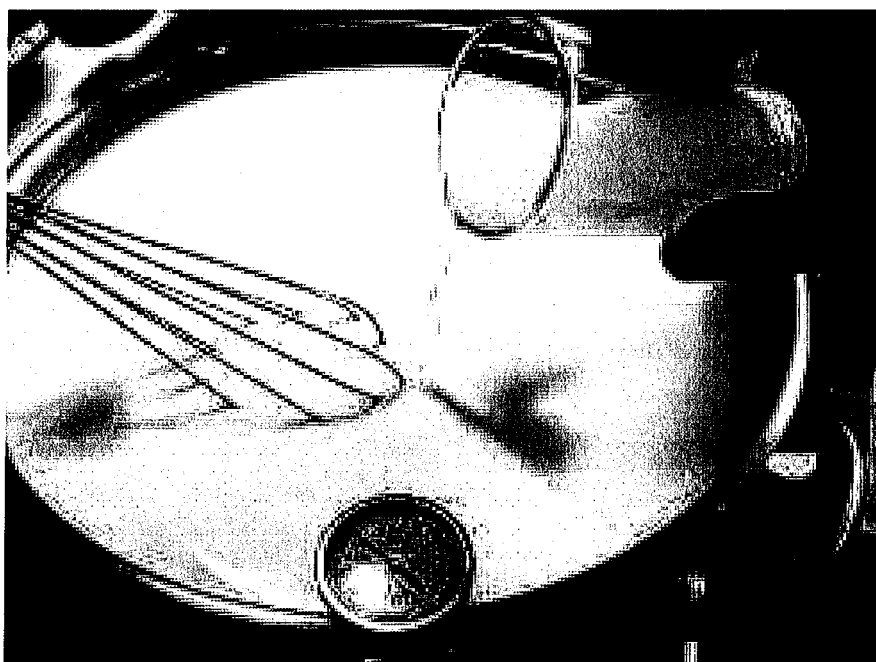
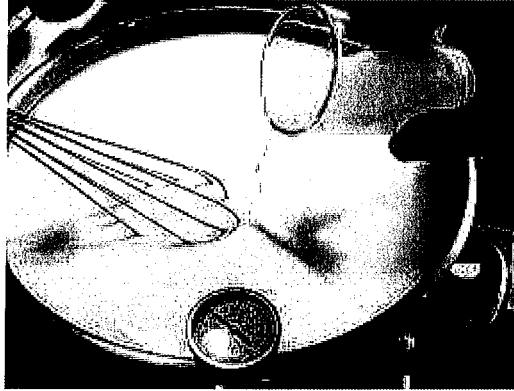


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# Cheesemaking



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***This We Believe:***

- The boy and girl are more important than the projects.
- The member should be their own best product.
- No award is worth sacrificing the reputation of a member or leader.
- Competition is a natural human trait and should be recognized as such. It should be given no more emphasis than other fundamentals.
- Learning how to do the project is more important than the project itself.
- Many things are caught rather than taught.
- A blue ribbon member with a red ribbon project is more desirable than a red ribbon member with a blue ribbon project.
- To learn by doing is fundamental in any sound educational program.
- Generally speaking, there is more than one good way of doing most things.
- Every member needs to be noticed, to feel important, to win, and to be praised.
- Our job is to teach members *how* to think, not what to think.

## MAKING CHEESE

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The recipe that follows is a basic formula for producing natural (uncolored, unprocessed) hard cheese at home. Keep in mind, however, that domestic cheesemaking is an imprecise art at best. Many variables—such as how "ripe" the milk is, the length of time (and the temperature at which) the curd is heated, and the number of weeks of curing—affect the flavor and texture of the end product. As a result, you may find that you have to slightly adjust the techniques involved to suit your own tastes and kitchen conditions.

To begin making cheese, all you need besides milk is a floating dairy thermometer (most any immersible type will do), two enameled containers (one of which can "nest" inside the other), rennet, a long-handled spoon and knife, three or four yards of cheesecloth, a colander, a one-pound package of paraffin, a press something like the one detailed below . . . and an all-abiding appetite for good, flavorful food.

### 1. Prepare the Milk:

Heat to 86° F

Allow four quarts of the evening's fresh whole milk (either cow's or goat's) to ripen overnight in a cold place (50—60° F). Mix in four quarts of the next morning's milk and heat the two gallons of liquid to 86° F in an enameled container. (Note: In her Old-Fashioned Recipe Book, Carla Emery forgoes the night-long ripening process, and simply begins her cheesemaking in the morning by heating all eight quarts of raw milk at once. Still others say it's all right to make cheese from pasteurized whole milk or even skimmed milk, if you add the "starter" discussed in Step 2. )

### 2. Add "Starter"

(Optional)

"Starters"—cultured buttermilk, plain yogurt, or milk held at room temperature until it clabbers—are sometimes used to increase lactic acid content and thus strengthen cheese flavor. If you've "ripened" raw milk as described in Step 1, or if you prefer a very mild cheese, you can now add rennet to the warm liquid. If you're using pasteurized or skimmed milk, or desire a "zestier" product, thoroughly mix into the 86° F fluid a cup and a half of any of the above substances (or a commercial "starter"), cover, and let the solution set in a warm shaded room for 2 to 4 hours before proceeding to Step

### 3. Mix in Rennet

Dissolve one-quarter of a "Hansen's Cheese Rennet Tablet" in one-half cup of cold water (or use any other rennet brand according to directions). Put the container of milk in a larger pan of warm (88—90° F) water, and stir in rennet solution. (Note: Rennet is produced from an enzyme found in calves' stomachs, so vegetarians often use non-animal-derived substitutes sold in health food stores. And in *Stalking the Healthful Herbs*, Euell Gibbons suggests employing the liquid from cooked stinging nettles. "When one adds as much common table salt to this juice as it will absorb," says Euell, "the mixture acquires the ability to coagulate milk, like rennet.")

#### 4. Let Set Until Curd Breaks Cleanly

Once the rennet has been mixed in thoroughly, cover the container and let the mixture stand undisturbed until a firm curd forms (30—45 minutes). To test the "readiness" of the concoction, slip your finger (washed, of course) into the coagulated milk at a 45° angle and lift up slowly. If the curd breaks cleanly on a straight line—and leaves no residue on your finger—it is ready to be cut. If it's still the consistency of tired yogurt, be patient, and try again a bit later.

#### 5. Cutting the Curd: Slice Two Ways Vertically, Then Two Ways at an Angle

Use a clean butcher knife or spatula long enough so that the instrument will go all the way to the bottom of the container without the handle dipping into the "set" milk. With the blade held straight up and down, cut the curd into even squares of about 3/8" (as shown in Positions 1 and 2 of the illustration). Then use your knife or spatula at an angle (see Position 3) and—starting about 1" from the side of the container—carefully undercut the curd into pieces about 1/2" to 1" thick. (Begin at the top and make each slice about one-half inch to one inch lower than the one before.) Next give the pail (or whatever you're using) a half turn, and draw similar angular cuts from the other side (as shown in Position 4). You needn't worry if the sections are not geometrically perfect "textbook" cubes. The basic idea here is simply to divide the congealed mass into small pieces of relatively uniform size, in order to help speed the separation of the curds (the solid part of milk) from the whey (the liquid portion).

#### 6. Stir Curd by Hand Continuously for Fifteen Minutes

Stick your hand into the squishy curd (it's fun!) and thoroughly—but very gently—stir the cut-up mixture with long, slow movements around the container, and from the bottom up. Carefully cut up the larger pieces of coagulated milk as they appear, but don't squash the curd. Try to make all the chunks as nearly the same size as you possibly can. Stir continuously with your hand for a full fifteen minutes, to keep the pieces of curd from sticking together. If your arm gets tired, just remember that there's nothing a child enjoys more than thrusting a bare little hand into goo and swooshing it around a bit . . . which is essentially all that's required here.

#### 7. Warm Slowly for About One Hour to 102° F

With the container still in a larger pan of water, slowly heat the mixture "double boiler style" to 102° F, raising the temperature of the curds and whey about a degree and a half every five minutes. Stir with a clean spoon frequently (if not constantly) to keep the curd from lumping together, and to maintain an even temperature throughout the concoction. You'll notice that—as more and more whey separates and rises to the top—the solid chunks will become firmer. Continue heating slowly (the process usually takes about one hour) until the curd—which should eventually look somewhat like scrambled eggs—holds its shape and readily falls apart on your hand without squeezing. If it appears to still be too soupy, don't lose patience. Heat a little while longer—even to one or two degrees above 102° F, if necessary—until the curd does pass the test.

#### 8. Stop Heating.

##### Stir Occasionally for One Hour

Remove the container of curds and whey from the pan of hot water and let it set. Stir every five or ten minutes to keep the lumps from matting together. As the curd cools, it will contract and force out more whey. Let the solid curd stand in the warm liquid for about an hour, or until most of the fluid has separated. (It is important to allow the curd to become firm, or your cheese may have a weak, pasty body and develop a sour or undesirable taste.) To test for "doneness", squeeze a small handful of curd gently, then release it quickly. If it falls apart and shows very little tendency to stick together, you're ready to go on to the next step.

## 9. Pour Curd

Line a colander with three to four square feet of cheesecloth, and set a pan underneath. Fasten the fabric to the strainer with clothespins. Pour the mixture in and allow to drain, then hold two corners of the cloth in each hand and let the curd roll back and forth without sticking together for two to three minutes, so more whey can run off. When the curd feels springy and rubbery and "squeaks" when you chew a small piece, it's ready to be salted. (Use the reserved vitamin-rich whey in bread recipes, as a treat for livestock or household pets, or as a skin softener for face and hands.)

## 10. Salt the Curd

Place the cloth that contains the curd in an empty pail or pan, and sprinkle one tablespoon of salt over the white mass. Mix well with your hands—without squeezing—and then add an additional tablespoon of salt, and mix again. This step is for flavoring purposes only, so you may want to adjust the amount of salt you use in subsequent batches to suit your taste. (Note: Carla Emery and some others who've written on the subject advise adding the sodium chloride in three portions rather than two, in order to be sure the salt is dispersed evenly and consistently throughout the curd.)

## 11. Form into Ball

Once the curd has been salted, lift the cheesecloth up and tie the four corners together crosswise to form a kind of elongated sack. Pat the curd into the shape of a ball, and hang the whole works up over a pan. Allow the bundle to drain for around one-half to three-quarters of an hour. (Note: This step represents yet another area of disagreement among cheesemakers. Some skip this stage entirely, while others steadfastly maintain that the cheese ball should hang for three or four hours. We recommend draining your first batch of cheese the suggested one-half to three-quarters of an hour, and then experimenting with longer or shorter "hangings" later on if you feel there's a need.)

## 12. Dress the Cheese

After the bundle of curd has drained sufficiently, place it on a flat surface and remove the cloth from the ball. Take a clean dish towel (or some other piece of fabric with a similar "weight" and shape) and fold it lengthwise to form a multi-layered band about three inches wide and two feet long. Wrap the strip around the ball as tightly as you can, and fasten the ends securely with safety pins to make a kind of circular "girdle" for the cheese. Push the mass down firmly with your hands, and make the top surface smooth by crumbling and pressing the curd with your fingers. Your round loaf of cheese should not be more than six inches across, or have cracks extending into its center, because either condition can make your "masterpiece" dry out too much while curing. (Note: When great-grandma "girdled" a batch of homestyle goodness, she usually used a wooden hoop designed especially for the purpose, rather than a cloth "belt" like the one you've just fashioned. Unfortunately, those very handy—and undoubtedly superior—implements have gone the way of the buggy whip in this country. If you do happen to run across one in your great-aunt's attic, however, lay claim to it pronto. You'll find that the ingenious little device beats the above improvised "headband" by a country mile.)

## 13. Press Cheese

All you need to build a good, serviceable cheese press like the one sketched at the right is two 1" X 8" X 12" boards, four bricks, and two 1" dowels (pieces of an old broomstick will do). Once you have the press constructed, place three or four thicknesses of cheesecloth on top of and under your round of cheese. Put the covered curd on the bottom board of the press, push the upper plank down so that it rests squarely on the cheese, and place two bricks on top. Before you go to bed at night, turn the wrapped round over and weight the "sandwich" down with a total of four bricks. Let stand till morning.

#### **14. Paraffin. Store in Cool Place.**

Remove the cloths and place your cheese on a board in a cool, airy place. Turn the loaf once or twice every day for a few days until a dry rind has formed. (If a mold appears, simply cut it away or wipe it off with a solution of salt and water.) Once a hard outer skin has developed, heat some paraffin to 210°—220° F in a deep pan, and dip the cheese—first one half, then the other—in the hot wax. (Some folks prefer to "paint" the liquid on with a brush, while others elect to rub vegetable or mineral oil—instead of paraffin—onto the cheese's surface.) Store the round in a root cellar or similarly cool (45°—55° F) area. Turn it over each day for several days, then two to three times a week. The round is usually ready to eat after three to four weeks . . . but most cheesemakers agree that sixty to ninety days of aging is best for a really mellow, well-ripened, flavor-some cheese.

Introduction to cheese making:

Click on the following link:

[Wiki: Introduction To Cheese Making «  
CheeseForum.org](#)

## **I'm a 4-H Project Leader: Now What Do I Do?**

### **How do I know who is in my project?**

- Your club organizational leader will provide you with the names, addresses and phone numbers of the members enrolled in the project for which you are the leader.
- If you are working on the county level, contact the UCCE for the list of project members.
- The organizational leader may indicate to you if any of the youth have special needs. At your first project meeting, note any other youth that may have special needs.
- You may wish to consult with the parent or your 4-H Youth Development Agent as to how to work with a special needs child.

### **How often should I hold project meetings?**

It is recommended you hold 4-6 meetings that each last 1½ to 2 hours in length. Some projects require more meetings or a longer meeting time to accomplish your goals. Some projects, such as leathercraft, may lend themselves to individual project work as members progress on their projects. In this case, you should hold several introductory meetings for all members and then set up a schedule of time for them to sign up for individual help.

### **When do I start?**

Get started as soon as possible! Members' interest in a project is most keen when they are signing up for a project and when they get their project books.

### **How do I cover the cost of project meetings?**

- There is a wide variety of means for covering the cost of project meetings. Some methods used include:
- Each member pays for their share of the expenses or provides a portion of the supplies.
- The club agrees to cover expenses using funds from their treasury. Approval in advance is needed for this.
- Members and leaders can solicit donations/supplies from area businesses.
- Sometimes funds from sources outside your club may be available to cover your project meeting costs.

### **How do I establish a project meeting schedule?**

First, determine when you are available to work with project members. Then determine an initial project meeting date by consulting with your project members.



Publicize the date using one of the following means:

- County and/or club newsletter
- Club meeting or leader association meetings
- Postcards or phone calls to project members

You may not be able to schedule an initial meeting that everyone can attend. Establish a time to meet with those unable to attend before you hold your second project meeting.

### **Where do I hold project meetings?**

Typically project meetings are held at project leader homes, schools, or community buildings. For more information on facility adaptability and liability concerns contact your 4-H Youth Development Agent.

### **What safety precautions do we need to consider?**

Consider the type of safety issues your particular project involves. Request and secure necessary safety items such as ear protection, eye protection and head protection.

### **How do I let others in my club or other clubs know I am a project leader?**

Prior to enrollment ask for time on your club's meeting agenda to let families in your club know you're a project leader and to share some things the kids could do in the project if they enrolled in it. When the project materials are handed out, take the opportunity to inform or remind members that you are their project leader and set an initial meeting date with the group. If no one in your club is in your project, you may wish to offer your services to a neighboring club. Talk to your club organizational leader or county 4-H Youth Development agent about this opportunity.

### **How do I prepare for the first meeting?**

You may want to establish a 4-H resource box where you keep your project materials and any additional resources you will be using. Take time to become familiar with your project literature and talk to others who were project leaders for this project to find out what activities the members enjoyed.

### **What should I do at the initial project meeting?**

- At the initial project meeting, here are some ideas of what you might want to cover:
- Find out what the members want to learn and accomplish in the project. The project literature is an excellent source of ideas.
- Review the safety practices that members will need to follow.

- Do an introductory activity related to the project so the members get to know one another
- Have a small project the members can complete and take home
- Talk about how the project meeting supplies will be paid for. Experienced leaders have found it easiest to charge a small fee to cover the cost of the expenses.
- Assess when members are available for additional meetings. You may wish to ask the parents or members to bring along their calendars of family activities.
- Encourage parents to participate in project meetings, especially the initial meeting.

### **What does a typical project meeting look like after the initial orientation?**

Use the experiential learning model (found in the introductory pages of your Helper's Guide) to plan your project meeting. The project helper's guide will provide suggestions for designing a project meeting. Here are some suggestions for each section of the model:

#### **Do**

- Plan an activity to focus the project members on what they'll be doing today. Work on the project for that meeting.

#### **Reflect**

- Review the process completed
- Discuss what worked and didn't work.
- Talk about how any problems that arose were solved.
- Assist members in documenting their project work for inclusion in their record books/portfolios.

#### **Apply**

- Ask the project member the following questions:
- What else have you seen that is similar to this?
- How can you apply what you learned today to other situations?

### **What resources are available to help me?**

- 4-H Project Literature – You will receive project literature through your 4-H club or the UW-Extension office. Typically there is a helper's guide and member literature for three to four levels.
- Other People in my Club & County – There are a number of people in your county who would be willing to share project ideas and tips with you.

These include:

- Project leaders in other clubs
  - County Staff
  - Older youth who have been involved in the project
- 
- **Media Collection & Public Libraries** – Additional resources can be obtained from the Cooperative Extension Media Collection. They have videos, skillathons, displays and resource packages available to support a variety of projects. There is a user fee per item you or your club will be responsible for. You can view their catalog at their website <http://www.uwex.edu/ces/media/>. Check with your local public library to find out what resources they may have or that you can obtain through inter-library loan.
  - **4-H Website** – Wisconsin 4-H is continually adding more information and activities to their website. Visit this site at [www.uwex.edu/ces/4h/onlinepro/](http://www.uwex.edu/ces/4h/onlinepro/). You may wish to check out websites from other state 4-H programs also.
  - **Volunteer Leaders Conferences** – Review each issue of your county's newsletter to learn about training sessions for project leaders offered by your county, district or at statewide events. Sessions focusing on new project literature are typically offered at the State 4-H Volunteer Leader Conference held every other year. Periodically statewide conferences focusing on specific project areas are offered in addition to sessions at the volunteer conferences. You can also exchange ideas with other leaders at statewide Field Day.
  - **Field Trips** – Youth always enjoy the opportunity to see firsthand how things are done and how they work. Consider taking your project group on a field trip or tour of a local business or company to enhance their project experience. An example would be taking your dairy members to a cheese factory or your foods group to a local bakery.
  - **Local Experts** – Bring in a local "expert" to share their ideas and experiences with your group. One example would be asking a Master Gardener to share information on choosing perennial or trimming shrubs at one of your project meetings.
  - **Magazines** – Many leaders have found creative ideas to supplement those in the project literature in magazines they have or those at the public library.

### **How can I incorporate activities not included in the project guide?**

We encourage you to use the ideas in the project literature as they have been successfully used with youth. If you have some additional activities you would like to incorporate, consider the following criteria:

- Of interest to kids
- Developmentally appropriate
- Incorporate the experiential learning model
- Youth and adults are involved in determining what will be done
- Enhances the development of member life and project skills
- Research based source of content utilized

### **What is the relationship between project work and the county fair?**

The County Fair is an opportunity for an independent evaluation of life and project skills a member learned through completing a project. County fair entries typically match the activities included in the project literature and may include other activities that are being emphasized in your county. One of your roles is to help maintain the focus of members and parents on the goal of 4-H, which is to develop blue ribbon kids. Talk with members about what they learned about each of their fair entries from the judging process. Help members celebrate their accomplishments regardless of the color of ribbon each project member received at the fair. This may be done through individual encouragement or at a meeting following the fair. While entering and displaying a project at the County Fair is the traditional method of public affirmation, there may be other means of exhibition such as a club tour, open house, community celebrations or others.

### **Who can I go to if I need someone to help me during the project meetings?**

If you are leading beginning level project meetings, ask older members in the project to help you. This is a great leadership experience for them! Parents are another excellent source of help. Don't hesitate to ask them to stay for the meeting and be actively involved in their child's project work.