5 minutes, in ice water to chill the curd.

Put the curd in a colander set inside a larger pan. Shake the colander occasionally, until the whey stops draining.

If you prefer unsalted, uncreamed cottage cheese, you can now remove the curd from the cloth, pack it in a suitable container, and store it in the refrigerator. However, unsalted cheese will have a definite acid taste.

Salting the curd

After transferring the curd from the cheesecloth to a mixing bowl, add a teaspoon of salt for each pound of curd. Mix thoroughly.

Creaming the curd

For each pound of curd, add 2 or 3 ounces (4 to 6 tablespoons) of either sweet or sour cream, or of half-and-half. Mix thoroughly.

MAKING LARGE-CURD CHEESE

Large-curd cottage cheese is made in roughly the same way as the small-curd type. However, besides using the basic ingredients, milk and a starter, you must also use rennet.

Preparing the rennet

Follow manufacturer's directions for using rennet. Or dissolve $\frac{1}{4}$ rennet tablet in 2 tablespoons of clean, cool water. Add 1 tablespoon of the resulting solution for each gallon of skim milk that you're making into cheese.

Warming the milk

Follow the procedure described on page 4. When the milk reaches 72° F., add diluted rennet.

Curdling the milk

Let the milk stand at room temperature for 12 to 18 hours. It should curdle

in this time, but the rate and extent of curdling will depend on the temperature of the milk, the activity of the starter, and the amount of rennet you use.

Cutting the curd

Cut the curd into $\frac{3}{8}$ -inch pieces, following the procedure on page 5.

Stir the cut curd slowly for about a minute, every 4 or 5 minutes.

Heating the curd

Gradually heat water in the outer container, until the temperature of curd and whey in the inner container reaches 110° F. The curd should firm up satisfactorily at this temperature. If it doesn't, or if it seems to be firming up too slowly, you can heat the curd and whey to 115° or 120°.

Finishing large-curd cheese

Separate cheese curd from the whey, wash and cool the curd, add salt and cream. Follow directions on pages 6 and 7.

REASONS FOR IMPERFECT COTTAGE CHEESE

Sour acid flavor—means that too much acid developed before and during cooking of the curd, that too much whey was retained in the curd, or that the curd was not sufficiently washed and drained.

Yeasty, sweet, or unclean flavors—indicate that yeasts, molds, or bacteria were introduced into your cheese by unclean utensils or an impure starter; or that your milk was not completely pasteurized.

Soft wet curd—results from too much moisture in the cheese, the development of too much acid during cutting of the curd, heating the cut curd at too high or too low a temperature, or allowing too-large curd particles to form.

Tough dry curd—results from insufficient acid development in the curd before it is cut, too fine a cutting of the curd, too high a heating temperature, or too long a holding time after cooking and before dipping off the whey.

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