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2-1-1916

# Making Butter and Cheese on the Farm

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V.R. Jones

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### Recommended Citation

Larsen, C. and Jones, V.R., "Making Butter and Cheese on the Farm" (1916). *Bulletins*. Paper 164.  
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BULLETIN No. 164

February, 1916

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South Dakota State College  
of Agriculture  
and Mechanic Arts

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**DAIRY HUSBANDRY DEPARTMENT**

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**MAKING BUTTER AND CHEESE  
ON THE FARM**

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## **MAKING BUTTER ON THE FARM.**

BY C. LARSEN AND V. R. JONES.

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### **INTRODUCTION.**

If a person is interested, and is equipped, the making of farm butter and cheese can be made a profitable way of handling the milk and cream.

There is no place where so high a quality of butter and cheese can be produced as on the farm, if properly done. The health and cleanliness of the cows, the kind of feed, barn sanitation, the handling of the milk and cream, and all the conditions under which butter and cheese are manufactured can be controlled better on one farm than on many farms.

By manufacturing and offering for sale a good and uniform quality of butter and cheese a high class market can be obtained. There is always a class of customers willing to pay a premium on dairy products provided they can be assured they are strictly first-class.

The making of butter and cheese on the farm involves many details and considerable work. For this reason most dairy farmers prefer to sell their raw material rather than to make it into butter and cheese on the farm.

Many dairy farmers, however, make butter and cheese enough to supply the home demand. It is of equal importance to supply this demand with products of the best possible quality.

The curd of milk contains much human food value. Often this is not at all made use of as a human food. Soft cheeses can be made on the farm that are palatable and that supply protein nutrients cheaply.

These directions for making butter and cheese on the farm are published in response to the many inquiries received on this subject.

### **Cows Must Be Healthy.**

If a cow is not well her milk is not normal. Abnor-

mal milk will not produce good butter and cheese.

The purity of a cow's milk is naturally well guarded. Nature intended to protect, in every way possible, this food supply. There are times, however, when the cow's milk is not suitable for use. Digestive derangements, if prolonged, will cause milk of abnormal quality. Some cow's milk is abnormal during estrum. Garget, or other forms of udder trouble also give rise to abnormal milk.

### **Cows Should Have Good Feeds.**

Good wholesome feed is important in order for the cow to produce milk from which good butter can be made. Undesirable taints will pass from the system of the cow to the milk. If the milk is tainted, the butter is sure to be tainted likewise.

Cows should not be forced to eat old musty hay, spoiled silage, horse manure, and to drink stale and putrid water. Milk and butter from cows fed on such feeds are sure to have undesirable and foreign flavors.

Sweet and well-cured clover, alfalfa and wild hay, and any of the common grains will produce a fine flavor of milk and butter.

### **Clean Cows Important.**

Clean milk can not be produced from cows that are covered with manure on the sides and thighs. If a cow's udder and teats are soiled, and if her sides and thighs are dirty, clean her off before milking. Ordinarily, wiping the sides and udder with a damp cloth is sufficient. In case that a cow's udder is very soiled, it should be washed with a cloth and luke warm water.

Dirt that falls from the cow into the milk causes trouble in two ways. First, it imparts a bad cowy flavor to the milk and butter; and secondly, there are many undesirable germs that accompany the dirt. These germs or bacteria multiply and develop in the milk and cream, and produce foul smelling gases and other unde-



sirable by-products.

### **Pure Barn Surroundings.**

Milk, cream and butter readily absorb foreign odors. If these odors are in the system of the cow before the milk is drawn, the milk will absorb them. If they are in the barn or wherever the milk is kept, the milk and therefore the butter will be affected.

Great care should be taken to not allow the stable manure to accumulate in the stalls, in the gutters, and near the barn. Manure left in a warm barn decomposes and becomes foul. Old manure near the barn also is the source of bad odors, and it furnishes a breeding place for flies.

Barns having dirt or plank floors are not so sanitary as are cement or concrete floors. If a barn becomes foul, disinfect it with lime. The walls and stanchions should be whitewashed and the stalls, floors, and gutters, should have lime scattered in them occasionally. This is a good treatment to give any barn now and then. Lime is a deodorizer as well as a disinfectant.

The cow barn should have vents that will permit fresh air to enter, and have outlets for the foul air.

The milker himself must be clean. He should always milk with dry hands. It is a bad habit to wet the hands and cow's teats with milk, especially when so much milk is used that it runs into the pail. No matter how clean the teats and milker there will always be some undesirable germs and dirt that get into the milk, if this practice is followed. Besides, such wetting of the teats in cold weather causes cows to have frosty and sore teats.

If a person is so addicted to the habit of milking with wet hands that he cannot quit, then use a little salve. This salve may be made up of four parts of lard and one part of turpentine.

Do not allow the milk or cream to stand in the barn. No matter how much care is exercised in barn sanitation, there will always be present that characteristic barn

odor. The milk should be removed at once after it has been milked. Do not fasten the cover tightly. The milk or cream should be cooled at once, and if the cover is left partially open, the animal heat will pass off.

### **Clean and Sanitary Utensils.**

No one would use unsanitary pails, cans, or separators if conscious of it. Everybody should have the desire to keep everything connected with human foods tidy and clean. The word "cleanliness" does not have the same meaning to everybody. What is clean to one person, may be dirty to another.

We say that the barn is clean, yet we would hesitate to work in the barn with our best suit of clothes on. We say that the floor is clean, yet if some food from the table should fall on the floor, we would hesitate to pick it up and eat it, because it is dirty. We say that our plates from which we eat our meals are clean, yet a surgeon would not lay his instruments on them, without sterilizing before an operation, fearing that some undesirable germs would be present.

To produce good butter, it is important that the pails, the cans, and the separator be well cleaned and well sterilized after each usage.

First wash the pails in warm water containing some washing powder, with a stiff brush. Do not use a wash-rag. Then rinse each part in boiling hot water. Putting the various utensils over a jet of steam is a good way to sterilize them. Steam, as a rule, cannot be had on the average farm. This heating in clean boiling-hot water removes any of the remaining wash water, it destroys all germs, and it heats the metal utensils so that when put away to drain, they soon dry, and in that way, rusting is prevented.

After thus cleaned and sterilized, put the utensils away to drain. Sunshine is a good germ destroyer, so it is a good plan to put the drain rack in the sun. If there is much dust, it is better to keep the utensils inside in a dry, clean, well-ventilated room.



### **Skim Cream of Medium Richness.**

From a standpoint of the flavor of butter, richness of cream is not an important factor. From a standpoint of workmanship of the butter, it is of considerable importance. Rich cream is so thick and viscous that it will not agitate in the churn without warming the cream to such a temperature that the churned butter will be too soft, and thus contain too much of the buttermilk constituents. Too thin cream should also be discouraged. When very thin, the butter will not gather on churning. If it does gather, there is likely to be a big loss of butterfat in the buttermilk, and the butter granules will "break" in small shot-like forms.

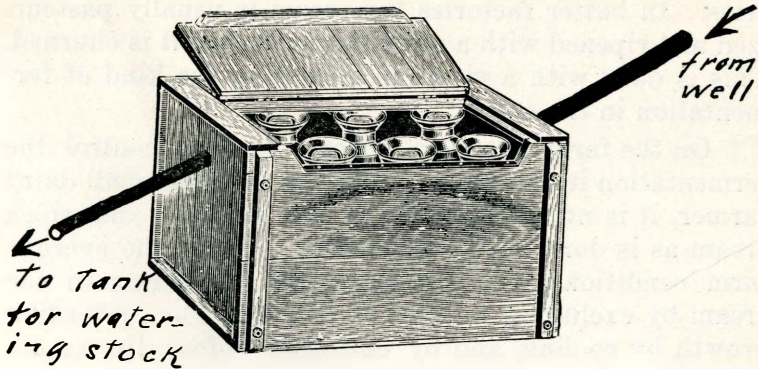
During the summer, cream should contain from 35 per cent. to 40 per cent. of butterfat. During the winter the proper richness is between 30 and 35 per cent butterfat.

### **Keep Cream Cold.**

No matter how much care has been exercised in producing the cream, there will be undesirable germs in it. These germs must not be allowed to multiply. Low temperature, or cold, is the dairyman's weapon against these germs.

As soon as the milk has been produced, or the cream has been separated, cool it to as low a temperature as is possible without freezing. Where ice is available, the temperature can be reduced to 40° F. Where well water alone has to be depended on, 50° F. is about as low a temperature to which the cream can be cooled. At such a low temperature, germs do not develop, at least very slowly.

A good plan for cooling the cream is to have a cooling tank such as is shown in the accompanying illustration. A similar homemade tank can also be used. By this plan, the water used for the stock passes through this cooling tank on its way to the stock tank. If the milk or cream is stirred a few times when first put in to cool, the temperature is rapidly reduced.



A Milk and Cream Cooling Tank.

Never mix warm and cold cream. Before the fresh warm cream is mixed with the cold cream, it should be thoroughly cooled.

This cooling of the cream at once after separation takes out the animal heat. It eliminates the smothered flavor that some consumers object to in real fresh milk.

### **Churn Before Cream is Old.**

Old cream is sure to have an old stale flavor. In spite of the cleanliness with which it has been produced, and the coldness in which it has been kept, some germs will develop in the cream, and cause abnormal flavors. The fresher the cream is, the better the chances for a good flavored cream from which to churn butter.

The dairy farm that has the largest number of cows or the greatest amount of cream, usually, has the best cream, and makes the best butter. This is due chiefly to the fact that the churning is done oftener.

Cream should be churned at least twice a week to make the best butter.

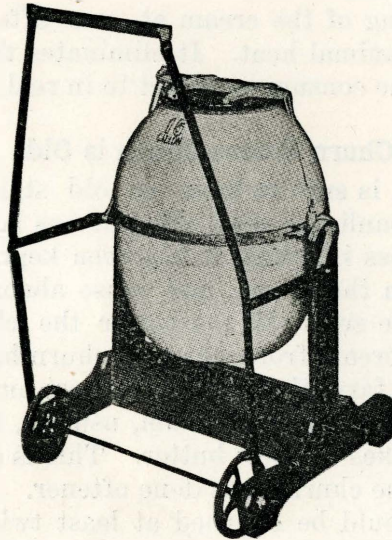
### **Prepare Cream For Churning.**

There are still some who believe that cream must be sour before it will churn. Sour cream is not necessary. This idea of sour cream has probably come from cream-

eries. In butter factories the cream is usually pasteurized and ripened with a good starter before it is churned. This is done with a view of controlling the kind of fermentation in the cream.

On the farm it is more difficult to thus control the fermentation in the cream. For the average small dairy farmer, it is not practicable to use starters and ripen cream as is done in the creameries. Under the average farm conditions, it is best to control the germs in the cream by excluding so far as possible, by retarding growth by cooling, and by churning before the cream gets old.

When ready for churning gradually increase the temperature to the point of churning, and churn the cream while sweet.



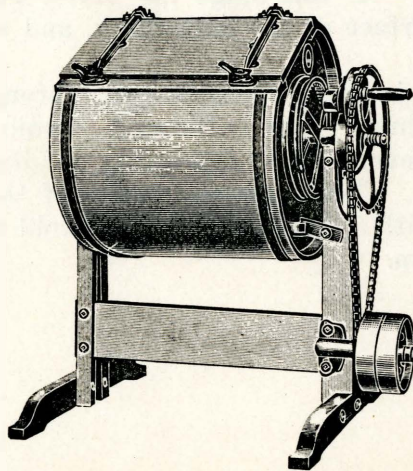
A Sanitary Convenient Hand-Churn, Made From Earthenware.

The churning temperature will vary in different localities, and according to local conditions. The warmer the cream, up to a certain limit, the quicker it will churn. The colder the cream, the longer time will be

required for churning. The length of time required for churning should be between thirty minutes and one hour. If the cream is too warm, and it churns too quickly, the butter will "break" in soft masses. In this condition, it is impossible to wash out the buttermilk constituents. As the writer has observed it, this is the chief trouble with farm butter as it is made at the present time. Such butter will also contain too much water. According to law, butter must contain not less than 80 per cent of fat, and not over 16 per cent of water. The average normal composition of butter is about as follows:

Fat .....	84 per cent
Water .. . . .	13 per cent
Salt .. . . .	2 per cent
Curd .. . . .	1 per cent
<hr/>	
Total .. . . .	100 per cent

Under average farm conditions, and cream of the richness suggested above, the temperature of the cream for churning during the winter should be about 60° F. In the summer the churning temperature should be about 55° F.



A Farm Churn That Can Be Used With Hand or Other Power.



In order to maintain a uniform color of the butter during the different seasons of the year, some artificial color should be added at certain times. When cows are first put on grass no color is needed. The "June" color is the standard for butter. During the winter when the cows are on dry feed, the most color is needed.

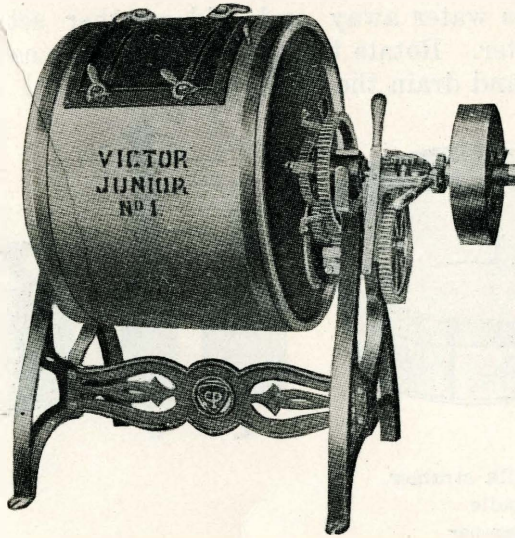
The amount of color to add will then vary with the time of the year, and also with the kind of color. The dairy farmer should use his own judgment in this respect. Usually, the amount of color will vary from one drop to one-half teaspoonful to each gallon of cream containing 35 per cent butterfat.

### **Washing the Butter.**

During the last part of the churning period, the operator should carefully watch the progress of the gathering of the butter. The cream should be churned sufficiently long to obtain a complete churning. If the churn is stopped too soon, too much butterfat will remain in the buttermilk. On the other hand, if the churning is carried too far, the butter granules will gather into lumps, which is also undesirable. Stop the churn when the butter granules are still separate, and of the size of corn kernels. At this stage the butter granules cover the whole surface of the buttermilk, and are of a clear bright color.

Then drain the buttermilk away through the drain-hole of the churn. The buttermilk should be strained through a sieve. Allow the butter to drain for about five minutes. Then rinse the inside of the churn, and the butter, with a dipper full of clean cold water, and allow it to drain.





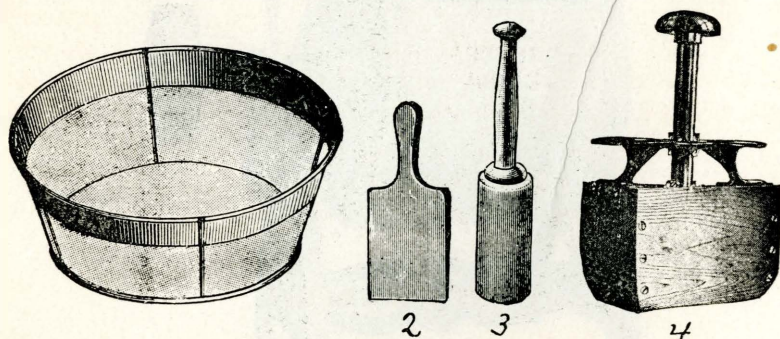
A Small Combined Farm Churn.

Put the drain plug into the churn and add about three-fourths as much wash water as there was cream in the churn. The wash water should be pure, and should have about the same temperature as has the buttermilk. If only a small amount of wash water is used, the butter particles tend to gather, and the buttermilk is not washed away. There should be enough wash water added to float the butter.

The temperature of the wash water may be varied some to control the degree of firmness of the butter. If the butter is a little soft, the temperature of the wash water may be several degrees lower than that of the buttermilk. On the other hand, if the butter is little too firm, the temperature of the wash water may be increased a few degrees higher than that of the buttermilk. The range of variation should not be over about five degrees. Sudden and extreme variations in the temperature of the wash water from that of the butter will cause salvy butter.

After the proper amount of wash water has been added, then rotate the churn about six revolutions. Then

drain this water away and add another set of clean wash water. Rotate the churn about twice as many revolutions and drain the wash water away.



1. Buttermilk strainer
2. Butter ladle
3. Butter tamper
4. Butter pound-printer

The proper washing of butter is very important. If the buttermilk is not properly removed, the butter will become mottled and streaky after salting, and the butter is also likely to become rancid in a short time.

### Salting the Butter.

In order to obtain uniform salting, the moisture should be well drained from the butter. The butter should be salted while it is still in the churn.

The amount of salt to add depends upon the consumer. At any rate, there should not be more salt added than will completely dissolve in the butter. The amount of salt to add will vary from one-fourth ounce to one ounce per pound of butter. If the butter has been well drained before the salt is added, one-half ounce per pound of butter is about right. The proper amount of salt must be regulated by the person who does the churning, and who understands the local conditions.

The salt used must be the best quality of butter salt. Salt that has been allowed to harden will not easily dissolve in the butter. Such salt, too much salt, and lack

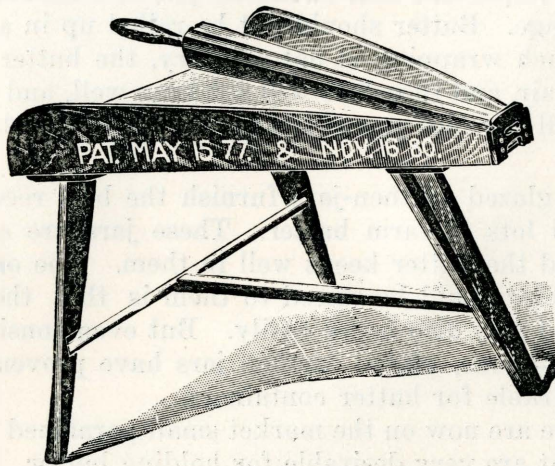
of distribution will cause "gritty" butter. Most consumers object to this condition.

When the proper amount of salt has been weighed out, distribute it over the surface of the butter, then put the cover on, and slowly rotate the churn. If the butter has been properly handled up to this stage, the butter granules will still be separate, so that when the churn is rotated, the salt will mix with the butter particles. The slow rotation of the churn will also cause the butter to gather. In that way, the salt is first mixed with the butter, and secondly it is enveloped by the butter particles.

### Working the Butter.

The butter should be carefully worked; first, to gather the butter, second, to express the excess of brine, and third, to uniformly distribute the brine and salt in the butter.

This latter point is quite important. If there is an excess of undissolved salt in some parts of the butter, the butter is likely to be mottled. If there is more brine in one part of the butter than there is in another, the butter will be streaky. Mottled butter or streaky butter are unsightly, and spoils it for good markets.



A Butter-worker Suitable for Farm Buttermaking on a Small Scale.



Small dairy farm churns are now made, in which the butter can be worked. These combined churns are advantageous in several ways. They are handy and save time. The butter is not exposed to the room temperature. This is a special advantage during hot weather. These combined churns also are more sanitary. Flies and dust of the room can easily be excluded from the churn. Where the butter has to be taken out into the room on an open butter worker, there is greater danger of getting the butter contaminated.

Where farm dairy butter is not made regularly, the small hand churns are generally used. Such churns, however, do not permit of working the butter within the churn. After the salt has been mixed with the butter, it should be removed to the small table butterworker. A lever worker such as is shown in the illustration serves the purpose.

Butter should never be handled directly with the hands. Small ladles are made for handling butter and can be purchased cheaply.

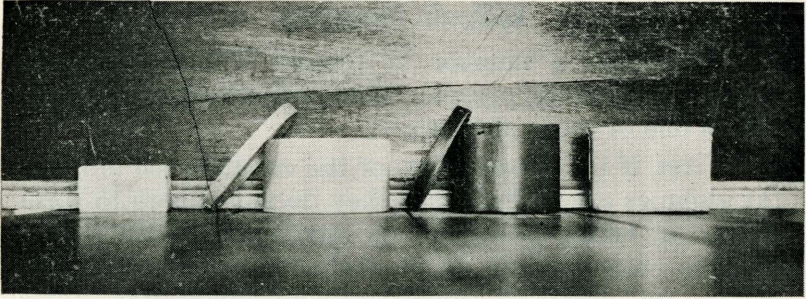
### **Packing and Marketing the Butter.**

It is important that butter be put in a neat attractive package. Butter should not be rolled up in a lot of rags. Such wrapping is not sanitary, the butter is exposed to air, and therefore will not keep well, and such a butter-roll does not appeal to the best class of butter consumers.

The glazed earthen-jars furnish the best receptacle for small lots of farm butter. These jars are easy to clean, and the butter keeps well in them. The only objections that could be raised to them is that they are heavy and may also break easily. But even considering these objections, glazed earthen jars have proven to be very desirable for butter containers.

There are now on the market small paraffined paper-boxes that are very desirable for holding butter. These paper boxes are single containers. When a five-pound

box of butter is sold, the box is not returned, while the glazed earthen jars are returnable.



1. Pound print of butter
2. Five pound box made of wood, for butter
3. Five pound box made of paraffined paper for butter
4. Five pound box made of earthenware for butter

When butter is made in large quantities on the farm, and it is to be transported by rail, a small wooden tub is better for packing butter. Wooden tubs should not be used unless they are first well-cleaned, and then soaked over night in strong brine. Such tubs should also be lined with parchment paper before the butter is packed into them. Unless butter is made on a large scale, it is not advisable to pack in wooden tubs.

The glazed earthen jars and the single container paraffined paper-boxes are made in different sizes, to suit the needs of the consumers, and the convenience of the dairy farmer.

The butter should be solidly tamped into the jars. Fill them little more than full. With a wet clean cord, cut the top of the butter off even with the edge of the jar. When this excess of butter is removed, the surface is smooth and level. Then cover the surface with a circular which is a piece of parchment paper that exactly fits the top of the jar. On the top of this circular scatter little salt. Then sprinkle this with water. With the flat palm of the hand spread the brine evenly on the surface. An additional piece of paper is put over the top



of the jar and tied with a cord. The edges of the paper are neatly trimmed off with a pair of scissors. The jar of butter is now ready for the market.

### **Difficult Churning.**

There are a number of factors which affect the churnability of the cream. Most difficult churnings are due to one or more of these.

First, if the temperature of the cream is too low, the fat globules are so firm that they do not adhere to form butter on being agitated. As mentioned under churning, the cream should be properly tempered. Too cold and too rich cream will incorporate air and hold it. This causes the cream to foam and adhere to the side of the churn without agitating.

Second, if the cream is very thin, it churns with difficulty. Cream for buttermaking should contain at least 20 per cent of butterfat.

Third, the fullness of the churn affects the amount of agitation of the cream by churning. If there is too much cream in the churn, there is no room for the cream to agitate. If there is just a small amount of cream in the churn, then most of it will adhere to the sides of the churn. The churn should be from one-half to three-fourths full of cream.

Fourth, too slow or too fast speed of the churn. The former allows the cream to flow around the sides of the churn without agitating. The latter generates centrifugal force so that the cream does not agitate at all.

Fifth, the acidity or degree of sourness of the cream. Sweet cream is more viscous than is sour cream, and therefore does not churn so easily. Sour cream is less viscous and churns easier. However, if the temperature and richness of the cream are right, no difficult churning will result from sweet cream.

Sixth, the size of the fat globules in the cream affects the churnability. The smaller the fat globules, the more difficult does it churn. This in turn depends on several things. The fat globules in the milk from differ-

ent breeds are not of the same size. The fat globules in Jersey and Guernsey milk are large, while the fat globules in the Holstein milk are small. When other conditions are alike, the latter cream churns with more difficulty. The size of the fat globules are also affected by the period of lactation. In the early part of the milking period, the fat globules are larger than in the latter part of the lactation period.

There are times of the year when practically all of the cows in a herd are almost dry. At such a time the difficult churning is likely to show up.

Seventh, certain feeds, such as grass, silage, and other succulent feeds tend to produce a softer butter, while dry feeds exclusively tend to produce butterfat of greater firmness. This is one reason why the churning temperature is usually higher in the winter than it is during the summer. Cottonseed meal is known definitely to produce harder butter.

Eighth, occasionally, difficult churning is due to certain abnormal germs that gain access to the cream. When this is the cause, then the cream assumes a soapy consistency. This is the worst form of difficult churning to overcome. Scrupulous cleanliness, and disinfection of the stable, the utensils, and all surroundings are the only practical remedies.

Most difficult churnings are due to the three first factors mentioned. By having the cream of proper temperature, of proper richness, and the right amount of cream in the churn, there will be little trouble from difficult churning.

## MAKING CHEESE ON THE FARM.

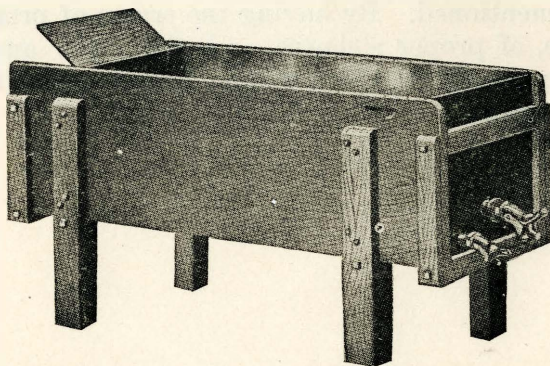
For cheese making it is extremely important that the milk be produced under the most sanitary conditions, and that it be cooled as low as possible without freezing at once after it is milked. These methods are described in the first part of this bulletin.

It is also important that the milk be made into cheese at least once each day. It is best if the cheese can be made at once after milking.

### Coagulate Milk With Rennet.

A regular cheese-vat having a jacket for heating and cooling the milk is the best as a container of the milk. Such a vat is not always obtainable on the farm. A clean sanitary tub, or even a wash boiler may be used. The milk should all be strained through two thicknesses of cheese cloth as it is poured into the cheese tub.

Then bring the whole amount of milk to a temperature of 85° F. If the milk is heated on a stove, great care should be taken not to heat too rapidly, nor to too high a temperature. A good way is to just warm a small amount and then mix it with the whole. No part of the milk should be heated to a higher temperature than 120° F. A higher temperature than this will interfere with the proper curdling of the milk.

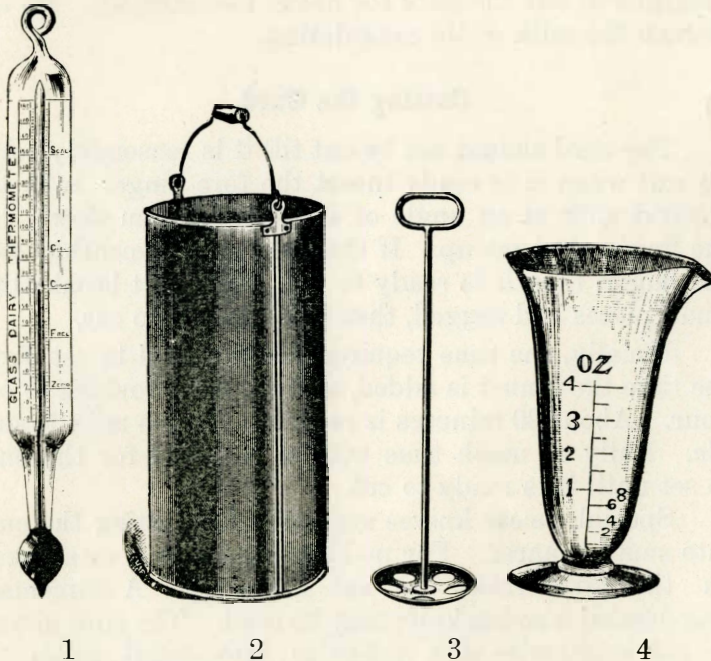


A Vat, in Which the Milk for Cheese Can Be Tempered to the Proper Degree.



If the milk from a whole day is made into cheese, then it is sufficiently ripe to "set" as soon as the proper temperature has been obtained. On the other hand, if the milk is made into cheese shortly after milking, then the milk should stand not less than an hour at the 86° F. temperature to ripen before the rennet is added. In case this cannot be done, a small amount of good sour milk, buttermilk, or whey may be mixed with the milk from which the cheese is to be made. Do not add more than two per cent or more than two pounds of the good sour milk to each 100 pounds of cheese-milk.

The next step is to add the color. Butter color will not do for this. It must be cheese color. The amount to add will vary with the strength of the color and with the demands of the market. The cheese should not be



1. Dairy thermometer
2. Shot-gun can
3. Milk and cream stirrer
4. Graduate for measuring rennet and color.

red, nor should it be white. A medium yellow color is liked by most cheese consumers. Add from one-half to one teaspoonful (1-16 to 1-8 ounce) to each 100 pounds of milk, and mix thoroughly.

The amount of rennet to add also varies with many conditions, the chief ones of which are the acidity of the milk, the strength of the rennet, and the temperature of the milk. The amount of rennet added should be such that the milk curdles in from 20 to 30 minutes. This amount will be about one ounce to 250 pounds of milk.

When the rennet has been measured out, it should be mixed with about 40 times the amount of cold water. When ready to add the diluted rennet, stir the milk. This is done so that the rennet will be completely mixed before it has a chance to act on any one part of the milk. Continue to stir the milk for about two minutes. Do not disturb the milk while coagulating.

### Cutting the Curd.

The curd should not be cut till it is reasonably solid. To test when it is ready insert the fore finger into the curdled milk at an angle of 45 degrees, then slowly lift the finger straight up. If the curd splits smoothly over the finger, then it is ready to cut, while if it breaks into small pieces and ragged, then it is too soft to cut.

Usually, the time required for the curd to set, from the time the rennet is added, is from three-fourths to one hour. About 20 minutes is required for the milk to curdle. Fully as much time will be required for the curd to set until it is ready to cut.

Special cheese knives are made for cutting the curd into small squares. For making cheese on a small scale on the farm these are not necessary. A homemade long-bladed wooden knife may be used. The curd should be cut lengthwise and crosswise into small cubes. A wire toaster is a convenient tool for completing the cutting of the curd into cubes not over one-half inch in diameter. The particles should be as uniform in size as is



possible to obtain an even cook or even heating.

### Heating the Curd.

The curd is not "cooked". It is gradually heated to expel the moisture, and to make the curd firm. At this stage there will be considerable whey. Dip some out and heat it to a temperature of 135° F. Then gradually pour it back and mix it very gently with the contents of the vat. Do not allow the curd to mat. Keep the particles separate by gentle stirring. If roughly handled, while the curd particles are soft, much of the fat will be lost in the whey.

Pour in only enough hot whey to raise the temperature of the whole 3 or 4 degrees, then gently stir for 5 minutes. Add hot whey again to increase the temperature 3 or 4 degrees more and stir 5 minutes. Continue this until the temperature has reached about 100° F. It will thus require about 30 to 40 minutes to bring the temperature from 86° F. to 100° F. Allow the curd to remain at this temperature till the curd is cooked through. When this is done, the curd is so hard that when a handful of it is squeezed, and when the grip again is released, the curd particles will not stick together.

After the curd has reached this stage, allow it to remain in the whey for about 30 to 45 minutes more. This is done to develop acid in the curd. In the manufacture of cheddar cheese in the factory, the whey is drawn and the curd is piled to develop the proper amount of acid. On the farm this method is not practicable. There is a slight danger of overcooking the curd by the modified method.

The curd thus left in the whey should be closely watched so it does not get too much acid. A curd that has developed too much acid produces a dry cheese, lacking in flavor. A cheese that contains too little acid is likely to develop gas when put into the curing room. The curd may be tested occasionally on a piece of hot iron. When it strings about one-half inch, then draw the whey

from the curd.

While the curd is developing acid in the whey, it must not be allowed to mat. Stir it just enough to keep it from matting.

When the proper amount of acid has been developed, then drain off the whey. The curd should be gently stirred to aid in getting the whey effectively drained away from it.

### Preparing the Cheese For the Press.

When the curd is ripened as mentioned above, "the milling process," or subdividing the curd is done away with. The curd is ready for the salting as soon as it has been well stirred and the whey is thoroughly drained off.

About one pound of salt should be added to the curd for each 300 pounds of milk used. The amount of salt the maker should regulate according to the quality of cheese he wishes to make. Too much salt makes the cheese too dry and it retards the curing. Too little salt causes the cheese to ripen too fast. The salt should be thoroughly mixed with the curd to secure uniform distribution.

If cheese is regularly made on the farm, special hoops should be purchased. The Young America hoop is probably of most suitable size for farm cheeses. These hoops make a cheese that is seven inches in diameter. The height is variable. The most suitable weight to make a Young America cheese is about 10 pounds.



A Cheese Hoop for Making "Young America" Cheese

If a cheese is made only now and then, a hoop may

be made from a small tin pail having straight sides and a diameter of about 7 to 8 inches. There is no objection to a hoop of greater diameter. If such a hoop is used, holes should be made in the end to permit draining of the whey during pressing.

The hoops should first be thoroughly cleaned. Then place some cheese cloth within the hoop. Make the folds as smooth as possible. The curd is then placed in the hoop. Special hoop liners or bandage and circles should be purchased if the hoops of regular sizes are used.

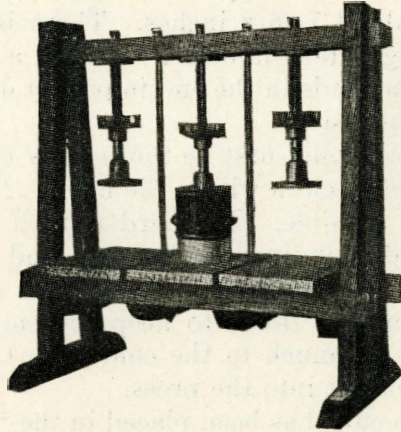
Care should be taken to keep the curd warm. Do not expose it too much to the cold air. Cold curd will not unite when put into the press.

When the curd has been placed in the hoop, then put the follower (circular board) on and place it in the press.

### **Pressing the Cheese.**

If much cheese is made on the farm, one of the regular cheese presses should be purchased. If only a small amount is made, a homemade press will serve the purpose. A press such as is illustrated will do the work. An old wagon tongue will serve the purpose of the lever. One end may be fastened to the side of a building with a strong set of hinges or it may be just inserted under a block of wood fastened to the wall.

In pressing the cheese in such a press, care should be taken to keep the lever level, otherwise the cheese will not be regular in shape.



Upright Cheese Press.

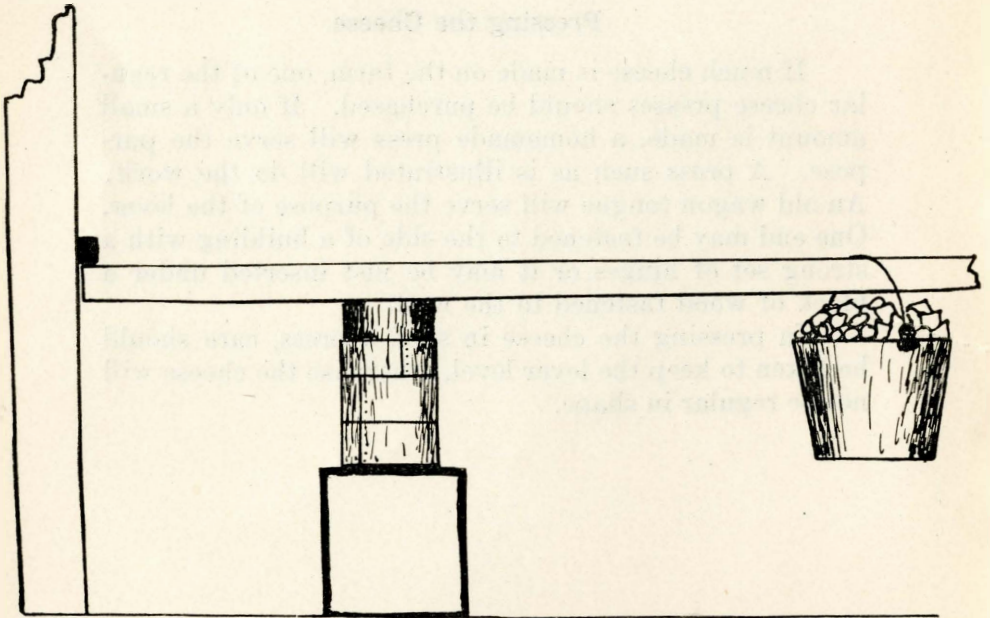


Illustration of a Simple Home-Made Cheese Press.

When the cheese is first put to press, very little pressure should be applied. The weight should be close to



the cheese. The pressure is gradually increased by moving the weight toward the end of the lever. In case the curd should be little cold, greater pressure should be applied when first put into press. A final pressure of about 500 to 800 pounds should be applied to the cheese. This does not mean that the weight should be that heavy.

When the cheese has been in press about one hour, it should be turned, and the bandage or lining should be adjusted. If the cheese does not unite well, apply a little warm water. In another two hours, turn the cheese again. The cheese should remain in press not less than 24 hours. In case the cheese does not unite well in pressing, it may be soaked in warm water while still in the bandages, then put back in the press.

### **Curing the Cheese.**

So far, the cheese is only half made. The curing is a very important part of cheesemaking. The temperature and humidity of the curing room should both be under reasonable control. The curing room must not be too dry. This will cause the cheese to dry too quickly, and to crack. There should not be draft in the curing room, yet it should permit of ventilation.

If the curing room is too dry, the floor of the room may be sprinkled with water or a wet sheet may be hung up in the room.

If it is desired to have the cheese cure quickly, then the temperature may be kept at about 70° F. The best cheese, however, is obtained from slow curing in a cold room. A temperature between 50° F and 60° F. produces good results.

A cellar is probably the best available place for a curing room on the farm.

When the cheeses are first put in the curing room on the farm, they should be turned daily; and during the ripening process, should they become mouldy on the surface, the cheese and shelving should be washed thoroughly with a strong salt brine.



## **MAKING SOFT CHEESES ON THE FARM.**

Numerous kinds of soft cheeses can be made successfully on the farm such as cottage, neufchatel, pimento, cream and club. These are much easier to make under farm conditions, than the cheddar type above described.

### **Cottage Cheese.**

Either skimmilk or buttermilk may be used for making cottage cheese. Skimmilk is used the most.

The sweet skimmilk is brought to a temperature of between 70° F. to 75° F. About one ounce (two table-spoonfuls) of good clean starter (sour milk or buttermilk) is added for every gallon of milk, and then stirred well. Then add rennet at the rate of one ounce of rennet to each 1,000 pounds of milk. The rennet should previously be diluted with cold water ( $\frac{1}{2}$  ounce of rennet to one pint of water).

Set the milk away to curdle, cover it with a clean cloth to prevent dust from entering and also to aid in maintaining the desired temperature, 70° to 75° F. About from 12 to 24 hours will be required to properly curdle.

When the curd has become reasonably firm, it may be broken up by means of gentle stirring. Should the curd be too soft to separate from the whey, the temperature may be raised to about 85° F. to 90° F. Do not warm too much. This will make the curd hard and granular. The cheese should remain soft to be most palatable.

Then remove the cheese to a double cheese cloth, and hang it up to drain. About 6 to 8 hours time will be required for this.

When the loose whey has drained away, add and mix salt at the rate of from 1 to  $1\frac{1}{2}$  ounces to 5 pounds of curd. Some also add caraway seed to give flavor. Some like rich cottage cheese. In that case, cream is mixed with it. This results in a smoother, richer, and more palatable cottage cheese, but more expensive.

From 15 to 20 pounds of cottage cheese is obtained

from 100 pounds of milk.

Buttermilk is also used for cottage cheese. In order to separate the curd from buttermilk, it is necessary to heat it to a temperature of about 120° F. for about two hours. This is necessary on account of the softness and fineness of the buttermilk curd. Otherwise, the process of manufacture is the same as when sour milk is used.

This cheese may be marketed in one pound paper containers made for this purpose, or it may be packed into glazed earthen jars. During the summer restaurants sell and serve considerable cottage cheese. Cottage cheese is used for sandwiches, it is eaten directly with cream, salt and pepper, and it is used for salads.

Cottage cheese may also be made in the same manner from naturally soured milk without any rennet. In that case, it is necessary to warm the milk to about 90° F. to separate the whey from the curd.

### **Neufchatel Cheese.**

Fresh, clean, and sweet whole milk is tempered to 70° to 72° F. To every gallon of milk add  $\frac{1}{4}$  to  $\frac{1}{2}$  ounce (1 to 2 tablespoonfuls) of clean sour buttermilk, or clabbered milk and stir thoroughly. Then add four or five drops of rennet (diluted in about one ounce of cold water) to every gallon of milk and stir thoroughly. If rennet tablets (junket tablets) are used, figure each tablet being equal in strength to twenty drops of rennet. The water in which the vessel of milk is set should be from 70° to 72° F. Cover the milk with a cloth and allow to stand until the curd has coagulated firmly. This will require from 14 to 18 hours. Then carefully transfer the curd to a cotton cloth, using a small dipper. Avoid breaking up the curd as much as possible. A convenient method for holding the strainer cloth is to fasten the cheese cloth across the top of a wash boiler or tub, using clothes pins to firmly hold the cloth strainer at the edge.

Occasionally, scrape down the curd to the center of

the cloth with a case knife. This prevents the drying of the curd around the sides. When the curd begins to become firm, and most of the whey is drained, the cloth is folded together in a tight ball, and the draining is continued.

At intervals, unfold the cloth and scrape the dry curd from the surface. Salt to suit the taste, or at the rate of 2 to 2½ ounces to 10 pounds of curd, and the cheese is ready for use.

From 100 pounds of milk about 18 to 20 pounds of Neufchatel cheese can be made.

Neufchatel curd may serve as the foundation for several other kinds of soft cheeses.

### **Pimento Cheese.**

The curd is handled as described above in making Neufchatel cheese. The only difference is that the latter is not colored; while for the Pimento cheese, cheese color should be added to the milk at the rate of 1-16 ounce, or about ½ teaspoonful to each ten gallons of milk. This will be equal to from 6 to 8 drops for each gallon of milk.

The pimentos (red peppers) are ground fine in a meat grinder, and worked into the curd at the rate of one ounce of pimento to each pound of curd. A small amount of cayenne pepper is also added at the same time.

### **Cream Cheese.**

Cream cheese may be made from cream containing about 10 to 12 per cent of butterfat in a similar manner as the Neufchatel cheese was prepared. It is usually made from the Neufchatel curd by adding and mixing well ripened or sour cream. Add enough of the sour cream to the curd to give it the desired creamy consistency. Add salt at the rate of one ounce to five pounds of curd, or to suit the taste.

### **Olive Cream Cheese.**

This is another soft cheese that can be made from the Neufchatel curd. First remove the pits from good green olives. Grind these in a meat mincer and mix them with the Neufchatel cheese. Add the olives at the rate of about one ounce to one pound of cheese.

### **Club Cheese.**

First remove the rind from well made and well cured cheddar, or ordinary hard cheese. Slice this cheese and run it through a meat grinder. To each pound of ground cheddar cheese, add about two ounces of fresh butter. Mix the cheese and butter thoroughly, and then run the mixture through the meat grinder to secure a homogeneous mixture.

The cheese is ready for use immediately. It should be packed in small air tight jars or glasses. Club cheese is very nutritious and palatable.



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