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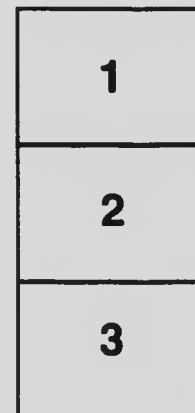
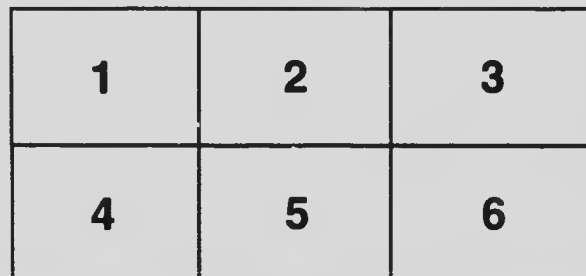
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Agricultural Extension

Bulletin No. 17

UNIVERSITY OF SASKATCHEWAN  
COLLEGE OF AGRICULTURE



# Cheese-making on the Farm

*Contributed by*

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# Cheese-making on the Farm

BY

*A. E. Potts*

The practice of making cheese on the farm is not general in Saskatchewan, but is one which merits encouragement. The process is somewhat difficult and should only be attempted by persons who are willing and able to give the time, thought and care necessary to produce an article of good quality.

This should not be taken as a discouragement to anyone wishing to make cheese, but rather as a warning that the matter must be gone into carefully. Under proper conditions it is quite possible to make a good grade of hard cheese on the farm and many may find this a profitable sideline in dairying.

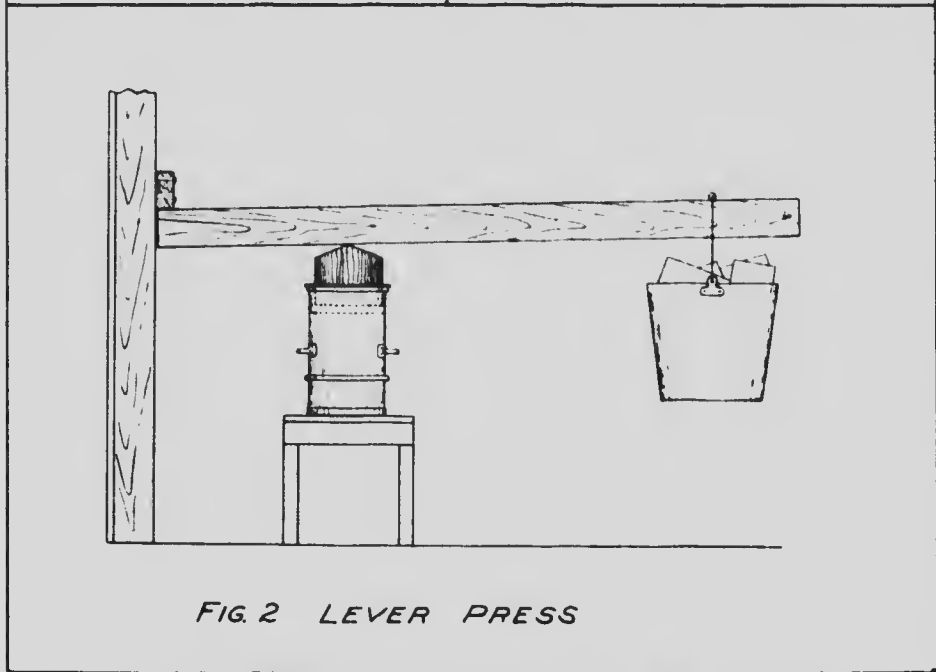
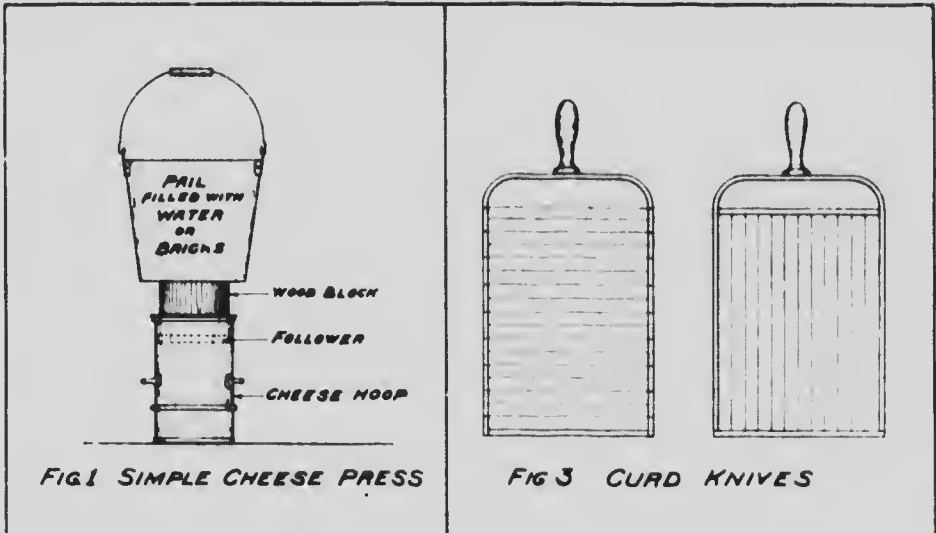
The food value of cheese is not fully appreciated by the average consumer. If its high nourishing qualities were better known it would occupy a more important place in the diet. Usually it is used merely to supplement the more expensive foods, but it might well be used in many cases as a substitute for them, taking the place of fish or meat in the diet. Cheese has a food value twice as great as that of beef or pork of average quality. A comparison of costs will show that cheese is a much less expensive form of food. One hundred pounds of whole milk will produce from ten to eleven pounds of cheese, and this on the basis of the relative values given above is equal to about twenty pounds of beef or pork.

A further point in favor of cheese as a food is that it does not require cooking before being served. It may, however, be served in a variety of ways in cooked dishes.

Considering the high nutritive value and the relatively low cost, more of this valuable food should be produced and used. With proper care it can be made on many farms at a low cost. The cheese described herein is suitable for home use or for marketing. If a good grade of cheese is made, there should be no difficulty in finding a profitable market for it.

## **EQUIPMENT NECESSARY**

For making cheese in a small way it is not necessary to provide much expensive equipment. Equipment may easily be improvised. The following are necessary:



Types of Presses and Knives for Cheese-making on the Farm

**MILK VESSEL.**—A tin-lined vat, with a jacket for cooling and heating the milk, is to be preferred, but this may be replaced by any metal container of a sufficient capacity that can be readily cleaned.

**KNIVES.**—It is necessary to cut the curd into cubes about an inch to the side, and the more uniformly this is done the more uniform will be the cheese. Best results are obtained by using regulation cheese knives, as illustrated, but these may be improvised. A long-bladed knife can be used for the perpendicular cuts and the horizontal cuts can be made with a U shaped knife made as follows: Obtain from the tinsmith a piece of bright, heavy tin 1 to 1½ inches wide. Bend this into the shape of a U so that the base is the width of the milk vessel and the arms are long enough to come to the surface and be used as handles. The long-bladed knife is used to cut the curd perpendicularly into half-inch strips, first lengthwise and then crosswise in the vessel. The curd is then cut into horizontal layers with the U shaped knife.

For small quantities a common wire bread toaster may be used. If any considerable quantity of cheese were being made it would be worth while providing proper knives. These might be bought or could be easily made by having an iron frame of the proper shape made by the blacksmith and winding this with a fine steel wire, making one horizontal and one perpendicular knife.

**CHEESE MOULDS AND FOLLOWERS.**—It is necessary that the mould be well made. It may either be bought from a dairy supply house or made by a local tinsmith. Suitable dimensions are: Diameter at top, 6 inches; diameter at bottom, 5⅞ inches; height, 7 inches. It may be made of galvanized iron or heavy tin, but must be constructed with enough strength to stand considerable pressure.

The follower is a circle of wood which will fit snugly inside the hoop and take the pressure when applied.

**STRAINER.**—To be used when running off whey.

**CHEESE CLOTH.**—Coarse cotton cloths for straining and for bandaging cheese.

**THERMOMETER.**—One of the floating dairy type will be found most convenient, but an ordinary weather thermometer may be used.

**PRESS.**—There are two simple types of press which may be used. A round wooden block is set in the hoop and on this is placed a pail filled with water, bricks or other suitable weights. This will serve the purpose quite well if the proper weight is applied. Another simple method is to use a lever as shown in the diagram.



## SUPPLIES

The following supplies are necessary :-

**CHEESE COLOR.**—Cheese is usually artificially colored, although this is not necessary as it affects only the appearance of the cheese. Butter color will not do for this purpose. A four-ounce bottle can be obtained at small cost from any dairy supply house.

**RENNET.**—A good standard make of rennet should be used. This may be used either in liquid or tablet form. Usually the tablet form will be the more suitable on the farm. The strength of rennet may vary, and it is well to follow carefully the directions supplied with it. It should be noted that ordinary junket tablets are not suitable for cheese making.

## DETAILS OF MANUFACTURE

**MILK.**—Any off flavors present in the milk will show up in the finished cheese, and it is therefore necessary that every care be taken to produce a clean, untainted milk.

The evening's milk should be cooled immediately after milking and held over night at a temperature of 60°-65° F. The morning's milk is added to this without cooling and the process commenced. In the winter months, when the supply of milk is low and when it can be easily and thoroughly cooled, it may be held for two days before making.

**HEATING.**—The weight of milk used should be noted. One gallon may be taken as weighing ten pounds. This is then heated to the setting temperature 88° to 90° F. There are several methods which may be used for heating. The container may simply be set on the stove. In this case it should be placed in a larger receptacle containing water, in order to prevent burning, and carefully stirred till the proper temperature is reached. Another simple and effective method is to use two small cans high enough to come up to the surface of the milk. Fill these cans with hot water and move them around in the vat till the proper temperature is reached.

**RENNETING.**—The milk will usually be ready for renneting as soon as the setting temperature is reached. If experience shows that there is difficulty in getting the cheese firm enough in the proper time it may be well to hold the milk at the setting temperature from half an hour to an hour before setting, *i.e.*, adding rennet.

If color is being used it should be added immediately before the rennet. The amount to use will vary according to what is desired and to the strength of the color. One-third of a teaspoonful of cheese color to fifty pounds of milk may be taken as a guide. This should be thoroughly mixed with about a half a pint of milk before adding and should then be well stirred in.

Care should be taken that the same amount of color is added from day to day in order to give uniformity.

Rennet is now added for the purpose of coagulating the milk. If tablets are used follow the directions given. With liquid rennet use at the rate of  $\frac{1}{4}$  to  $\frac{1}{2}$  ounce per one hundred pounds of milk. The correct amount to use is that quantity which will make the curd sufficiently firm to cut, in from thirty to thirty-five minutes. If on the first attempt it is found that the curd takes too long or too short a time to become firm, add more or less rennet, as the case may be, at the next making.

Having determined the correct amount of rennet to add, dilute this with ten times its volume of cold water and add to the warm milk. Stir vigorously for three minutes to ensure an even distribution. Continue to stir gently in order to keep the fat mixed until the milk begins to show signs of thickening, which will occur in about ten minutes after adding rennet. This will be noted when bubbles made on the surface by flicking the milk with the finger do not immediately break, but remain on the surface for a few seconds. Great care must be taken not to stir after thickening has commenced. The container should then be covered with a cloth to prevent surface cooling and left till coagulation is complete.

**CUTTING.**—In order to tell when the curd is ready to cut insert the index finger under the surface of the curd, the palm of the hand being upwards. Then by means of the thumb start the curd breaking as the finger is raised upwards. If ready to cut, the curd will break over the finger with a clean cleavage. If fine particles are left sticking to the finger it is too soft to cut. It is important that the curd be cut at the right moment. It will usually be found that the time from the first signs of coagulation till the curd is ready to cut is almost exactly twice that between adding the rennet and the first signs of coagulation.

The curd is now cut into cubes about half an inch to the side, as evenly as possible, with the apparatus on hand.

**STIRRING THE CURD.**—It will be noted that the whey is running rapidly from the curd, but if left alone the curd will immediately begin to mat together again. To prevent this, stirring must be commenced about two minutes after cutting. At this point the curd is very soft and should be broken up as little as possible, it is therefore stirred carefully with the hands, being agitated just sufficiently to prevent matting. This should be continued for about fifteen minutes, by which time the curd has become much smaller and firmer.

**COOKING THE CURD.**—The curd is now heated to a temperature of  $98^{\circ}$  to  $104^{\circ}$  F.;  $102^{\circ}$  F. is recommended. The object of

this is to assist in expelling the moisture and to hasten the development of acid.

If a jacketed vat is being used heating is done by pouring boiling water into the jacket. Under other conditions remove a portion of the whey free from curd and heat over the stove to a temperature not more than 130° F. Pour this hot whey back gradually into the milk vessel, thereby heating the curd. During the cooking the curd must be stirred continuously. Great care must be taken not to cook the curd too rapidly, especially in the initial stages. This would defeat the purpose of the heating by forming a skin on the outside of the particles of curd and hindering in place of helping the expulsion of moisture. This process should take from 15 to 20 minutes. After the cooking is finished, stirring should continue from thirty to forty minutes, by which time the curd is usually ready for dipping.

**DIPPING OR REMOVAL OF WHEY.**—To tell if the curd is ready for dipping take a large double handful and squeeze it hard. If on opening the hands the curd is springy and falls apart it is ready to dip. If the curd is somewhat stodgy and tends to mat together, continue stirring it in the whey for some time longer. Another way of deciding this is to take off whey when the curd squeaks between the teeth. At this point particles of curd should be reduced to half their original size, should sink rapidly to the bottom of the vat and have no further tendency to stick together.

Allow the curd to settle in the bottom of the vat for ten to fifteen minutes and then drain off the whey through a coarse strainer. Scoop out the curd on to a coarse cloth on a draining rack. The curd with the whey removed will tend to mat. Stir the curd for a few minutes to prevent this, to help the free whey to escape and to dry the curd.

**SALTING.**—Add salt at the rate of one ounce per four pounds of curd, taking care that it is evenly distributed and well stirred in. Allow the curd to stand till it has lost the gritty feeling which has resulted from adding the salt. This indicates that the salt is all dissolved.

**MOULDING AND PRESSING.**—Line the moulds with coarse cloths and pack in firmly five to five and a quarter pounds of curd. Place the wooden follower on top and apply a pressure of fourteen pounds. This may be done by any suitable method, as suggested under equipment. In fifteen minutes turn the cheese, wrap in the same coarse cloth and place under a pressure of 21 pounds for forty-five minutes. Now remove from moulds and handage. Wrap a piece of cheese bandage around the cheese so that it will overlap about an inch at the join and at the ends. Fold over the edges and place a circle of the same material at

the two ends. By using warm water this bandage may be made to adhere closely to the cheese. Now place a larger circle of cotton cloth on each end as a temporary cover and return the whole to the press and leave under a pressure of twenty-eight pounds for four hours. Remove from the press. It will be noted that the cheese has now formed a rind by pressing the outside of the cheese into the pores in the cloth. If there are any wrinkles, these should be removed by softening with hot water and straightening the bandage. It will then be necessary to put the cheese to press again for an hour. If no wrinkles are present no further pressure is necessary. The cheese are turned and left in the moulds till the following morning.

CURING.—The cheese are removed from the moulds and left in the making room till the bandage is quite dry and then taken to the ripening room. This room should be held at a temperature of from 50° to 60° F. and should be fairly moist to prevent the cheese from drying out. An underground cellar will often provide the most convenient curing room. It should be fitted with convenient shelves. Cheese should be turned daily for the first two weeks and then every other day until ready for use.

The cheese should be ready for use in about two months. This time will vary somewhat according to conditions of manufacture and ripening.

