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MAKING SOFT CHEESES ON THE FARM

Cheese making can be made a source of profit on the farm. Soft cheeses are becoming popular and owing to the ease of **manufacture** they can be made successfully by farm dairies.

Ordinary American Cheddar cheese is difficult to make under farm conditions, and it requires several weeks of curing before it is ready for the market. Owing to the **dryness** of the atmosphere in this State considerable difficulty is experienced in **preventing** the cheese from drying and cracking during the curing process.

The average **farmer** can not compete with his creamery in making a good uniform quality of American cheese, since he is not equipped with cool humid curing rooms.

There is no **reason**, however, why soft cheeses should not be made as successfully on the farm as in the factory. Very little equipment is needed to make soft cheeses, the average home usually having all that is necessary except suitable containers in which to market the cheese.

**PASTEURIZATION**

A more uniformly good quality of cheese can be made from pasteurized milk. Pasteurization is not necessary or advisable if one is making cheese on a small scale from the cleanest of milk, **but** where it is being **made** regularly and placed on a critical market it would be well to pasteurize the **milk**. This may be accomplished by heating it to about 145° F., holding at this **temperature**, and stirring thoroughly for 30 **minutes**. Then cool immediately to the temperature **desired for setting**. If the milk is **pasteurized**, starters must be **used**

## STARTERS

A starter is a clabbered sour milk which has a clean acid taste resulting from the operation of lactic acid bacteria. Starters must be added to all milk which has been pasteurized. The purpose of a starter is to insure a good flavor in the cheese. In strictly sanitary surroundings sour milk with a pleasant flavor can be secured by setting several bottles of fresh milk in water at 70° F. and allowing them to stand until clabbered. As soon as the milk is firmly coagulated it is ready for use. Pour off the top, which may be contaminated with undesirable germs, and taste the remainder. Use only such samples as have a pleasant acid flavor and in which there is no appearance of air bubbles. One of these bottles may be used to inoculate a larger quantity of milk if more starter is necessary.

In dairies where ice is kept commercial starters may be used to good advantage. Commercial starters are pure cultures of lactic acid bacteria, while milk which has soured naturally may contain many undesirable bacteria which produce bad flavors. The commercial starters are available in either powdered or liquid form, put up in bottles, and may be procured from any good dairy supply house. To prepare a commercial starter take a quart bottle of good clean skimmilk and pasteurize by heating to 145° F. for 30 minutes. Cool to 70° F. and add a bottle of the lactic acid culture. Shake well to insure good mixing and let stand until the milk is firmly coagulated. This will take from 10 to 20 hours. During this time the temperature should be not very far from 70° F. It may be controlled by setting in a pail of water the temperature of which may be adjusted occasionally. As soon as the milk is firmly coagulated and before it begins to whey off, it should be placed on ice to prevent further development of bacteria.

Take another bottle of skimmilk which has been cooled to 70° F. and add a little of the coagulated milk and set again at 70° F. When coagulated put on ice as before. Repeat this process three times before any of the starter is used in milk for cheese, for otherwise peculiar flavors due to the culture media of the commercial starter may be imparted to the cheese.

Starters should be added to milk for cheese at the rate of about one-half pint to one gallon of milk. Thus if 20 gallons of milk are used, about 10 pints of starter should be added. This can be secured by adding a little of the coagulated starter from one of the bottles on ice to 10 pints of pasteurized skimmilk and allowing it to stand until coagulated at 70° F. Then stir well to break up curds and add to the milk to be used for cheese.

One must always save out enough starter to inoculate fresh bottles of pasteurized skimmilk. The process is thus carried on from day to day, just as yeast for bread may be continued for many months. The starter that is carried along in this manner is known in creameries as the "mother starter." It is necessary to plan ahead

in order to have the desired quantity of starter ready at the proper time.

#### RENNET EXTRACT

Rennet extract is used to cause coagulation of the milk. It is a salt solution of rennin obtained commercially from the fourth stomach of the suckling calf. It is also prepared in powder and tablet forms which may be held for a longer time without deterioration. The liquid form seems to give best results and is used by nearly all commercial cheese makers. In this *Hint*, thea mounts used in the various kinds of cheese refer to the liquid rennet extract. This varies in strength and one has to test each new lot for himself to determine the exact amount required. If plenty of rennet is not added, the milk will not coagulate quickly and the whey will separate with difficulty. Insufficient rennet may cause cheese to be soft and mushy, while too much rennet may cause a hard cheese. Where he powdered or tablet form is used directions should be followed.

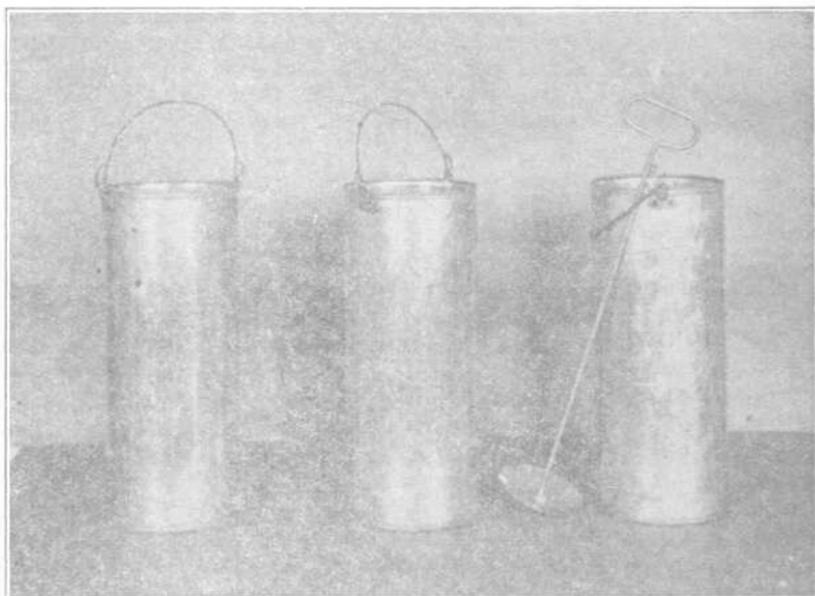


Fig. 1.—Suitable cans in which to set the milk for coagulation. These can be made in an ordinary tin shop or can be secured from a dairy supply house. They should be made from a good quality of tin and should be about eight inches in diameter by twenty inches in height.

#### NEUFCHATEL CHEESE

Neufchatel cheese is made from fresh sweet milk. It may be pasteurized or unpasteurized and should contain at least 4 per cent of butter fat. If pasteurized, it should be held at 145° F. for 30 minutes, then cooled to 72° F. and starter added at the rate of one-

half to one pint to each gallon of milk. Thoroughly stir the starter and strain it through one thickness of cheesecloth before adding to the milk.

*Adding rennet.*—Add rennet at the rate of two to ten drops per gallon of milk, depending on the strength of the rennet and upon the freshness of the milk. The stronger the rennet and the older the milk the less is needed. One should add enough to have the milk curdled firmly in 15 to 18 hours. Dilute the rennet in a glass of water and then stir thoroughly into the milk.

*Setting the milk to curdle.*—It is most convenient to set the milk in tall pails with straight sides, in which it is easier to handle the curd. A good time to set the milk is in the evening, adding enough rennet to coagulate it firmly without wheying off. at a suitable time the next morning.

The temperature should be held as nearly at 72° F. as possible during the process of curdling. This may be accomplished by setting the cans in a tank of water of the desired temperature or by covering carefully with blankets.

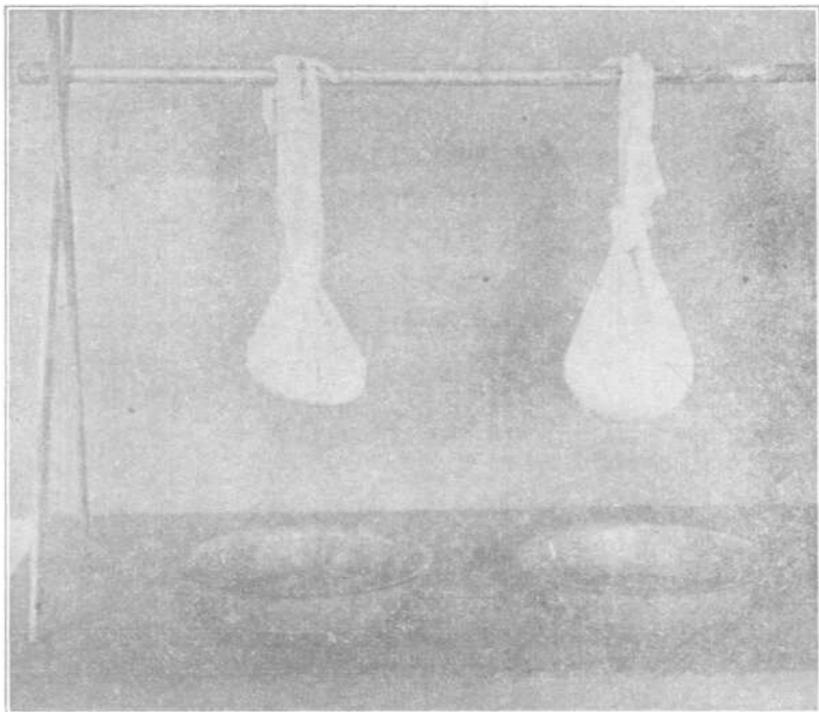


Fig. 2.—Draining the curd.

*Draining the curd.*—The milk is curdled properly when the curd splits clearly before the ringer when moved through it, and when the escaping whey is fairly clear. It should then be put to drain in

cheesecloth bags. This is accomplished by taking a piece of cheesecloth about a yard square, placing it over the top of a bucket, and then filling the bucket with the curd. The four ends of the cloth can then be tied and the bag hung in a suitable place for draining.

A good plan would be to hang the bags on a bar suspended across a box or vat. Everything should be clean and sanitary and the temperature should be so regulated that the curd does not go below 60° F. or above 85° F. The bags should be kneaded several times during the draining to cause an even expulsion of whey. The length of time required for draining is from 12 to 24 hours. The warmer the curd during draining the faster will acid develop, and the more acid is developed the more rapidly will the whey be expelled. It is properly drained when the curd has a fairly firm consistence but is not dry and crumbly.

*Preparing the curd.*—The drained curd should be worked up and seasoned at once or placed on ice to prevent further fermentation. It should be weighed and salt added at the rate of about one-fourth ounce of salt to one pound of curd. The amount of salt desired will vary according to the individual taste.

The curd should be made very smooth. This may be done by running through a meat grinder and then stirring and kneading vigorously. Salt causes an additional escape of whey. Therefore the curd should not be packed in vessels for sale until a few hours after the addition of salt, so that all free whey may be poured off.



Fig. 3.—The cheese is run through a meat grinder to make it smooth.

*The finished package.*—Neufchatel cheese is put up in a number of ways. It may be packed in 6-ounce jelly glasses which have been sterilized by boiling. The disadvantage of this method is the cost of the glasses, which in Arizona varies from about two to five cents each.

A more desirable plan is to pack the cheese in special paper boxes holding six to ten ounces. These should in turn be wrapped in parchment paper to exclude the air.

Still another method is to mold the cheese into 4-ounce rectangular or cylindrical forms, wrap in parchment paper and then in tinfoil. This is the cheapest package of all but is difficult to make neat in appearance.

*Profits.*—One can make about 20 pounds of Neufchatel cheese from 100 pounds of milk. If this is packed into 6-ounce receptacles, 53 packages would be obtained, which would sell at 15 cents per package. It is estimated that the cost of labor and package should

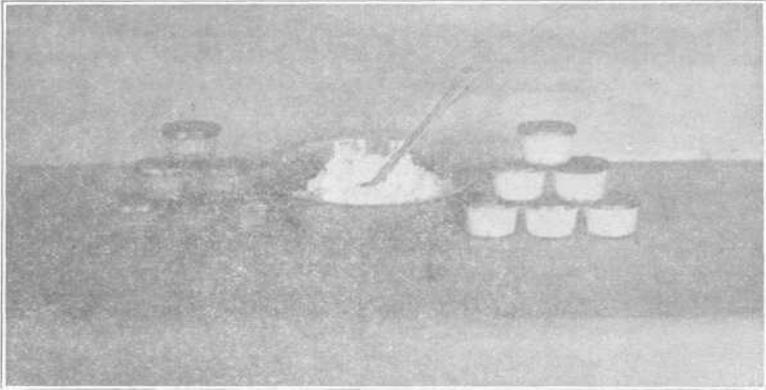


Fig. 4. The cheese may be marketed in jelly glasses.

not exceed 5 cents. This leaves a return of 10 cents per package of cheese; which is \$5.30 per 100 pounds of milk; or 45 cents per gallon of milk. It is difficult to estimate the cost of labor in manufacture, as it takes little more time to make a large quantity of cheese than a small batch, and in many cases it can be done at odd times.

#### MAKING NEUFCHATEL CHEESE FROM SKIMMILK

A fairly satisfactory Neufchatel cheese can be made from skim-milk. If made from skim-milk it should not be drained as dry as usual and some cream should be added before it is salted, to give it a rich flavor, otherwise the method is the same as when whole milk is used.

#### PIMENTO CHEESE

Pimento cheese is made from Neufchatel cheese by adding finely ground pimentos to the curd at the time of salting. They can be added according to taste at the rate of about one part pimentos to twenty parts of curd. They should be finely ground in a meat grinder before adding to the cheese. It is well to add them before the cheese is ground to insure a more even mixing of the pimentos with the curd.

The pimentos color the cheese somewhat and give it a very desirable flavor. They increase the yield slightly, but owing to the

cost of pimentos the profits are about the same as in Neufchatel cheese. The method of marketing is the same as for Neufchatel cheese.

#### COTTAGE CHEESE

(Dutch Cheese, Schmierkase)

Cottage cheese is made from ordinary skimmed milk without the use of rennet. The milk is coagulated by the action of the lactic acid which develops naturally in the milk as a by-product of lactic-acid-producing bacteria. If desired, starter may be added to hasten souring. To insure a good flavor the milk must be clean and pure, and it should be allowed to sour at a temperature of 60° to 70° F. A cooler temperature will produce a bitter flavor while a higher temperature may cause a disagreeable taste.

When the milk is firmly coagulated, but before it has begun to whey off, it should be warmed up slowly to about 100° F., stirring the while. Hold at this temperature, stirring occasionally for about an hour, or until the curd has become slightly firm and much of the whey has separated. Then pour the curd into a cheesecloth bag or strainer and drain the whey off. While draining it should be held as nearly at 60° to 70° F. as possible, and it should be stirred now and then to prevent uneven drying. It is properly drained if the particles fall apart when pressed together. Some prefer to have it even dryer, or so that the cheese is granular when rubbed between the hands.

When the cheese is dry enough it should be put in a cool place, or it can be salted at once. Salt can be added at the rate of one-fourth ounce to one pound of cheese. Add a little cream to improve the quality of the cheese. Work to a smooth consistency by stirring with a spoon or by running through a food grinder. If one desires a granular texture, it may be worked up with a potato masher.

One hundred pounds of skimmilk will make 15 to 18 pounds of cheese. The cheese should sell at retail for 20 to 25 cents per pound. This should give a gross return of about \$4 per 100 pounds, or more than 30 cents per gallon of skimmilk to pay for labor, milk, and for containers in which to market the cheese.

There are several other methods of making cottage cheese which give good results, but the above method if followed carefully will produce a uniformly good cheese.

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