

a Where Healthy Food Starts guide

# cheesemaking





CULTURES  
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**a Where Healthy Food Starts guide**

# Cheesemaking

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## Table of Contents

# INTRODUCTION TO CHEESEMAKING

**Cheese Introduction .....12**

**Why Make Your Own Cheese? .....14**

**Cheesemaking Basics, Part 1 .....16**

**Cheesemaking Basics, Part 2 .....22**

The Process ..... 22

Curd Handling..... 24

**Cheesemaking Basics, Part 3 .....27**

Preparation for Aging ..... 27

# UNDERSTANDING EQUIPMENT, PROCEDURES, and INGREDIENTS

**Cheesemaking Supplies and Equipment .....32**

Basic Equipment for Cheesemaking ..... 32

Basic Ingredients for Cheesemaking ..... 36

**Milk for Cheesemaking: An Overview .....38**

Parts of Milk..... 38

Types of Milk..... 39

**Choosing Milk for Making Cheese: Raw Milk  
vs. Pasteurized Milk .....41**

Benefits to Using Raw Milk.....	41
Drawbacks to Using Raw Milk.....	42
Benefits to Using Pasteurized Milk .....	42
Drawbacks to Using Pasteurized Milk .....	43
<b>Rennet and Other Popular Coagulants .....</b>	<b>44</b>
Animal.....	44
Vegetable.....	45
Common.....	46
Manufactured .....	46
Junket .....	47
A Note about the Water .....	47
<b>Choosing a Water Source .....</b>	<b>48</b>
Where Your Water Comes From.....	49
Common Contaminants .....	51
Treatment Methods.....	52
What Kind of Water Do You Need? .....	54
<b>Extra Ingredients Used in Home Cheesemaking</b>	
<b>.....</b>	<b>55</b>
Calcium Chloride .....	55
Lipase Powder .....	55
Ash .....	56
Annatto (cheese coloring) .....	56
Acids .....	57
<b>Sanitization during Cheesemaking .....</b>	<b>58</b>

# **GETTING STARTED**

**Beginning Cheesemaking: Where to Start .....62**

**Introduction to Soft Cheese .....64**

**How to Flavor Soft Cheese.....66**

**Techniques and Tips for Adding Ingredients in  
Cheesemaking .....68**

Adding Cultures ..... 68

Adding Colorings, Lipase, Calcium, and Mold Powders ..... 69

Adding Coagulants..... 70

Making a Mesophilic Mother Culture..... 75

Making a Thermophilic Mother Culture ..... 76

To Freeze the Mother Culture ..... 76

Troubleshooting ..... 77

**Cheese Storage and Aging .....80**

**Pressing Hard Cheeses .....82**

**Waxing Hard Cheeses .....84**

**Bandaging Hard Cheeses .....86**

**Brining Hard Cheeses .....88**

**Smoking Hard Cheeses .....90**

## Troubleshooting Your Cheese .....92

## INSTRUCTIONS FOR MAKING CHEESE

### Simple Cheeses .....98

Kefir Cream Cheese .....	99
Savory Kefir Cheese .....	100
Mascarpone.....	101
Queso Blanco with Citric Acid .....	103
Lemon Cheese.....	105
Potato Cheese .....	107

### Soft Cheeses ..... 108

Cream Cheese .....	109
French-style Cream Cheese .....	112
Crème Fraîche .....	114
Crème Fraîche Cottage Cheese .....	116
Cottage Cheese.....	118
Making Cottage Cheese with Buttermilk.....	121
Dry-curd Cottage Cheese.....	123
Farmer Cheese.....	126
Whole Milk Ricotta .....	128
Traditional Ricotta .....	129
Ricotta Salata .....	131
30-Minute Mozzarella .....	134
Traditional Mozzarella .....	138
Fromage Blanc.....	140
Chèvre .....	143

Moist Buttermilk Cheese Italian Spread .....	146
Lactic Cheese .....	148
Queso Blanco.....	150
Queso Fresco .....	152
Paneer .....	154
Traditional Quark .....	156
Simple Buttermilk Quark .....	158
<b>Hard and Semi-hard Cheeses .....</b>	<b>160</b>
Cheddar Cheese .....	161
Stirred-curd Cheddar Cheese .....	164
Colby Cheese .....	166
Derby Cheese .....	168
Southwestern Spicy Cheese Curds .....	170
Manchego .....	172
Monterey Jack .....	174
Simple Jack Cheese .....	176
American Brick Cheese .....	178
Haloumi.....	180
Edam Boule Cheese.....	182
Provolone .....	184
Crescenza .....	186
Traditional Parmesan Cheese .....	188
Simple Parmesan Cheese .....	190
Asiago .....	193
Romano Cheese .....	195
Swiss Cheese.....	197
Gouda .....	199



Gruyère.....	201
Havarti.....	203
Feta Cheese .....	206

## RECIPES

### Snacks, Appetizers, and Sides ..... 209

Garlic and Feta Cheese Ball.....	210
Vegetable Soup with Feta .....	212
Mediterranean Lentil Salad with Feta.....	214
Salami, Cream Cheese, and Pickle Rollups.....	216
Nori Poppers (using cream cheese).....	217
Stir-fried Queso Blanco.....	219
Marinated Mozzarella Appetizers .....	221
Mozzarella, Sweet Potato, and Mushroom Stuffed Peppers.....	222
Mushroom, Apple, and Jarlsburg Salad .....	224
Cold Peas and Paneer Salad .....	226
American-style Saag Paneer .....	228
Cheesy Kale-stuffed Mushrooms.....	230
Mozzarella Leeks with Oil and Vinegar .....	232
Mozzarella, Tomato, and Quinoa Salad .....	234
Herbed Red Potatoes with Crème Fraîche .....	236
Crème Fraîche Vinaigrette .....	237
Blue Cheese Dressing .....	238
Easy Probiotic-rich Caesar Dressing .....	240
Lactic Cheese and Cultured Buttermilk Ranch Chip Dip .....	241

### Main Dishes ..... 243

Gluten-free Blueberry Cottage Cheese Pancakes.....	244
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Cottage Cheese and Spinach Filled Ham Rolls.....	246
Cottage Cheese Blintzes with Soaked-flour Buttermilk Crepes .....	248
Spinach Ricotta Quiche .....	250
Italian Sausage, Spinach, and Ricotta Squares.....	252
Ricotta Pancakes with Butter-Honey Syrup.....	253
Spinach Ricotta Dumplings .....	255
Artichoke, Spinach, and Ricotta Calzone.....	257
Spinach Ricotta Pie .....	259
Southwest Lasagna with Queso Blanco .....	261
Turkey and Queso Blanco Enchiladas .....	263
Crustless Bacon, Artichoke Heart, and Onion Quiche .....	265
Bread Pudding with Gruyère .....	267

## **Desserts ..... 269**

Tiramisù .....	270
Mascarpone Apple Torte (gluten-free) .....	272
No-cook Chocolate Ricotta Pudding .....	274
Cream Cheese Frosting.....	276
Raw and Cultured Pumpkin Cheesecake .....	277
Gluten-free Ricotta and Yogurt Cheesecake .....	279
Easy Decadent Strawberry Cheesecake Ice Cream.....	281

CHEESEMAKING

**INTRODUCTION to**  
**CHEESEMAKING**  
getting started with cheese

CHEESEMAKING

# Cheese Introduction



## What is cheese?

Cheese is a preserved form of milk made by using live cultures to transform the milk through chemical process, and then by the coagulation, pressing, and salting of the milk protein casein. Cheese is popular for its versatility, longevity, portability, and nutritional values. Cheese is a stable food with a longer shelf life than milk, and it is an affordable food for any budget. There are numerous styles, shapes, tastes, and textures of cheese, all developed in different regions, climates, and cultures of the world.

## Where did cheesemaking begin?

The tradition of cheesemaking dates back into the fog of unknown historical roots. It is an ancient practice pictured in the murals of the Egyptian tombs. The making of cheese is described also in Homer's *Odyssey*, a very early Grecian work of literature thought to date back to around the 8th century BCE.

Animal skins and internal organs were used frequently in the early days, so it is likely that some farmer merely filled an inflated animal stomach with milk to carry or store it for a time. The lining of animal stomachs contain the enzymes used in cheesemaking even now, so maybe when the shepherd returned to retrieve his milk, or the hearthkeeper went to pour

milk for her cooking, the vessel was full of curds and whey. Drainage and salt is all that was needed to make this new, exciting food into what we know as cheese today.

### **Why is making cheese at home better?**

Cheese is a delicious, healthy staple that is well-known to the modern diet. Cheese is a very popular food that can be found on the shelves of any grocery store. The cheese found hermetically sealed in packages in the dairy section of your grocer is often a highly processed food containing additives and preservatives, in contrast to the delicious, one-of-a-kind cheese you could easily be making yourself, in your own home. Your cheese can be free of all of the colorings and chemical stabilizers used to make cheese more attractive and stable for store shelves.

Homemade cheese may be an option for individuals with lactose intolerance, for a huge amount of the naturally occurring lactose within milk is consumed and transformed by live bacteria into more easily digestible lactic acid during cheese making. (Consult with your health care professional before eating cheese if you have concerns about lactose intolerance.)

Your homemade cheese will be better-tasting, more alive, and more versatile than any commercially processed cheese.

### **Is making cheese at home difficult?**

No! Cheesemaking is a very rewarding and simple process. The most basic soft and hard cheeses require only a few ingredients and tools to make. There are levels of cheesemaking difficulty, and each stage is more scrumptious than the last. Basic cheesemaking is surprisingly forgiving, and if at first you don't succeed, try, try again! Don't be daunted by the thought of making cheese in your kitchen, because even most cheesemaking failures are still edible. Making your own cheese will not only be healthier and more nourishing to your family, but the world of cheesemaking is so wide and diverse, you may find yourself with a new and very addicting hobby.

## Why Make Your Own Cheese?



**It's a rare skill.** Making your own cheese is the culinary equivalent of building a log cabin. There just aren't that many people who know how to do it anymore. A homemade cheese will always be a hit at a potluck or party.

**Homemade cheese contains no artificial ingredients.** Almost every commercial yellow or red cheese contains a food coloring called annatto. Although annatto is "natural" (it's derived from a South American tree) it has been linked to allergic reactions. Commercial cheeses also often contain a form of rennet that is genetically modified from fungi. If you're trying to stay away from GMOs, you might consider buying from an artisan or making your own.

**It's easy!** There are a few basic steps to cheesemaking, and they are the same no matter what kind of cheese you want to create. Once you have mastered those steps, you can make anything, from brie to mizithra.

**Homemade cheese connects you to your farmer, the cows, and the land.** As you begin to make cheese, you will naturally seek out the best milk for your product. You will ask questions, talking to farmers and other cheese makers. While you can make cheese without ever meeting a cow, knowing your sources is so much more fun!

**It's inexpensive.** Unlike other hobbies you don't need a lot of fancy supplies to make cheese. A large pot, a kitchen thermometer, a couple pieces of cheesecloth, and a few cultures will get you started onto the path toward years of delicious fun.

**Children love it.** Kids love to make cheese. Kids love to *eat* cheese. If you have children, cheesemaking is a great kitchen activity. They can participate and learn along the way. If you homeschool, cheesemaking is a unique way to teach science and chemistry.

**It's delicious!** No matter what kind of cheese you make, your homemade cheese will be edible. Some of the most fabulous, rare cheeses were discovered by accident. Even if you think you've messed up your cheese irreparably, drain, salt, and try it anyway. You may not ever be able to repeat it, but you can still enjoy eating it.

# Cheesemaking Basics, Part 1

Cheesemaking is a basic skill that has been lost in just a matter of a few generations to a modern way of doing things. Traditional styles of making cheese were developed as a way to preserve raw, whole milk into a form that is delicious and nutritious, and that will keep for many months.



Cheese is made in a wide variety of styles, tastes, smells, looks, and consistencies; from soft to hard, sharp to mild, and wet to dry. Traditionally, cheese is made by culturing milk either by encouraging natural enzymes and bacterial action (in raw milk), or by using the culture of your choice (in pasteurized milk). A coagulant, such as [rennet](#), lemon juice, or vinegar is then added, causing the milk protein casein to curdle and separate as a white, firm curd from the clear, watery whey. The curd is then cut, using a specialized curd cutter, or a really long kitchen knife, into smaller cubes (now curds), to be mashed and formed to your specific style. Next you either lightly drain the curds and crumble them to use as a soft cheese, or spread (press) the curds, using a round cheese press. Curds are compressed in a [cheese press](#) for as long as the specific style requires, then wrapped in some type of [bandage or cloth](#), sometimes brined or rubbed in butter or lard, and put into a dark, cool environment to age naturally for as long as needed.





**Steps and ingredients may vary, but the fundamentals stay the same:**

- Milk
- [Starter culture](#)
- Coagulant
- [Salt](#)

If this is your first go at making cheese at home, start with small batches and basic recipes. Cheese can be finicky, reacting to discrepancies in temperature and slight variations in cooking times. There are tricks you will learn as you go, so starting with a basic soft cheese like cottage or Neufchatel or a simple cheddar will familiarize you with the essentials.

Cleanliness and safety before, during, and after making cheese is very important. Before you begin cheesemaking, it is a good idea to boil water in your main cheese pot with the lid on for about ten minutes, ensuring the killing of any harmful bacteria. Thoroughly wash and rinse all your cheesemaking tools in hot water, even if they are new, laying them out on a clean towel and covering them with another clean towel until you are ready to use them. If you want, you can also boil your metal utensils and tools in the water you boil in your cheese pot, but that isn't completely necessary. You should keep a clean towel with you during the cheesemaking process for help keeping your hands dry and clean and surfaces free of standing liquids. A lot of home cheesemaking failures can be attributed to insufficient cleanliness and unsanitary handling of the milk. Wild bacteria on your unwashed utensils or poorly filtered milk can add an off flavor to your end product, which can ruin a perfectly good batch of cheese. Using just common sense and basic food safety procedures, you can prevent most unnecessary failures and problems.



## **Milk**



The main and most important factor of any cheese is milk, of course. Cheese can be made using almost any type of animal milk: cow, goat, sheep, and even mare or camel. If you have daily access to whole, fresh milk via your very own dairy animal, you already have the perfect base for loads of cheesemaking experiments. You may be able to find organic milk from a local dairy, or even a supermarket. You can even use commercial pasteurized and homogenized milk from the supermarket.

However, if you can find unhomogenized milk, it is preferable for cheesemaking. Homogenization is a process that breaks up the fat globules in the milk to such a small size that they are permanently suspended and unable to separate from the milk protein. This causes any cheesemaking using homogenized milk to produce a waxy, sticky curd with an underdeveloped flavor and less creamy texture. Some people buy dry milk, and add heavy whipping cream, to achieve an “unhomogenized” milk for cheesemaking. Any commercial whipping cream you buy will probably be homogenized too, but the fat-to-casein ratio in the homogenized whipping cream usually helps keep the fat from producing texture issues. Regardless of which type of milk you choose, experiment with small batches to find what suits your style.

The only type of milk that you should stay away from in cheesemaking is ultra-pasteurized, or ultra-high temperature pasteurized milk. This milk has been so highly processed that it will not produce a satisfactory curd. UP or UHT milk will be labeled as such on the container.

## **Starter Culture**

There are many, many different kinds of cheese cultures available online or through cheesemaking suppliers. They are usually sold in powdered form. Culture, or starter, is a specifically selected group of bacteria that you add to warmed milk to cause acidification, making your milk the perfect environment for good bacteria growth and flavor development. The [starter/culture](#) you choose will determine the taste, texture, and aroma of your final cheese. Some cultures may help create holes, such as those in Swiss cheese, and others may help create just the right flavor for a classic Gruyère. But all cultures can usually separate nicely into two large groups:

- [Mesophilic culture](#), that performs at an optimum temperature of around 85°F, and
- [Thermophilic culture](#), that performs at an optimum temperature between 108° and 112°F.

In both types of culture, there are numerous strains ranging from moderate to speedy acid production. When you purchase the culture, you are buying an isolated, pure strain of culture optimized for the type of cheese you wish to achieve. When following a cheese recipe, look for the type of starter culture the ingredient list calls for.

## **Coagulant**

Coagulants are added after the culturing of the milk and are used to solidify milk protein into cheese curds. The most common coagulant is [rennet](#), a naturally occurring enzyme called rennin, which is harvested from the stomach linings of un-weaned calves, kids, or lambs. Some people believe that calf rennet produces better, high-quality aged cheese. There are also vegetarian rennet substitutes, harvested from safflower seeds, thistle, and fig, or grown in laboratories on grain-based substrates. Animal rennet can be purchased in tablet or liquid form. Liquid is easier to work with and usually works faster within the milk, but rennet tablets can be found easily and inexpensively at most grocery stores, and have a longer shelf life. In general, 1/2 of a rennet tablet is equal to 1/4 teaspoon of liquid rennet. Rennet tablets must be crushed and added to a small amount of warm water, according to the amount called for in your cheese recipe. If you dilute liquid rennet or dissolve a rennet tablet in water, make sure your water is unchlorinated, because chlorine will kill the enzyme and render your rennet useless.

Other coagulants, such as vinegar and lemon juice, are for use in specific recipes and not a substitute for animal coagulant, as the two types of coagulants work differently.

## **Salt**



[Salt](#) is not used during the cheesemaking process merely for flavor enhancement. Salt is a natural preservative and a very important element in good cheesemaking. Salt helps to dry the curds during draining, controlling moisture and causing the curds to shrink. You should not use iodized salt, because iodine harms the growth of the cheese culture, and can slow down the aging process drastically. Specialized [cheese salt](#), which is un-iodized and has a coarser grind, is available at cheesemaking supply shops and websites. But any coarse, non-iodized salt will work just as well.

## **The Tools**

You will need a basic set of cheese tools. Some you might already have or can make, and some can be purchased individually or bought all together as a [beginner's kit](#) at online cheesemaking supply shops.

- A large cheese pot, 1- to 3-gallon capacity or larger, made of stainless steel or unchipped enamel. Not aluminum.
- Cheesecloth, or butter muslin. 4 to 6 yards is recommended.
- A cheese mat or some other small, nonmetal rack on which to air cheese.
- Cheese boards, on which to air-dry or age cheese.
- A colander or strainer, nonmetal.

- A [curd-cutting knife](#) or other long, straight knife that will reach clear to the bottom of your cheesemaking pot with room to hold the handle.
- A wire whisk (preferably stainless steel).
- Large cheese spoon, or a ladle-like utensil with largish holes in it. Also called a skimmer or perforated ladle.
- A very large bowl, 13-quart if possible, for warming pots of milk and/or salting and working with the curds.
- Measuring cups and spoons.
- A [dairy thermometer](#).
- A [cheese press](#) (optional; you may be able to improvise or make your own).
- Draining pan in which to set the cheese press to catch expressed whey.
- [Cheese wax](#), if you need it.

These tools must be cleaned and sanitized before and after cheese making. You should always read over your recipe prior to beginning the process, so you can know beforehand any special instructions or tools you will need. You should also have the starter kept cool and ready so you can just grab it when the time comes. A few preparation steps can help to avoid any scrambling or frustration during the actual cheesemaking, which can be very, very helpful during important times in the process.

## Cheesemaking Basics, Part 2



In addition to the standard, individual ingredients and basic concepts of cheesemaking, there are some general techniques used in making cheese at home, from start to storage.

### The Process

The recipes for special and individualized cheeses will call for variations on the basic procedures, but the fundamental set of steps will usually apply to most hard cheese recipes:

- Warming (or “ripening”)
- Culture addition
- Coagulant addition
- Curd handling (cutting, cooking, salting, and drainage)
- Pressing
- Preparation for aging (such as dry salting, brining, or bandaging)
- Aging
- Storage

#### Warming

Warming or ripening the milk is the initial heating of the milk before the addition of cheese cultures. Your recipe or culture will call for a specific temperature to be reached and held for a specific amount of time, enabling the cultures to do their job. Generally, you would



pour the specified amount of milk (room temperature, preferably) into a sterilized cheese pot, stick in your dairy thermometer, put the pot on the stovetop, and watch and stir until the desired temperature is reached. You must provide a slow, steady increase of temperature so as not to harm the milk proteins and flora that you are relying upon to help you make wonderful curds and fantastic cheese. About 2°F per minute is a good rule of thumb, so adjust your stovetop accordingly. Keep a very close eye on the milk while it is warming on a stovetop!

Some people like to warm their milk using a water-bath technique, which heats evenly and reduces the possibility of accidental scorching or rapid heating. To do this, put the cheese pot, with the milk and thermometer, into a deep sink or large bowl, and pour hot water in around the outsides of the pot, about up to, but not over the level of milk inside the pot. Keep the water 10 degrees warmer than the milk temperature you are trying to reach. Slowly stir the milk and watch the dairy thermometer, adjusting the heat of the surrounding water as needed. This is a gentler, safer way to ripen milk, and helps guard against mistakes. After you have added the starter culture, you can keep adjusting the water temperature to maintain the desired milk temperature.

### **Culture Addition**

Once the desired milk temperature has been reached, it is time to add the cultures. The general practice is to slowly sprinkle the specific amount of culture on top of the warm milk, then wait a few minutes to allow rehydration of the powdered cultures. Then slowly and gently incorporate the culture into the milk with your whisk, making sure it is stirred in all the way to the bottom of the pot. A good way to do this is with an up-and-down motion that reaches to the bottom of the pot. Keep an eye on the milk temperature, maintaining that desired level of heat for the entire incubation. Once you have sufficiently stirred in the cultures, don't stir the milk any more for the duration of the incubation period. Over-aerating the milk at this point could disturb the natural acidification happening within the milk.



## **Coagulant Addition**

After the cultures have been left alone for as long as your recipe tells you they should be, it is time to add the coagulant. Depending on what type you have chosen, add it according to the recipe's direction, stirring slowly with your wire whisk in the same fashion you used for incorporating the cultures, or using a gentle up-and-down motion. After it is stirred in, cover the milk, keeping the thermometer in and at the specified temperature for the specified time period, or until the curds and whey have separated completely. Don't stir or mess with the milk after you have incorporated coagulant. When the time is up, begin by checking for what is called a "clean break," which is the point when you can stick something (a spoon, butter knife, or your finger) into the very top of the milk, and the cut or break made there is clean and defined, and the liquid whey that fills the cut is clear, not milky. If you are able to make a clean break at the top of the milk, you are ready for the next step.

## **Curd Handling**

### **Cutting**

Once complete separation and coagulation has occurred, check your recipe for special instructions on curd cutting. The standard curd-cutting procedure is to take a curd knife and begin making vertical cuts the desired space apart all the way through the curd, from the top of the pot right down to the bottom. Make the cuts across the entire curd, then turn the pot 90 degrees, and do the same cutting motion, top to bottom, all the way across in the other direction. Now, turn the knife to a 45-degree angle and begin making cuts using the straight lines you have already made as a pattern. Once you have finished, turn the pot again, 45 degrees this time, and make the same angled cut going diagonal to the checked pattern of cut curds. Turn it 45 degrees again and make another set of angled cuts. Turn it 45 degrees one more time, making the last set of angled cuts. Some recipes will tell you a particular size to cut the curds, depending on the finished product you are striving for. Once you have cut the curds, gently stir them to bring the bottom curds to the top, checking for any large ones and cutting them down to size.





## **Cooking**

You may have to cook the curds at a higher temperature than they were coagulated at, so keep the dairy thermometer in the pot. If you used a water-bath method thus far, you may want to transfer your pot to the stovetop for this step, but some people keep the water-bath style throughout the entire cheesemaking process. If your recipe says to stir the curds while they are cooking, do so very, very gently. Cooking curds causes more whey to be extracted out of them, making them a bit smaller and firmer, and you don't want to make them start sticking together prematurely during the cooking process. Keep a steady eye on the temperature and the clock. After the cooking, the curds may have formed a mass at the bottom of the pot, with the whey floating on top. This is perfectly normal.

## **Milling**

Your recipe may instruct to “mill” the curds. This consists of spooning the curds into the mixing bowl using the cheese spoon to drain off the whey, then softly breaking them up with your hands once they are all in the bowl. Be careful not to squeeze any more whey out of them, as this can cause extraction of essential butterfats. Break them to the desired size, striving to achieve uniformity throughout.

## **Salting**

If your recipe calls for direct salting of the curds, adding salt to the newly milled curds is the general practice. Sprinkle the salt over the bowl of curds, then work it in gently, making sure to distribute the salt evenly. (Some cheeses are soaked in salt brine after being formed into a wheel, and some molded cheeses are rubbed with salt after pressing.)

## **Draining**

To drain the curds: Line a colander with two layers of cheesecloth cut sufficiently larger than the colander so that the sides may be drawn up for drainage. Using your cheese spoon, gently begin scooping out the curds from the pot and transferring them to the colander, leaving the whey. Once the curds are all in the colander, draw up the sides of the cheesecloth, tying up the edges to form a bag that you can hang above a bowl or other whey-catching receptacle. The cheese may be first drained by hanging the cheesecloth bag, then transferred to the press, or it can be put directly into a cheesecloth-lined press,

depending on what kind of cheese you are making. Discard the pot of whey, or save it for further use.

### **Pressing**



After you have allowed the curds to drain for the time given in your recipe, it is time to put them into the press. Always line the press with cheesecloth first, then place the drained curds into the press, folding down the edges of the cheesecloth over the surface of the curds after you are done. Put the top pressing piece on, then evenly distribute the weight of the press across the top of the cheese. Crank down a handled press to the desired or specified pressure, or stack on the weight and press your cheese to the pressure amount, and hold for the duration of the pressing period according to the recipe instructions. You will need to flip your cheese a few times within the press during the pressing time to ensure even moisture and drainage. To do this, release the pressure on the cheese in the mold, pull out the cheese, carefully invert it, rewrap it in the cheesecloth and replace it in the press, restoring the desired amount of pressure. If your recipe does not specify pressing time or a certain pressure, a good rule of thumb is to apply enough pressure to compress the curds without causing them to squeeze out of the press. When the whey stops coming out of the cheese, release the pressure, flip the cheese, restore adequate pressure, and keep an eye on it. The fallback rule for pressing a hard cheese is: one hour at about 5 pounds of pressure, flip, then press overnight at 20 pounds, flip, and press again at 20 pounds for 8 to 10 more hours.

# Cheesemaking Basics, Part 3

## Preparation for Aging



### Brining or Salt Rubs

After you have pulled the cheese out of the press, if you didn't salt the warm curds after the milling process, you may need to either brine it or dry salt it. If your directions stipulate brining of the pressed wheel, prepare the salt brine according to the strength specified. For light brine, 13 ounces of salt thoroughly dissolved into 1 gallon of cool water will produce a 10% salinity. Medium brine is usually made using around 26 ounces of salt to one gallon of water, producing 20% salinity. Thoroughly saturated brine is about 25% salinity, achieved by mixing 32 ounces of salt in a gallon of water. Some salt in a saturated brine will remain undissolved. The brine should be kept at about 55°F until you need it, and the cheese should be about the same temperature when you are ready to brine it. Some recipes brine cheese wheels while they are still warm, though, so make sure to check your directions.

In the brining process you will be asked to either rub the cheese with the brine using a small piece of cheesecloth, or stick your wheel directly into the (non-reactive) bowl or other receptacle of brine. After you are done using the brine, it can be kept in the refrigerator for later use or discarded. Brine will keep for about a month if kept under 60°F, but if it does exceed this temperature, make a new batch for greatest effectiveness. Dry salt rubs can be done very simply, by just sprinkling the needed amount of salt on the cheese wheel, and rubbing it gently over the entire surface of the cheese.

### **Bandaging or Wrapping**

Bandaging a cheese is accomplished by first laying out a four-layer thick square of cheesecloth. Set the cheese to be bandaged on top of these layers, and using sharp kitchen shears, cut a circle around the cheese through all four layers of cloth, leaving a 2-inch border around the sides of the cheese. Cut a few more long strips from the cloth, their width being about equal to the height of your wheel. Now, rub the cheese with a fat of some sort, such as butter or lard, in a thin, even layer across the entire surface of the cheese. Lay one of the cheesecloth circles on one end of the cheese, rubbing it gently to press the cloth into the layer of fat. Lay a second layer of cheesecloth on top of the first, repeating the rubbing and pressing steps. Do the same on the other side of the cheese, carefully folding the edges of the circles down to the sides of the wheel. Wrap the strips you made earlier over these edges and across the sides of the cheese, folding and pressing as you go.

### **Aging**

Aging your cheese will be perhaps the trickiest and most challenging step in producing your own homemade cheese, but it is also one of the most important. Your cheese will age, certainly, notwithstanding mistakes or missteps, but the pace of aging and the end product will not always be exactly what you expected. Aging cheese can be problematic even for the most advanced cheesemaker, but unexpected results will not always be inedible. Taste it! You may discover you like the final product whether it is what you thought it would be or not. Experience will begin to teach you the signs of low humidity, high humidity, excessive heat or chill, and what to look for while ripening your cheese. You will learn over time how to react to these changes according to what you are trying to accomplish.

During the aging process, mold will grow over the surface of your cheese. Don't despair! This is perfectly normal. In fact, if you are making a blue cheese or some other type of mold-cured cheese, you have achieved your goal if there is a fuzzy quality to the surface of your cheese. But mold will occur on just about any cheese being aged in a properly humid environment. To remove any unwanted mold, make a 1-to-1 ratio vinegar-and-water solution, and use a small rag made of cheesecloth to gently wipe the mold from the surface of your cheese.

Specific directions for aging different types of cheese will vary. Humidity, darkness, heat, cold, and air quality will all come into account as your cheese is ripening. You can purchase

(or make) special racks, boxes, trays, and bags for help in aging your cheese. Cheese can be smoked, rubbed in spirits, wrapped in leaves and herbs, or rolled in spices. All of these techniques lend special qualities to your cheeses to make them unique. Keeping close tabs on how and what your cheese is doing is key during this stage in the process, because little tweaks in the environment will go a long way toward a delicious final product.

### **Storage**

When you have aged your cheese, tasted it, and fallen in love with it, you will want to keep the cheese at that stage for as long as it takes for you to consume it. Your cheese is a living, breathing, and changing organism, and so to keep fantastic cheese fantastic, you will need to stop or slow down any more chemical changes within the cheese to hold it right at the final stage. But your cheese may also get better with time; you never know!



Waxing is a very popular method of cheese storage (and sometimes used during the aging process as well), and your recipe will tell you whether your style of cheese will need waxing. Hard, aged, unwaxed, and waxed cheeses should generally be kept at around 55° to 60°F, with about 80% humidity. If you have problems attaining the proper humidity necessary for your cheese to keep well, dampening a large sponge and keeping it in the container with your cheese (but not touching the cheese!) will generally do the trick. Cheese paper can be bought and used to wrap cheese while still allowing the cheese to breathe.

### **In Summary**

Cheesemaking may seem like a large undertaking at the beginning; a process requiring many steps and your undivided attention. Don't be daunted by the thought, or discouraged by mistakes or small failures. And, failure to follow your recipe to the dot is not always a disaster. You may find you like your own variation on the recipe, and if you do, you have created something all your own. Remember, cheesemaking is a science subject to safety rules and basic attentiveness. But cheesemaking is also an art, therefore subject to your resources and to your imagination. Happy cheesemaking!



# **UNDERSTANDING EQUIPMENT, PROCEDURES, and INGREDIENTS**

what it takes to get going



## Cheesemaking Supplies and Equipment

So you're ready to make your own cheese. You've read the articles, you've chosen a milk (cow, goat, sheep, [pasteurized or raw](#)) and you are chomping at the bit. You have visions of an amazing aged cheddar, or a slowly melting brie. Or if you're slightly less ambitious, just a tasty mozzarella to melt over homemade pizza.

The next step is to make sure you have all the supplies and equipment you will need.



In the old days, cheesemakers at the homestead were limited to using what they had on hand and what they could scavenge from around the place. Straw baskets were used for drying cheese; animal stomachs for coagulation; tree bark, clay, and wood for molds; and common dish towels for draining sacks. Today we have specialized tools, most of which developed from the practical resourcefulness and ingenuity of generations of cheesemakers gone before us.

You probably have a lot of what you need at home already. But in case you don't, here is a list of our essentials for basic cheese making.

### Basic Equipment for Cheesemaking

**Cheese Pot.** A cheese pot is the single most important piece of equipment used in the cheesemaking process. You might not even have to purchase a specialized pot for your cheesemaking adventures. If you are lucky you may already have one in your kitchen. Buying anything new and specialized for cheesemaking is optimal, but it may be quite



expensive. A pot used for cheesemaking must be nonreactive. Glass, unchipped enamel, or stainless steel are good options. No aluminum, Teflon, chipped enamel, or other kinds of metals can be used for they might mess with the chemical balances of your cheese. The size will depend on the batches of cheese you are planning on making. Most hard cheeses require 2 gallons of milk, so make sure that your pot has enough room to hold 8 quarts. You'll also need to add approximately 1 cup of additional ingredients to your cheese, and you'll need to stir comfortably. However, remember that the bigger the pot, the longer it will take to heat and the harder it will be to keep at temperature, so large pots will not be good for small batches. Some people use large double boilers for small batches. In the end it is up to you and how you decide to heat and make your cheese.



**Measuring Spoons and Cups.** Non-reactive stainless steel measuring utensils are good, but sanitized plastic or nylon will work just as well. Glass is ideal because it's easy to rinse out and non-reactive. If you have to measure smaller increments than are generally found in a regular baking measuring spoon set, you can buy a set of cheesemaker's measuring spoons and they will have all the odd fractions you need.

**Kitchen Scale.** A scale is useful for weighing ingredients when weight is specified in recipes. Any type will do.

**Cheese Spoon (or skimmer).** You will end up using your cheese spoon like a third hand in almost all the cheesemaking steps. It is used for adding culture or starter, incorporating rennet, stirring curds, scooping curds for draining, and scooping curds into the press. So your spoon will probably have to be designated and guarded closely because it is an essential tool in the cheesemaking process. Your cheese spoon must be nonreactive. Plastic

or nylon works, but you will have to pay close attention to cleanliness in all those little holes, which seems to be harder in plastic spoons. Bamboo is wonderful for stirring cheese: it's comfortable to hold, non-reactive, and easy to clean. Stainless steel looks beautiful but you must make sure it is non-reactive. (Some stainless steel is treated with silver to make it anti-bacterial, which can damage the cultures.)

**Dairy Thermometer.** This is one of the few things you really should buy new from a cheesemaking supply house. The thermometer must be reliable and accurate, and the ones made for cheesemakers are long enough to reach to the bottom of a cheese pot. They also have a handy clip for attaching to the side of the pot, which is a great help during the cheesemaking process. If you cannot find a thermometer made especially for cheesemaking a basic meat thermometer will work, but we recommend a digital model that won't break when you inevitably drop it in your whey. [A water-resistant digital model that can be calibrated](#) is ideal and we offer such a model on our website.

**Curd Knife.** A good curd knife has a long, straight blade that reaches clear to the bottom of your pot, while not immersing the handle. It usually has a flat tip, so as not to scratch the cheese pot during the curd-cutting process. Cheesemaking supply stores sell specialized knives for this purpose, but look around in your kitchen, as you might already have a knife or blade spatula that is up to the task and meets the requirements.

**Bowl.** You will need a bowl for curd milling, and for catching whey. Also, if your bowl is large enough, you can place the pot of milk or curds into it and pour hot water into the bowl around it to bring up or maintain the temperature of your milk or curds. So choose a large, sturdy bowl (13-quart if you can find one), and it will serve many purposes.

**Cheesecloth or Butter Muslin.** Cheesecloth is used for draining cheeses and for lining the cheese press. It is a strong cotton cloth with varying tightness of weave depending on the kind of cheesecloth you buy. Butter muslin is just a more tightly woven form of cheesecloth, and called for in certain recipes when the moisture of the cheese is a bigger issue. You can buy cheesecloth at the grocery store, but chances are you will not want to reuse it, for it is a loose weave and prone to falling apart if you try to wash and use it again. Cheesecloth bought from most cheesemaking supply houses will be tougher and stronger and more likely to stand up to an indefinite amount of washing and reuse. After using cheesecloth, just rinse it out in cold water. If there are bits of curd stubbornly sticking to it, some people say

whey works wonders for removing it. After rinsing it, wash it in warm water. Boiling it works well to sanitize it. Air-dry it in a place where it isn't likely to get any dust or dirt in it, then fold it up and store it in a zipper-style plastic bag until you are ready to use it again.



**Colander.** A colander is used for draining the curds of whey. Any material (plastic, metal, enamel) will work, because you will line it with cheesecloth anyway.

**Cheese Boards.** A cheese board is a handy draining platform commonly used for cheeses like Brie and Coulommiers. It is normally a strong, sturdy, well-seasoned board made of some type of hardwood like birch or maple, but not oak or cherry as the tannins in those woods would be harmful for the cheese. Cheese boards can also be used for drying cheese. It is recommended that you have at least two on hand.

**Cheese Mats.** Cheese mats typically are woven mats made of reed or food-grade plastic. They can be purchased from cheesemaking supply houses and are used for air-drying cheese. (You can also use sushi mats or square plastic needlework blanks found at craft stores.)

**Cheese Press.** If you want to make hard cheeses, you will need one eventually. It is a large expense, but essential to get the kind of pressing that's required to drive out the moisture in the curd. You can make a simple press for softer cheeses, and you can even make a more robust press for hard cheese. Whether you spend the time and money to make your own, or save the time and spend a little extra on a commercial press, you must be sure that the press will work properly so you don't ruin an expensive cheese project.

**Drip Tray.** A drip tray is essential for placing under your press to catch the expressed whey so it doesn't make a mess on your kitchen counter. You can just use a deep cookie, but there are specially-made drip trays at the cheesemaking supply houses that are a little more sturdy.

**A Record-keeping Notebook.** Any experienced cheesemaker will advise you to keep a notebook and pen handy during cheesemaking and write down what you do and when you do it during the process. Even though you are probably following a recipe, there will be some slight variations. Whether you accidentally let the temperature of your cheese go too low or too high, you let it sit longer than the recipe recommended, you added more or less of this or that, or whatever it is that you did slightly differently by accident or intent, write it down. Because if you finish that cheese, and taste it and absolutely love it, you will kick yourself if you don't remember what it was you did wrong, right, or differently. Or for example, if the cheese turns out drier or harder than you wished, and you see in your notes that you added more rennet than usual (or something), then you can try adding less next time and thereby solve your problem. By keeping a good record of what you are doing during cheesemaking, you have the ability to create your own recipes and/or fix the ones you have to make them your own.

**An Apron.** This is technically an optional thing, but it can change your life. You will inevitably spill on yourself and the apron will protect your clothes, but more importantly, putting on an apron is like putting on a uniform. It will help get your head in the game.

## Basic Ingredients for Cheesemaking

Now you've got your supplies ready to go, it's time for ingredients! All the ingredients we sell at Cultures for Health can be used with cow, goat, or sheep milk, and all work well with both pasteurized and raw milks.

**Mesophilic Culture.** A mesophilic, or cool-temperature-loving culture, can be used for most soft and hard cheeses.

**Thermophilic Culture.** Thermophilic, or heat-loving, cultures are used in Italian cheeses, as well as in cooked curd cheeses like cottage cheese and mozzarella. Both mesophilic and thermophilic cultures are inexpensive and keep for a long time in the freezer.

**Rennet.** You will need rennet for most cheeses. Professional cheesemakers generally prefer animal rennet, but vegetable rennet works too. Keep in mind that vegetable rennet is “double-strength” so you’ll be using half the amount you would use if using animal rennet.

**Sea Salt.** While some cheesemaking books recommend [cheese salt](#), which is really kosher flake salt, basic sea salt works just as well, adds a unique flavor to your cheese, and is full of good-for-you minerals.

**Cheese Wax.** Cheese wax is food-grade and pliable. You will have to order this specially, because cheese wax is a special type of wax, not made from paraffin. Cheese wax comes in three colors: natural (yellow,) red, and black. Beeswax can also be used, but it is typically more expensive. Good cheese wax is reusable, which means it can be melted back down and strained to remove particles after you have removed it from the cheese.

The sky is the limit when it comes to the fun you can have with making cheese, and with your new personalized arsenal of tools, you will be well-equipped to cook up a delicious cheesy storm. With these basic items, you should be able to make most cheeses successfully. Other items like blue and white mold cultures, flavor and fragrance enhancers, and special soft cheese molds can be added to your collection later.

# Milk for Cheesemaking: An Overview



When choosing milk for cheesemaking, it helps to have a basic knowledge of the fundamental makeup of milk and the variations within different kinds and forms of milk.

## Parts of Milk

Milk is made up of four main components:

**Water** is the main ingredient in milk. Cow milk is 87% water, goat milk is 88% water, and sheep milk is 82% water. The cheesemaker's goal is to remove a very large portion of the water content within milk to make cheese. The water content of a finished cheese is the primary factor in the shelf life or aging period of that cheese.

**Lactose** is a type of sugar found exclusively in milk and is transformed by the cultures you add during the cheesemaking process into lactic acids and carbon dioxide.

**Lipids** (or butterfat) are fat globules in the milk, which contribute to the opaque white color in milk. Sometimes, vitamin-rich lipids will contain carotene, which will cause the milk to look slightly yellow or orange. The actual level of butterfat in your milk depends on the type of milk you have chosen to use, and it also depends largely on the source animal's breed, weight, and diet within the last week or so. Milk fat is extremely important in the cheesemaking process, for the triglycerides contain 98% of the overall milk fat, and they



will be broken down to free some of those fatty acid compounds that help your cheese develop to its full flavor potential.

**Proteins** within milk consist of whey proteins and caseins, or milk proteins. The most important factor of this duo is the caseins, which will bind together to play a main role in the solidification of the milk during the cheesemaking process. Whey proteins are contained in the yellow, watery whey.

## Types of Milk



**Cow** milk is the most common type of milk used in cheesemaking and is also the milk with the most developed arsenal of recipes and styles of cheese. It is sweet, creamy, and rich with a fat content generally between 3.5% and 4.4%. The lactose in cow milk is usually around 4.5%.

**Goat** milk is slightly different from cow milk, being bit more on the tangy side of milk flavors. Sometimes it can taste like a barnyard, or just plain goaty. Cooling the milk quickly and thoroughly immediately upon milking helps to diminish these flavors and bring out the fine flavor of this milk. Goat milk is around 88% water, 3.9% lactose, and 2.5% proteins. Goat milk can also have a higher fat content than cow milk, but the actual fat globules within the milk are smaller, and stay suspended in the milk more easily, making them rise to the top much more slowly than you will see in cow milk.

**Sheep** milk is a richer milk all around, weighing in at 82% water, 6.5% lipids, 4.5% lactose and 5.5% protein. Sheep milk is richer even than the milk of Jersey cows. It has been

described as golden and fatty, and it can have a bit of a musky sheep flavor, even if it is chilled well. Some very, very excellent cheeses can be made from sheep's milk though. If you plan on getting the milk from your own animal by hand, be aware that they generally give less milk than goats and can be a bit ornery when you go to get it from them. There are a few factors that will affect the milk you have, making the percentages here and the standardized percentages used in fancy cheese formulas vary just a bit:

- Diet of the milk animal
- Breed of the milk animal
- Health of the milk animal
- Milking methods
- Storage methods
- Stage of lactation (how long after calving the milk was produced)
- Time of year

Knowing about the milk you are starting your cheesemaking projects with will help you to foresee any problems or overcome minor issues during cheesemaking and you will be one step closer to achieving a healthy, delicious cheese, whatever the milk may be.



# Choosing Milk for Making Cheese: Raw Milk vs. Pasteurized Milk

We are often asked if you can make cheese using raw milk. Yes you can but if you can't find raw milk, don't let that stop you from making cheese! When it comes to cheesemaking, there are benefits and drawbacks to both raw and pasteurized milks.

## Benefits to Using Raw Milk



*Your milk will be fresher.* Raw milk is usually sold within 48 hours of coming out of the cow. This means a stronger curd and higher yields, since the bacteria and rennet that you introduce have very little bacterial competition.

*Your cheese will have more flavor.* Raw milk is nuanced. Like wine or raw honey, the flavor of milk varies throughout the season. Depending on the type of cheese you make, you'll be able to taste grass, clover, or alfalfa. Raw milk cheese will be sharper and have more of a cheesy "bite" as well.

*You will (often) be able to meet your farmer... and his/her cows.* In several states, raw milk sales are legal "at the farm gate" only. This may seem like a drawback, but it's a benefit! You can get to know your cows and if you want to get *really* meticulous, you can vary the type of cheese you make based on what the cows have been eating.

## Drawbacks to Using Raw Milk

*Availability.* Raw milk is usually much more difficult to find than pasteurized. In some states, you won't be able to find it at all, and in others you may have to drive long distances to pick it up. There are very strict state and federal regulations governing the sale of milk, so even if you find raw milk in your state, the availability may change with or without notice.

*Expense.* Raw milk is not cheap. In most states it is at least twice as expensive to buy raw milk as it is to buy pasteurized.

*Bacterial competition.* Raw milk comes with its own set of beneficial bacteria, and if your milk is a few days old or wasn't chilled down quickly enough after milking, that bacterial count can be high. This means that the culture you introduce to make your cheese could have some hefty competition, which can lead to cheese with an "off" flavor, or cheese that has a different flavor than you expect.

*Risk.* Although most people who consume raw milk do not feel that raw milk is inherently dangerous, there are risks to everything and people have become sick from raw milk on occasion. Aged cheeses shouldn't cause any problems, because it is difficult for pathogenic bacteria to live in something that's aged for over 60 days. But for fresh cheeses, raw milk can carry some risks. Talk to your farmer, do your research, and decide whether or not these risks are worth it.

## Benefits to Using Pasteurized Milk

*It's widely available.* Pasteurized milk can be found at any grocery store... just don't use Ultra High Temperature (UHT or UP) pasteurized milk. Your curd will not set properly.

*It's inexpensive.* In most states, organic milk is \$5 or less per gallon.

*It's a blank slate, bacterially speaking.* Milk that has been pasteurized contains no bacteria, beneficial or pathogenic. This means that whatever culture you add has no competition and can propagate freely. This can lead to a more consistently flavored cheese.



## Drawbacks to Using Pasteurized Milk

*Your cheese will not be as flavorful.* There is just nothing like a delicious, aged raw cheese. Pasteurized cheese cannot compete. A raw cheese is a truly living food, full of enzymes and good bacteria. A pasteurized cheese contains enough good bacteria to turn it into cheese, but it will never have the same amount of flavor and nuance that a raw cheese does.

*Unpredictability.* Your milk may or may not have been pasteurized at a high temperature. If it was heated past 165°F, the proteins are denatured (cooked) and won't make good cheese. The curds will be very soft and may not hold together.

*Risk.* The largest outbreak of dairy-related foodborne illness was in the mid-1980s. Almost 20,000 people became sick with salmonella from improperly pasteurized milk. If something goes wrong with the pasteurization process, or the milk you use has gone bad, there is a potential for illness.

Choosing a milk for your cheese making endeavors can be tough. We urge you to do your research, talk to farmers and other local cheesemakers, and make the decision that is best for your family.

## Rennet and Other Popular Coagulants

Coagulant is a very important ingredient when making cheese, and there are so many different kinds and forms, it can get confusing at times. The most common coagulant throughout history and into the present day is rennet, or rennin, the enzyme found in the stomach of young ruminants that have not been weaned from their mothers' milk. Rennet is essentially an enzyme used to convert milk sugars (lactose) into lactic acid. The lactic acid then acts upon the milk's proteins, getting them to clump together as solids (curds), and separate from the remaining liquid (whey). Of course, there are bacteria already present within the milk itself that will convert any milk into these two forms if the milk is allowed to sit for long enough, but the rennet allows for a faster, more controlled coagulation.

There are many different kinds of coagulant, but here are a few of the most popular forms:

### Animal

Animal coagulant is almost always calf rennet since it is generally accepted that calf rennet produces better aged cheeses. Calf rennet in the old days was produced by killing a calf in the first months of its life and soaking the cleaned stomach in water for a time, after which the surrounding water was used as a weaker form of today's liquid rennet. Some people cleaned the stomach out, filled it with milk, and put little bits of old cheese into it, thereby creating rennet that was a culture and a coagulant. There were also ways of scraping the lining of the stomach or drying the stomach and cutting pieces off to produce stronger doses of coagulant.



Today, rennet is made in a much more industrialized process, but still starts with a stomach of a ruminant. Deep-frozen calf (or, in some cases, adult cow or pig) stomachs are placed into large vats of an enzyme-extracting solution. This makes the surrounding solution into a crude version of rennet extract. The rennet is then activated by adding acid that is similar to stomach acid. Up to this point, the extracted stomach enzymes are in an inactive form and the acid addition “wakes them up,” so to speak. Then, the acid is neutralized and the liquid rennet is filtered several times, then goes through a concentration process until it reaches a very high potency: usually about 1:15,000. A filler such as saltwater is added, so that the

rennet may be used in familiar measurements such as teaspoons, and sodium benzoate or a similar preservative is added as well to prolong shelf life. Rennet is usually diluted even further before you add it to your milk, for most recipes tell you to put it into water before you add it.

Calf rennet comes in liquid, powdered, and tablet form. Liquid rennet may be stored in the refrigerator and is generally the most strong, reliable form. (It is often double strength.) It should also be kept in a darkened environment, because prolonged exposure to light will cause the rennet enzymes to break down. Tablet and powdered rennet must be stored in the freezer and it usually takes a larger volume of dry rennet than liquid rennet to set the same amount of milk. But, tablet or powdered rennet has a longer lifetime and keeps strength longer.

If you buy only calf rennet, tablet or liquid, you will have all you need in the terms of coagulants, since most all recipes call for it.

To use rennet, check the label of the type you have chosen. Rennet that is in a tablet form must be crushed and added to the amount of water called for in the recipe. Powdered rennet is usually (but not always) dissolved before adding to the milk.

## Vegetable

Vegetable coagulants include, but are not limited to:

- Nettles
- Yarrow
- Teasel
- Mallow
- Knapweed
- Bark of the fig tree
- Our Lady's Bedstraw
- Thistle



The fig bark must be made into an extract; an infusion made of Our Lady's Bedstraw or nettle. The rest can generally be used by crushing and straining the leaves to produce a liquid, then that liquid is the coagulant. You would have to check on the specific type of plant you will be using to find out the usable ratio and strength of whichever one you decide upon. Some say that cheese made with vegetable coagulant and aged for a long time may have a slightly bitter taste.

If you are purchasing liquid vegetable coagulant from a cheesemaking supply house, generally it will be an enzyme derived from the mold called *mucor meihei*, and it is usually kosher, or appropriate for use in kosher cheeses. (These are usually listed on the ingredient labels of commercial cheeses as "microbial enzymes.")

Legend has it that some women in Northern Europe claimed that if you fed butterwort to your cows just before milking time, the milk would coagulate within three hours of being outside of the cow. Who knows, it might work!

## Common

You can also coagulate milk with ingredients you can find in your kitchen. Lemon juice will curdle milk, as will vinegar, but neither will produce the clean, firm curd you need for quality cheesemaking, nor are they very strong or effective. These coagulants are generally used in soft cheesemaking with long ripening periods.

## Manufactured

The most popular chemical coagulant is called chymosin and is used most frequently for vegetarian cheeses. It is very popular among industrial large-scale cheesemakers. It is considered high-quality and reliable. Chymosin is manufactured under a number of brand names, such as Chymostar Classic, Chy-Max, and Chymogen. Chymosin is made in a laboratory. The genes that produce natural chymosin found in calf rennet are transferred from the calf cells to prepared bacterial cells. When these bacterial cells reproduce, the daughter cells begin producing a chymosin that is found to be identical to calf chymosin. These cells are now the base for chemical rennet, untouched directly by animal cells.

## Junket

Junket is just a very weak form of rennet, traditionally used to set custards. It is *possible* to set milk with junket, but it should only really be used for soft cheeses because it just isn't strong enough to set a firm curd. Cheese rennet tablets are generally somewhere around five times stronger than Junket tablets.

## A Note about the Water

Also, as a reminder, any water you use to dilute or dissolve your rennet or any other coagulant must be unchlorinated, because the chlorine will kill the enzymes in the rennet. If your tap water is chlorinated or you aren't sure about it, you can use bottled water or distilled water. This rule applies to any additive that must be diluted and added to your milk during cheesemaking.



## Choosing a Water Source



Many fermented foods make use of water in the culturing process. The water can do a variety of important things:

- Water is a carrier for trace minerals that are sometimes important in culturing.
- Sometimes moisture is necessary to the culturing process, and the moisture is provided by water.
- Bacteria, swimming in water, are able to contact the material being fermented.
- Water with other ingredients (sugar, tea) can become the liquid that is fermented to make the final product.
- The material being fermented is protected from oxygen by staying underwater, which prevents the development of pathogenic bacteria or molds.

No matter what you are culturing, it is vitally important that the water you use be clean and free of pathogens or toxins. Beyond that, certain types of cultures have different requirements for water that you should be aware of to get the best results.

Municipal water quality varies around the country, and so does the quality of spring water and well water. Most cultures are pretty forgiving of water quality as long as the water is drinkable.

## Where Your Water Comes From

The water you use for culturing will most likely come from one of four sources:

**Well Water.** Water that comes from your own well, or a well you share with some neighbors. Some municipalities also get their water from wells.

If your water is from a municipal well, there is chlorine, and possibly fluoride, in the water, as well as any other treatment chemicals the utility chooses to add. Private wells are required to be tested for microbial contamination at the time the well is installed, but not thereafter. Well owners should test their water annually for microbial contamination and chemical contamination from nitrates/nitrites, arsenic, petroleum byproducts, radon, or pesticides.

Well water is typically high in minerals, which is good for water kefir, not so good for kombucha, and really hard on your laundry. If the water is particularly acid (pH 7.0 or lower), it can cause leaching of metals from plumbing. If well water is discolored or has an odor, there may be an overly high mineral content from ground contamination or from decayed vegetation.

**Spring Water.** Similar to well water, spring water comes out of the ground and is used close to the source, or bottled for commercial sale. The main difference between spring water and well water is that spring water is collected at the surface of the earth, while well water is collected considerably below the surface. A natural spring is the result of water in an underground source seeping through the ground or rock and bubbling out through the surface.

Spring water is also typically high in minerals.

As a result of having been filtered through earth or rock, spring water is usually considered relatively free of contaminants. However, if the ground it's being filtered through is contaminated, the water itself can be contaminated too. It can also become contaminated in its journey from the spring, through plumbing, to your faucet. Most people do not have springs as a local source of drinking water.

**Tap Water.** Water that comes from a municipal water source. This could be glacier water, well water, river water, or water collected in a variety of ways.

Tap water may be hard (contains minerals including calcium and magnesium), or soft (relatively free of minerals). Since hard water leaves deposits on tile and fixtures, and doesn't do a great job with laundry, many home owners choose to run their water through a water softener that adds salts to remove the "hard" minerals. To find out what is in your tap water, check with your water utility and they can provide you with a water quality report.

Tap water is inexpensive and plentiful, and is almost always of a quality good enough to drink and cook with. It can usually be used "as is" for many culturing projects.

Water that is too "hard" can be a problem for some cultures, while water that is too "soft" can require remineralization for some other cultures. Tap water also usually contains chlorine, chloramines, or fluoride that must be removed for some cultures to work well.

**Bottled Water.** You can buy water in plastic bottles almost anywhere these days. Check the labels: it can be spring water bottled at the source, or water collected from rivers or streams, or even municipal tap water.

Bottled water may have fluoride added to it.

Distilled water is a type of bottled water that has been completely purified and contains no minerals or chemicals of any sort. Water that is sold in fountain machines at supermarkets is usually distilled or purified in other ways, and is free of chlorine, fluoride, minerals, or bacterial contaminants.

## Common Contaminants



Water that is not distilled is rarely pure. Aside from the natural minerals and salts you may find in even the cleanest sources, there are usually chemicals of some sort in your water.

- **Chlorine** is added to most municipal water sources to keep pathogenic (bad) bacteria from reaching the consumer. This is generally a good thing, since the water usually passes through a variety of reservoirs, pipes, and other contraptions before it reaches your faucet. Water can contain all sorts of bacteria or organisms that are easily killed by chlorine. Unfortunately, that chlorine can also kill the probiotics that you are trying to work with. Chlorine is reasonably safe to ingest in the quantities present in drinking water, although some people are sensitive to it.
- **Chloramines** are a compound of chlorine and ammonia. They are more stable in water than chlorine, and are used by many municipalities to ensure the safety of drinking water. Water treated with chloramines has little taste or smell, so this is an attractive disinfectant process for public drinking water. Like chlorine, chloramines are considered safe to ingest in drinking-water quantities, although some people are sensitive to them. Also like chlorine, chloramines can be toxic to some probiotics.
- **Fluoride** gets into water in two ways. It can be naturally occurring, as a trace mineral from the water source, or it can be added by the water utility. Fluoride occurs naturally in fresh water at around .01 to .3 parts per million. The chemical from which fluoride is derived is fluorine, a very common element that bonds easily with practically anything. It's called fluoride in its bonded form. Sodium fluoride, hexafluorosilicic acid, or hexafluorosilicate are generally used to add fluoride to

drinking water, at a concentration of about 1 part per million. There is a tremendous amount of controversy over whether this practice is helpful or harmful. Many municipal water utilities add fluoride to the water. Some do not. Naturally occurring fluoride is rarely a problem in culturing. Added fluoride is generally toxic to young plants, and can also be toxic to certain probiotics.

- **Chemical Waste** can appear in drinking water from a variety of sources. Any chemical waste that is disposed of in drains or on the ground ultimately finds its way into the municipal water supply. Some of it is removed through standard waste treatment, and some shows up in public drinking water. Even well water and spring water can be contaminated if the chemicals are leached into the soil near the water sources. Common chemical contaminants include fertilizers, animal waste, detergents, industrial solvents, pesticides and herbicides, radon, heavy metals, prescription medication, and even decayed plant matter.

## Treatment Methods

If you are getting your water from a faucet, you may or may not need to treat it before using it for culturing. Some probiotics are very sensitive to the type of water you're using, while other probiotics are very resilient and can use almost any sort of water. However, if your water is not of drinking quality, you will definitely need to treat it before using it for culturing.

- **Aeration** is a suitable treatment method if all you want to do is eliminate chlorine from the water. Chlorine is very unstable in water, and if you boil the water or put it in a blender for about 20 minutes, the chlorine will percolate out. Or, you can leave water to stand for 24 hours to accomplish the same thing. Aeration will not remove chloramines.
- **Boiling** will take care of most common pathogens that might get into drinking water supplies. It does not eliminate fluoride, chloramines, or other heavy metals or chemicals.
- **Simple Charcoal Filtration** is what you get with a standard countertop or faucet filter system. Charcoal is made of carbon, which bonds with organic materials to remove them from the water it is filtering. Activated charcoal is charcoal that has been processed to open up many tiny pores in the material making more surface

area available. Filtering water through activated charcoal is one of the easiest and least expensive ways to remove common contaminants such as bacteria, chlorine, chloramines, etc. Charcoal filtration does not eliminate fluoride.

- **Enhanced Filtration** can be achieved with some types of whole-house filters, or more expensive faucet filters. It usually includes basic activated-charcoal filtration, as well as some chemical or barrier filtration. Enhanced filters will remove some particles that activated charcoal doesn't trap, such as sediment, calcium, etc. Some enhanced filtration systems are designed to remove fluoride as well, but may require more frequent filter changes due to trapped fluoride.



- **Reverse Osmosis** requires an RO system that may fit under your sink, or may require a separate installation. Reverse osmosis is basically a process of forcing water through a membrane, which removes all particles that are larger than water molecules, but allows the passage of tinier particles. RO systems usually include pre-filters that remove things like chlorine and bacteria from the water before it passes through the RO membrane. RO systems remove most minerals from the water, and will remove most fluoride.
- **Structured Water / pH-Balanced Water / Ionized Water.** Water that has been treated to alkalize it or to change its structure is not suitable for culturing. Culturing involves a precise interaction of bacteria and the food being cultured. If water is part of that culturing process, the natural structure and balance of the water should not be altered. If your water treatment unit has a setting for “clean water” that does not change the pH and does not alter the water structure, but merely filters out contaminants, then the water can be used for culturing.

## What Kind of Water Do You Need?

Most cultures, such as sourdough, cheese, and fermented vegetables, are pretty resilient, and will safely use any water that is suitable for drinking. The water can be rich in minerals, or completely pure. Many people prefer to use water that is free of chlorine and fluoride, and there is no harm in removing those things from the water before you culture.



## Extra Ingredients Used in Home Cheesemaking

Some of the ingredients seen in some cheesemaking recipes can be confusing and cause the beginning cheesemaker to feel daunted. Please don't let the weird names scare you off from possibly making some wonderful cheeses. The unfamiliar ingredients are usually easy to apply or add, and can aid you in understanding some of the very important changes that happen to milk during the cheesemaking process.

Chemical additions to home cheesemaking generally accomplish one or both of two things:

1. They add back to your milk what industrial safety processes have taken from it. (Or they can re-stabilize something that has been thrown off by those processes.)
2. They make your final product as visually pleasing as possible.

### Calcium Chloride

Calcium chloride is called for quite frequently in a lot of the most popular cheese recipes. It is generally needed when the milk you are using to make cheese has been pasteurized and/or homogenized. During pasteurization and homogenization, the chemical structure of the milk is changed drastically. Those changes include a slight decrease of calcium levels within the milk, destabilizing it. You need that calcium during cheesemaking to help the curds “firm up” to the right consistency for making a cheese that is not waxy or sticky in texture. By adding calcium chloride to the milk before adding your coagulant, you help to re-stabilize those calcium levels. Calcium chloride is a type of salt solution and it is generally stored in the refrigerator, or according to the specific directions noted by your supplier. Kept cold, calcium chloride can usually be kept for about a year.



### Lipase Powder

Lipase is a naturally occurring enzyme found in raw milk. Lipase powder is a concentrated form of that enzyme called for in cheese recipes to create a stronger or sharper flavor in the cheese. It also helps to develop a distinctive aroma. There are two kinds of lipase powder:

Italase (calf enzyme) and Capalase (goat enzyme). Italase is considered to lend a milder sharp flavor while Capalase is stronger and more pronounced, with a sharp, tangy flavor and smell. By using lipase powder (whichever degree of potency required) in combination with certain cultures you can achieve the richness and texture of a goat milk cheese while using cow milk to make it. Like calcium chloride, lipase is added to the milk before the rennet is incorporated. Lipase powder is kept frozen when not in use, and must be used within 12 months.

## **Ash**

Sometimes called activated charcoal, ash is used primarily in softer cheeses. It is a powdered, food-grade vegetable ash. The most common usage is sprinkling it on the outside of the cheese (usually goat milk soft molded cheeses). It helps to create an attractive rind, encourage beneficial mold growth, and hinder bad bacterial action. The ash can be mixed with salt and put into a designated salt shaker and carefully shaken onto the surface of the cheese, or it can be rubbed into the surface gently if your recipe instructs you to do so. All of this must be done with care as the ash is messy and stains on contact. You can use plastic gloves and place your cheese into a plastic tub of some sort to keep the mess contained. As you sprinkle, you can pat the ash onto the cheese's surface to adhere it. Some people use it during the curd-molding process to create striking lines within the center of the cheese, but this technique is usually called for and explained in some of the more advanced recipes. You should follow the usage and storage directions specified by the supplier you order it from.

## **Annatto (cheese coloring)**

Annatto is a form of food coloring used to lend their classic orange color to cheeses such as Colby and cheddar. Annatto is harvested from the seeds of the achiote tree. It can be found in liquid, ground, or paste form. The liquid version is usually available at cheese supply houses, and the ground or paste version can be found at some grocers. It may also be found in some Latin American or Caribbean markets. Annatto works by attaching itself to the casein within the developing cheese. It has no affect upon the ultimate flavor of the cheese. It can also be used as a cheese wash to create an attractive blush upon the rind of a cheese.

The liquid should be stored according to the supplier's directions, and the other forms can usually be stored at room temperature, but check the packaging to be sure.

## Acids

Although rennet is the most popular form of coagulant, some soft cheese recipes use varying kinds of acid to cause or aid coagulation during the cheesemaking process. They are used primarily for making soft bag cheeses. Common acids called for include: vinegar, tartaric, lemon, orange, lime, and citric. Your recipe will tell you what kind of acid you need and usually give directions on when, where, and how to add it.

Review your recipe and all of the directions more than once prior to cheesemaking to make sure you have all of the ingredients that you will need on hand and so that you can familiarize yourself with them and the reasons and ways they are used. By adding the various ingredients your recipe tells you to add, you can be more assured your cheese not only will turn out well, but will be more likely to match the pictures and specifications of the recipe.



## Sanitization during Cheesemaking



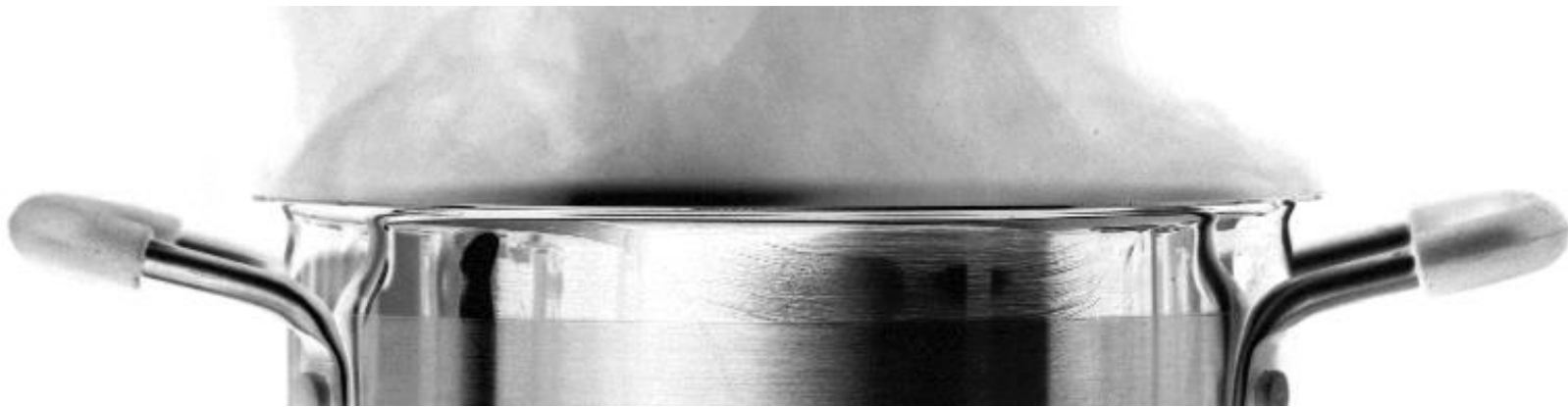
Making cheese at home in your own kitchen is a rewarding experience. Not only is it fun to do and full of endless possibilities, but the resulting cheeses are healthier, tastier, and just plain better. Making cheese relies largely on bacteria (natural, or added, as with a starter) changing and flavoring your milk. But these bacteria must be the right kind of bacteria, and you don't want to make them have to battle against the "bad guys"; namely, the bacteria found in or on unsanitized countertops, pots, bowls, or utensils. By causing a beneficial vs. harmful bacteria "war" in your cheese, you may end up risking the health of your cheese eaters, and/or cause the resulting cheese to be bland or underdeveloped, or just plain bad. Most home cheesemaking failures can be attributed to unclean milk handling procedures, poor sanitizing of equipment, or cross-contamination of the cheese with foreign bacteria at any stage during the process.

Following these few simple steps will help make sure that your work area is clean and sanitized.

Fill an atomizer with water and add about 1 capful of household bleach to it. Spray this mixture onto your countertops, the stove, and the sink if you will be using it. Allow it to sit for about one full minute, then wipe it off using paper towels. Keep this spray and a roll of paper towels close by during the actual cheesemaking process, because they can be used to wipe up spills or to periodically re-wipe surfaces between steps.

Sanitize your pots and utensils. There are lots of ways to go about this, but it's effective to wash your pot and all the utensils you will be using in very hot, soapy water. Then rinse

them in clear, cold water. Fill your cheese pot about half full of clean water, and put all the metal utensils (excluding the thermometer) into it. Put the pot on the stove and bring it just to boiling, then turn it off and cover it. Anything else that needs to be sanitized but cannot be boiled, like plastic tools, can be sterilized by filling a 5-gallon bucket about 2/3 full of clean water and adding two capfuls of bleach to it. Stick your un-boilable stuff into this bucket for about 10 minutes. After pulling your utensils out of the bucket, you will need to rinse them under clean, running water quickly, because bleach residue may harm your cultures or your rennet during cheesemaking. Keep this bucket of bleach water on hand during the entire cheesemaking process to put utensils in if you won't be using them for a longish period of time, but if you do this you will have to remind yourself to always rinse anything that comes out of that bucket. Keep a large, clean towel spread out on the counter to place sanitized tools on until you are ready to use them.



If you are using re-cleaned cheesecloth (meaning you used the cheesecloth previously and cleaned it), you should dip it into your cheese pot of boiling water, unless you kept it in a tightly sealed container or plastic bag. Cheesecloth dries out very quickly: you can just hang it on a cabinet handle, a towel rack, or a curtain rod and it should be dry within 30 minutes.

These next items aren't sanitization steps, just tips to help you maintain the sanitization of your cheese work area and keep your cheese healthy and happy.

- Don't wear any perfume, body spray, or fragranced lotions while making cheese, as they might cause an off flavor in the cheese.
- Don't allow pets into your kitchen while you are making cheese.

- Try to keep countertop clutter to minimum. This is easy if you are rinsing your tools as you use them, and wiping down the surfaces as you go.
- Keep a few clean kitchen towels on hand for keeping your hands dry and clean.
- Don't try to cook something else while you are making cheese. This may cause you to not pay enough attention to your developing cheese, or it may cause cross-contamination.
- Wash your hands whenever you touch something not cheesemaking-related to avoid adding any off flavor or harmful bacteria to the cheese.

By implementing a basic sanitization routine at the beginning of every cheese project and following simple rules during the cheesemaking process, you will be one step closer to assuring your ultimate success, resulting in a very tasty cheese.



# **GETTING STARTED**

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## the basics of cheesemaking



## Beginning Cheesemaking: Where to Start



As you first start making cheese at home, it can be confusing and somewhat overwhelming to learn how many different types, styles, and variations of cheese there are.

When you are deciding what to try first, pick cheeses that are forgiving when it comes to temperature variation and time discrepancies, because you should not be trying to keep every degree and second just right while you are learning the basic techniques like sanitization, handling new cheesemaking tools, measuring, incorporating ingredients, cutting and draining curds, and all the other things you just aren't used to yet. Your first cheese will most probably not be just right. It might not look just like the picture; it may not taste like anything you can buy in shrink-wrap at the grocer; but it will be your cheese, and in making it you will have gotten to know a few of the fundamental processes that cheesemaking entails.

Fresh, unripened soft cheese is a good place to start, because it involves the basic processes without getting into the molding and pressing process. (This is also good if you haven't purchased a cheese press yet.)

**Good beginner soft cheeses include:**

- [Lactic Cheese](#)
- [Fromage Blanc](#)
- [Lemon Cheese](#)
- [Queso Blanco](#)

- [Cream Cheese](#)
- [Whole Milk Ricotta](#)
- [Farmer Cheese](#)



These are all great-tasting cheeses that are good starting places and will stay in your arsenal of recipes as you move forward into more advanced cheesemaking because of their versatility and snackable goodness.

If you are more interested in starting right into the hard cheeses, here are a few good ones that will be easy while also helping to teach you the ropes.

- [Cheddar](#) (Traditional cheddar is time consuming and can be more difficult, so try a farmhouse cheddar or a stirred-curd cheddar)
- [Colby](#)
- [Derby](#)
- [Gouda](#)

These cheeses are all ones you have probably heard of, and they are generally mild with shorter aging periods. You can also try out some other techniques on these cheeses. Colby and cheddar are great smoking candidates, and gouda can be brined, depending on your recipe.

The lists here are by no means the only good starts, so look around. Whatever cheese you choose to begin with, just don't stress yourself out. Cheesemaking should be a creative and enjoyable task. So just have fun making some delicious, one-of-a-kind cheeses!

## Introduction to Soft Cheese



Soft cheese is a healthy cultured food that is as versatile as is delicious. It is a high-moisture, spreadable cheese that is eaten fresh. Soft cheeses such as cream cheese and mascarpone can easily be used in recipes, or stirred into granola, or dolloped on top of pasta, salad, or warm bread. These cheeses have a moist, creamy consistency and can easily be considered a culinary *tabula rasa* because of the wide range of things you can stir in to make the flavor your own. Fruit, nuts, veggies, herbs: anything can be added to a soft cheese to make spreads, dressings, toppings, or afternoon snacks.

Making soft cheese is a great option for beginning cheesemakers because it requires little equipment, ingredients, or attention. Soft cheese is sometimes called “bag cheese” because it is usually drained of whey in a sack made of butter muslin. Soft cheese is best made in a kitchen with a steady, moderate temperature, around 72°F. Higher temperature or excessive humidity will promote yeast growth, which in turn will affect the taste of the cheese. Yeast-affected cheeses will taste gassy, off-flavored, or even fruity. If the temperature in your kitchen drops too low, it will impede proper drainage of your soft cheese.

One gallon of milk will generally produce between 1-1/2 to 2 pounds of cheese, depending on butterfat content. The more butterfat in your milk, the more cheese you will produce.

### Three Basic Steps to Making Soft Cheese

Making soft cheese at home is easy and affordable. Start with room-temperature fresh milk. You can make soft cheese with goat, sheep, mare, cow, or buffalo milk.

If the recipe says to heat the milk before culture addition, it's most successful to heat it indirectly. This can be achieved by a water bath method, or by use of a double boiler. If you are heating a large quantity and cannot do an indirect heating method, make sure you stir the milk frequently, and constantly once it approaches its final temperature, to avoid scorching.

To add powdered culture or starter, sprinkle it over the surface of the milk, allowing it to rehydrate for a few minutes before stirring it in with a cheese spoon in steady up-and-down motions. To add an acidic starter, such as lemon juice or vinegar, pour it through the holes in your cheese spoon into the milk and incorporate it using the same long and steady up-and-down motions.

Sometimes a recipe will call for a small amount of rennet for firmer curd coagulation. Add it in the same manner as you would an acidic starter.

Once the curd has formed, disturb it as little as possible until you are ready to drain it. Messing with a developing curd will cause it to lose crucial butterfat, and this will lessen the quantity and the quality of the resulting cheese.

To make a draining sack to drain cheese, you will need a clean colander and about a yard (more or less) of butter muslin. Place your colander into a slightly larger bowl, and drape the muslin over the colander. Either spoon or pour your curds into the muslin-lined colander, depending on the recipe's instructions. Once you have gathered all the curds into the colander and are ready to drain, tie the corners of the muslin together to make a sack, and use a wooden spoon or a sink faucet to suspend it over a bowl for the duration of the draining period.

Once the curds have drained sufficiently, scoop them into a plastic container, preferably with a lid. Add salt or anything your recipe requires, and cover the cheese tightly before placing it into the refrigerator. The average staying time for a fresh soft cheese is 1 to 2 weeks, covered, in the refrigerator.

## How to Flavor Soft Cheese

Soft cheeses are some of the simplest, and will probably be the first cheeses you make. However, simple doesn't mean boring! Soft cheese can be an amazing party treat, a delicious appetizer or lunch, and can even be used for dessert. With a little salt, some seasonal or dried herbs, or a drizzle of honey, you can turn simple soft cheese into everyone's favorite. Here are a few ideas to get you started.



**Basil and tomato cheese:** Mold your cheese into the shape of a log, using your hands or one of our molds. Slice into rounds and add fresh basil leaves and tomato slices. Drizzle with olive oil and a pinch of sea salt, and serve with toasted sourdough bread.

**Tarragon and chive cheese:** Roughly chop a few sprigs of fresh tarragon and a handful of chives. Add to cheese and mix. Serve on top of chicken with roasted green beans and a glass of chilled white wine for a romantic summer dinner.

**Cheese and shellfish dip:** Add shrimp, crab, or chopped clams (drained, if canned) to cheese. Serve in a pretty bowl with crackers, cocktail sauce, and lemon wedges.

**Spinach dip:** Mix cheese with chopped spinach, minced garlic, and a few tablespoons of sour cream or cultured buttermilk. Melt in a low oven or crockpot and serve with celery and carrot sticks. Or use as a filling for stuffed mushrooms.

**Easy cheese dessert:** Place a wedge of soft cheese on a plate, and surround with fresh or frozen berries. Drizzle with honey or maple syrup for a fabulous, low-carb, protein-rich end to any meal.

**Vinegar cheese “pancakes”:** Mix 1/2 pound of freshly drained vinegar cheese (e.g., queso blanco) with two eggs, and a little sea salt. Press into patties and fry in butter for breakfast. Serve with fruit.

**Spicy cheese:** Add diced jalapenos, 1/2 teaspoon of ground cumin, and some chopped cilantro. Use as a topping for tacos or a filling for enchiladas.

**Veggie cheese:** Finely dice carrots, celery, parsley, and sweet onions and mix with cheese. Spread inside bell pepper wedges, or use as a topping for scrambled eggs.

**Horseradish cheese:** Add up to a tablespoon of grated horseradish root to soft cheese. Serve a scoop on top of steak or prime rib.

Soft cheeses are also great in grilled cheese sandwiches, as icing for carrot cake, on bagels, as an omelet filling, or topped with homemade jam. Let your imagination run wild! Add soft cheese to anything that could use a little extra body and creaminess. Try it on pasta or spaghetti squash, as a topping for grilled summer veggies, or as a filling for cream puffs or cannoli. Above all, remember to have fun and experiment! In time, soft cheese might just become one of your favorite ingredients.



# Techniques and Tips for Adding Ingredients in Cheesemaking

## Adding Cultures



MESOPHILIC DIRECT SET STARTER  
CULTURE MM 100



MESOPHILIC AROMATIC TYPE B STARTER  
CULTURE



FLORA DANICA MESOPHILIC STARTER  
CULTURE

**Dry direct-set cultures** generally come in little foil or paper packets. Hold the unopened packet by one edge and flick it hard a few times to get the contents to collect on the bottom. Cut the packet open carefully with clean scissors. Sprinkle the cultures over the surface of the milk. Cover and let the cultures just sit on the top of the milk for around 5 minutes to allow them to rehydrate. Then, use your perforated cheese spoon or a large whisk to stir them in gently. Stir the milk with an up-and-down motion rather than a circular one, because this helps the cultures get right to the bottom of your pot and it also mixes in any butterfat that may be rising if you are using farm-fresh cow milk. (Cultures tend to rise with cream.) Stir in this manner for 1 to 2 minutes, or as long as your recipe specifies. Once you are done mixing the cultures in, cover the pot and don't disturb it for the duration of the ripening time, as any agitation in the milk during this period slows down acidification, which may damage your cheese.

**Prepared starters** are generally added in much the same way, excluding the rehydration part. Stir them in using the same methods, and don't bother them afterwards.



## Adding Colorings, Lipase, Calcium, and Mold Powders



**Color** is usually added to milk before the ripening period and before the renneting, because it can damage the coagulation properties of the rennet if added later. Any dilution with water must be done with unchlorinated water, for chlorine will harm the live cultures in the milk and possibly kill the rennet enzymes, too. Add coloring by pouring the diluted coloring agent of choice through your perforated spoon into the milk. Stir with a gentle up-and-down motion for a minimum of 30 seconds. If your recipe doesn't specify the dilution ratio, it is generally along the scale of 1 part coloring to 20 parts water. Your milk won't take on much of a deep color yet, because of the high water content within the milk, but once you drain and press the curds the color should develop nicely.

**Calcium chloride** is usually added when you begin heating the milk. The most common ratio is 1/4 teaspoon per gallon of milk. You can incorporate it in the same way you do the cultures and coloring, and continue with your recipe as directed except that after you have added the rennet, allow the milk to set for 4 to 5 minutes longer than called for. Then carry on with your recipe as before.

**Lipase** is a powder that is dissolved in water (unchlorinated) and added at your recipe's direction. Just let the dissolved lipase sit in the water for about 20 minutes before incorporating it into your milk, to allow it to rehydrate properly.

**Bacteria and molds** are added according to the recipe you are using. Here is a short list of a few most popular:

*Geotichum Candidum*: This mold comes as a powder and is added to the milk together with the white mold powder called *Penicillium candidum*, in a ratio of 1 part *Geotrichum* to 5 parts *Penicillium*. These are added to the milk at the same time you add the cultures.

*Penicillium Roqueforti*: This is a mold that is rehydrated and incorporated into the milk at the same time you add the cultures, or you can also sprinkle it across the surface of the cheese during the molding process.

*Bacteria Linens (Brevibacterium linens)*: This particular kind of bacteria is added directly after you have stirred in the cultures.

## Adding Coagulants

This is also called renneting and is done after you have added the cultures and the milk has had time to ripen. After renneting, the milk is left to set, or to coagulate and separate. Rennet, or any coagulant, must be measured carefully. Too much rennet will cause the curd to be too firm and rubberlike, and not enough may cause the milk to not separate properly. Also, rennet is always diluted. Undiluted rennet will not distribute properly in the milk, and may damage your curd-setting and/or produce a bad curd. Rennet is diluted in 20 to 50 times its own volume of cool, unchlorinated water, or whatever your recipe directs. Powdered rennet should be allowed to sit and rehydrate for around 30 minutes before using for best results. You can crush a rennet tablet with the back of the spoon, and you should generally allow for the same amount of rehydration time as with powdered rennet.

To add rennet, pour the diluted mixture through a perforated cheese spoon into the milk to help distribute it evenly, then use the cheese spoon to begin stirring the milk slowly in an up-and-down motion. Make sure you stir right down to the bottom of the pot. Your recipe may tell you how long to stir, but continuing to stir for about a minute or so is usually good enough to disperse it evenly. Once you are done mixing in the rennet, cover the pot and don't stir it again for the rest of the coagulation period, for if you do you will damage the developing curd and cause severe loss of butterfat, and break the separating process within the milk.

Sometimes the recipe will say to “top stir.” This just means to bring your spoon up to the top 1/2 inch or so of your milk and stir just that top layer of milk for a time with your perforated spoon to make certain that any risen butterfat has been re-incorporated thoroughly.

## How to Cut the Curd

Little Miss Muffet, what **are** curds anyway?

Curds are the white, solid, coagulated milk protein that separates from the whey in milk after the adding of a coagulant such as rennet or vinegar, or by natural bacterial activity in milk left out at warm temperatures for a time. Cutting the curd is an essential step in the cheesemaking process, for it provides more surface area for continued drainage of the whey. Therefore some recipes will tell you to cut the curds bigger to achieve a moister cheese, and some will instruct you to cut them into smaller pieces, making a drier cheese. Most good recipes will specify the size needed for the particular style of cheese being made.

You will need a curd knife: a long, blunt-ended knife that will reach to the bottom of your pot without immersing the handle. It will have to be non-reactive, preferably stainless steel. You can purchase a perfect curd-cutting knife from a cheesemaking supply house, or you can rummage in your kitchen and find one that will do the trick. As with all your tools, it will need a good washing in hot, soapy water (perhaps with a bit of bleach added to it), and a rinse in clean water, after which you can air-dry it on a clean towel until you are ready to use it.

Before you begin cutting the curds, your recipe might tell you to check for a clean break. This is the point when coagulation is complete. To check for a clean break: Using your finger, a nonreactive spoon, or a plastic spatula, press lightly on the surface of the curd until it breaks under you, or make a small slice in the surface. Scoop your finger or tool upwards, and examine the whey that rushes in to fill the cut. If it is clear and yellow, you have achieved a clean break. If it is whitish, cloudy, or milky, you will need to wait a bit longer and check again.

When you have achieved a clean break, you are ready for curd cutting. Take the sanitized curd knife, and note the curd size called for in your recipe. Begin making vertical, uniform cuts from the top of the curd clear to the bottom of the pot and all the way across the surface of the curds. Turn the pot 90 degrees, and repeat the process, making a checked pattern on the top. Then, following the cuts you have made, turn your knife to a 45-degree slant and cut through the curds again in the same fashion, from one side of the pot to the other. Now turn

the pot 45 degrees, and continue making angled cuts, but now you will work diagonally to the checked pattern previously made. Turn the pot 45 degrees again, and make another set of angled cuts. Do it one last time: turn 45 degrees and cut. Now, take your cheese spoon and gently stir the curds to bring the bottom curds to the top, and cut any large ones down to size.

Recipes for softer cheeses will sometimes tell you to use a ladle or a cheese spoon to cut slices out of the curd and scoop them straight into a waiting colander. This is the case with lactic and some other soft formed cheeses. Always check your recipe for special instructions on cutting curds, and remember that curds must be handled gently, for they are prone to sticking together (matting) and/or excessive loss of butterfat.

## Making a Mother Cheese Culture Using a Direct-set Starter



By making and preserving your own mother culture (also called a prepared starter), you can effectively inoculate many gallons of cheese, with just a bit of care and know-how.

Traditionally, a prepared mother culture was made from the leftover whey from a previous batch of cheese. Through time, starters were propagated from one batch to the next, creating a distinctive strain with a distinctive taste that then became its own style of cheese. Dairies that were making good cheese isolated the strains of culture from their cheese, which are kept pure by the companies we purchase starters from in the present day.

The powdered direct-set starters you buy from cheese supply houses have a frozen lifetime of up to two years, with a refrigerated life of as little as two months. Your own cheese starter prepared at home can be made and perpetuated by using remnants from the last batch to make the next one, much like a sourdough bread starter. Normally, a prepared starter can be continued in this manner for up to six months with proper attention to sanitation, which is very helpful for those not using a freezer or with limited electricity options.

When you make a mother culture, you are exposing a lab-treated strain to an unsterile environment, then freezing those cultures. As with any homemade starters, over time you may begin to develop a distinctive taste that will depend on the airborne bacteria found in your climate. And also like other starters, that doesn't mean it has "gone bad"; it just gets wilder because of the all-new bacteria found in your environment introducing itself into your starter. If you like that taste, just keep it going until you don't like the taste. While it can be a

very useful skill to propagate your own mother cultures and develop your own cheese profiles, you should keep in mind that it can be a finicky thing, and if at first you don't succeed, try, try again.

Not all types of culture you can purchase are good choices for starting your mother culture with. You will need a good, hardy strain with which to begin your own mother. You can make both mesophilic and thermophilic mother cultures. The process of making and storing your mother culture is much like canning preserves or jelly. You should follow the general cleanliness rules that apply to any cheesemaking or canning process, for the cleaner you keep things while making your mother culture and any time you deal with it in the future, the surer you can be that you are going to get the maximum lifetime out of the cultures.

## **Making a Mesophilic Mother Culture**

This recipe makes one quart of prepared starter, but it can be multiplied as many times as you like.

- Sterilize a one-quart canning jar with its band and lid by boiling it in a covered pot for 5 minutes.
- After the sterile jar has cooled a bit, fill it with skim milk to an inch below the rim of the jar. (Skim milk or low-fat milk must be used, for the cultures tend to rise with cream if it is present in the milk.) Screw the lid on tightly.
- Place the jar in a water-bath canner, or a large, deep pot. Fill the pot until it covers the jar(s) by about 1/4 inch. Put the pot on the stove on high heat until it boils. When it begins to boil, start timing it, and let it boil for 30 minutes, then turn off the heat.
- Remove the jar from the pot of water and allow it to cool to 72°F. You can remove the lid and monitor the milk's temperature with a thermometer, but ensure that the environment stays clean during this time to avoid contaminating the milk.
- Once the milk reaches 72°F, inoculate it with 1/4 teaspoon of mesophilic culture. Quickly put the lid on and swirl the jar to incorporate the cultures.
- Maintain the closed jar of milk at around 72°F for 15 to 20 hours for ripening. Check the jar at 16 hours for coagulation, and if it hasn't fully ripened yet, leave it for another 8 hours or so. Proper coagulation has been achieved when the milk is between the consistency of pancake batter and yogurt. It may separate from the



sides of the jar and be shiny. When the milk has fully coagulated, taste it. It should be acidic and a little sweet.

- Once the milk has properly ripened and passed the taste test, chill the jar(s) immediately. You can keep the starter in the refrigerator for up to three days without using it. But if you don't plan on using it to make cheese within that time, the best thing to do would be to freeze it.

## **Making a Thermophilic Mother Culture**

- Sterilize a one-quart canning jar with its band and lid by boiling it in a covered pot for 5 minutes.
- After the sterile jar has cooled a bit, fill it with skim milk to an inch below the rim of the jar. (Skim milk or low-fat milk must be used, for the cultures tend to rise with cream if it is present in the milk.) Screw the lid on tightly.
- Place the jar in a water-bath canner, or a large, deep pot. Fill the pot until it covers the jar(s) by about 1/4 inch. Put the pot on the stove on high heat until it boils. When it begins to boil, start timing it, and let it boil for 30 minutes, then turn off the heat.
- Remove the jars from the pot and allow the milk to cool to 110°F.
- Inoculate the milk by adding 1/4 teaspoon of starter per quart. Quickly replace the lid and swirl the jar to incorporate.
- Keep the milk at 110°F for 6 to 8 hours, or until it becomes a yogurt-like consistency.
- Once the milk has properly ripened and passed the taste test, chill the jar(s) immediately. You can keep the starter in the refrigerator for up to three days without using it. But if you don't plan on using it to make cheese within that time, the best thing to do would be to freeze it.

## **To Freeze the Mother Culture**

- Clean and sanitize two or more plastic ice trays. Spoon the culture into the trays with a sterile spoon, or pour it from the jar. Fill all the cube trays with your starter and freeze them solid in the coldest part of your freezer.
- After they are solid, remove the cubes from the trays (trying your best not to touch them with your hands or anything else that is not scrupulously clean) and put them

into airtight freezer bags. Label the bags with the name of the starter and the date it was made. These bags will keep in the freezer for up to one month, after which they may still be viable, but their strength will begin to degrade. Each block is about one ounce of starter.

To make a new mother culture from a previous batch of mother culture, when the directions tell you to add the powdered direct-set culture to the cooled jar of milk, just add 2 ounces of mother culture from the previous batch, then continue with the rest of the directions.

## Troubleshooting

Sometimes you might have problems getting your mother to set properly, or it might come out tasting a bit off. Here is a quick list that may help you pinpoint the problem.

- If the taste of your starter is slightly acidic, or sharply so, or it has a metallic tang to it, it may be over-ripened. Next time, decrease the ripening temperature by about 2 degrees, and see if that helps. If it doesn't, you can also try decreasing the amount of starter you add just slightly.
- If your mother ever comes out bubbly or carbonated, throw it out immediately. The bubbles are gas produced by yeasts and/or coliform bacteria, which come from unclean milk or unsanitary equipment.
- If you have problems getting your prepared starter to coagulate, the cause may be one or a few of the following:
  - The milk you used contained an antibiotic given to the cow that produced it, which then transferred to your milk. Some dairies are required to treat their cows with chemical medications, which then medicate the milk.
  - Bleach or strong detergent was not rinsed properly from your tools.
  - The starter you used was inactive, meaning the live bacteria in it have died.
  - The temperature was not properly maintained during the ripening period, either dropping too low (which is more likely) or getting higher.

Care for your mother culture and attention to the utmost cleanliness when handling or using it is very important. Usually recipes will give you a prepared starter equivalent when specifying how much starter you need for a cheese, but a good rule of thumb is that 4 ounces of a mother starter is equivalent to one packet direct-set cultures.

# Wrapping and Storing Different Types of Cheeses



Once a cheese has been cut into, it can be a bit tricky to properly store what's left, especially if you have cut a [waxed](#) or bloomy-rind cheese. Here are some tips:

## **Hard Waxed Cheeses**

Wrap the remaining portion of the cheese loosely in [waxed paper](#), then in plastic wrap. You can then place it into a covered container and keep it either in the ripening area or in the refrigerator.

## **Cheeses Packed in Brine**

Cheeses that must be stored in brine should stay in brine when not being eaten. Cut your portion out and replace the cheese into the brine. You can use a zipper-style bag to keep the cheese packed in brine. If the brine gets cloudy, make new medium brine to store it in.

## **Vacuum-sealed Cheeses**

Keep vacuum-sealed cheeses in an airtight container with a lid or a zipper-style bag.

## **Surface-ripened or Bloomy-rind Cheeses**

Keep surface-ripened cheeses loosely wrapped in cheese paper. Or, you can use a container with holes drilled in it. Just remember that these cheeses need to breathe, and store appropriately.

### **Washed-rind Cheeses**

These cheeses are best when they are wrapped in cheese paper and/or stored in boxes. If you cannot find a suitable box, you can just cover the cheese paper wrapping with plastic wrap.

### **Blue Cheeses**

Keep these mold-ripened cheeses away from oxygen to avoid overgrowth of the blue mold. If you keep the cheese stored at a temperature lower than 40°F, you will successfully retard the growth of the mold. These cheeses can be wrapped in plastic wrap then tightly wrapped in foil.

## Cheese Storage and Aging



For the average home cheesemaker, the toughest part of making cheese is aging it. Some people are fortunate enough to live in old homes with a damp, cool basement or cellar, and some families have a member who is handy enough to dig out a cold storage shed and line it with shelves for cheese. Many of us, however, are not so lucky.

Aging and storing your cheese does not have to be complicated, expensive or time-consuming, however. With a little knowledge and some basic equipment, you can create your own tiny cheese cave, right in your kitchen.

The first (and best) option for storing cheese is a wine refrigerator. You can often find these on second-hand for less than \$100 and they are just about perfect for aging cheese. Try to find one with a temperature control feature.

Once you have your wine refrigerator, the next thing you'll need is a thermometer. A cheese or meat thermometer will not work in this scenario; you need one that measures ambient temperature. A basic room or porch thermometer will work just fine, and some wine refrigerators come with one.

Next, think about humidity. Cheese likes to be aged at about 55° to 65 F, with about 70% humidity. You can put a bowl or glass of cool water, about half full, inside your wine refrigerator and keep it there. If it needs filling, fill it. Make sure to toss it out if it gets moldy or gross; you don't want any stray bacteria contaminating your cheese.

Keep the shelves of your wine refrigerator clean; wipe with white vinegar occasionally and try to keep various types of cheeses together, to avoid as much cross-contamination as possible. Also, remember to check on your aging cheeses every other day or so. Rub them with olive or coconut oil if they start to feel too dry, and rub off any unwanted mold with a clean rag dipped in white vinegar.

If you don't have access to a wine refrigerator, or if buying one is outside your budget, there is another option: the crisper drawer of your refrigerator. It is small, and you will only be able to age 1 to 3 cheeses at a time. It also can be tough to control the temperature and humidity. But it will work if you are careful.

The first step is to get that crisper drawer thoroughly emptied and cleaned out. Use a bleach solution for this; there are just too many opportunities for contamination in a refrigerator. Line the bottom of the drawer with a clean rag or paper towels.

Next, get a small jar or glass and fill halfway with water. This will help keep your drawer more humid. If you have humidity and temperature control on your drawer, turn it to the most warm and humid setting.

If you possibly can, keep your refrigerator on its warmest setting as well. Don't sacrifice the rest of your food for the sake of your cheese, of course, but warmer is better where cheese is concerned. Cheese will take longer to age with this method because the temperature in a refrigerator, even on its warmest setting, is significantly colder than the temperature in a wine refrigerator or basement. You may want to consider adding lipase to your recipes to help it along. Remember that when using lipase, the curd will be softer and you may need to use a few extra drops of rennet to compensate.

When using your crisper drawer as a cheese cave, you will need to keep an especially close eye on humidity and look daily for signs of cross contamination. Wax can also help if you find that your cheese is getting too dry.

Now comes the hard part... waiting for your cheeses to be done!

Aging cheese can be a complicated process, but it's worth it when you bite into that first slice of homemade cheddar. Whatever method you choose for aging, just remember to check your cheese often. Like any fermented product, it thrives on attention.

## Pressing Hard Cheeses

Pressing cheese is a process that expels remaining moisture and improves the final texture, creating a firm rind on the outside of the cheese and a smooth, uniform consistency within. It gives the cheese the traditional wheel shape, and readies it for aging.

There are many different types of [cheese presses](#) available online and through cheesemaking supply shops, and there are countless plans for building your own press, using many different methods and tactics. But the fundamental steps of cheese pressing generally stay the same.



The mold or press is lined, usually with [cheesecloth](#) or [butter muslin](#). The press is then filled with curds, sometimes warm curds, as with cheddaring, and the tails of the lining are then folded over the top of the curds. A *follower*, which is a piece of wood or plastic that fits down inside of the press, is then placed atop the curds to distribute the force of the press evenly over the cheese curds. Then pressure is applied, either with a viselike device that is cranked down until the desired poundage of pressure is reached, or by placing heavy things on top of the follower, until the cheese is pressed sufficiently. A draining tray or something similar is usually present to catch expelled whey.

Filling the press with curds must be done carefully to ensure the cheese is as even and uniform as possible. Sometimes it helps to dampen the cloth that lines the press so it will be easier to handle and will stay put. Begin ladling the curds into the press, making sure to get them in evenly. Pull on the cheesecloth to get rid of unnecessary bunches and folds. You can press the cheese a bit with your hands, to get rid of empty spaces and uneven places. Fold the tails of the cloth down over the top of the curds, trying not to make any folds that will indent the surface of your cheese. Getting it perfectly smooth is probably not achievable,



but you can cut some of the cloth to help make it more workable if you want. Place the follower on top of the covered curds and you are ready to begin applying pressure.

The amount of pressure applied to pressing cheese is measured in *psi*, or pounds per square inch. The amount of pressure applied to a particular cheese depends on the type of cheese, the moisture content desired, and the size of the cheese. A purchased cheese press will usually have a scale that tells you how much pressure is being applied to the cheese. In absence of this, you can use a scale and measure things like jars or jugs of sand or water, cans of tomato sauce, etc. When you have found an object the right weight and size to press your cheese, make sure the outside of it (like a can or jar) is sanitized before you use it. Just place whatever it is you have found to be the right weight on top of the follower for the duration of the specified time period. (Remember you will be calculating pounds per square inch, not just direct weight.)

Your cheese recipe will tell you how much pressure for how long; for example: “Press at 10 pounds of pressure for 15 minutes.” It will also probably tell you to pull the cheese out of the press partway through the pressing process so that you can flip it, ensuring that the moisture within the cheese does not settle and that the pressure is applied evenly to both sides of the cheese. Sometimes you will flip the cheese many times during the pressing process. To flip the cheese, release the pressure of the press and pull out the follower. Using the tails of the cheesecloth or butter muslin that is surrounding the cheese, carefully pull the cheese out of the press. Your cheese may still be very delicate, depending on the amount of pressure that has been applied to it at this point, so handle it with care so as not to break its shape. Peel away the cloth, invert the cheese, and re-wrap it. Slide it back into the press and fold the tails of the cloth over it as before. Replace the follower and reapply the pressure as directed.

Once you have finished pressing the cheese, pull it out, peel away the cloth, and place it somewhere dark and away from drafts to air-dry for as long as your recipe specifies.

## Waxing Hard Cheeses



Waxing cheese is a simple method used to protect hard cheese from airborne bacteria, unwanted mold, and excessive drying. Waxing is used on cheeses with aging periods of only a few months, while cheeses aged for any longer than four or five months are usually bandaged. Waxing is generally used on semi-hard and hard cheeses.

Waxing cheese consists of two steps. Liquefied wax is applied first, usually with a brush, then the cheese is dipped into a pot of melted hard cheese wax. Hard cheese wax is a food-grade paraffin-based wax that can be purchased in 1 to 2 pound slabs, plenty enough for coating many, many cheeses. Cheese wax can be reheated and strained to be used again and again.

Waxing cheese can be a messy process, so before you begin, cover any countertops you will be using with parchment or wax paper. Use disposable utensils (plastic spoons and butter knives, paper towels, etc.) whenever possible. You might want to wear gloves, although that isn't necessary. An oilcloth apron might also be a good idea, if you have one. Cleaning up wax messes can be frustrating, so it's easier to take the time to prevent the messes in the first place. Don't pour any wax down your sink drain. It may damage your plumbing.

It will help to chill your cheese for 10 to 12 hours before beginning.

Using a cookie rack placed over wax paper, begin coating the surface of the cheese with liquid [cheese wax](#), using a designated [pastry brush](#). Let each side dry before turning the

cheese to apply wax to another side. After it is fully coated, leave it to dry for about 1 to 2 hours. Chill the coated cheese after it has dried, placing the rack into your refrigerator and turning the cheese once every 12 hours. Leave the cheese in the refrigerator for about 4 to 6 days before hard waxing, continuing to turn periodically.

To begin hard waxing, pull the cheese out of the refrigerator and let it warm to room temperature. Place 3 to 4 ounces of solid wax into a [stainless bowl](#) set into a pot of simmering water, or a double boiler. The melted wax should be about as deep as half the diameter of your cheese. Add more wax to the pot/bowl if needed.

Once the wax is fully melted, hold one side of the cheese and dip it into the melted wax, holding it there for only about 3 seconds. Pull the cheese out and allow the wax to harden for about 30 seconds, then repeat the process with the other side of the cheese, holding it in midair for about 30 more seconds to harden. Place the waxed cheese on a square of wax paper and leave it there to harden for about an hour.

You can use the pastry brush you used for applying the wax to touch up any problem areas by dipping the brush into melted hard wax and brushing it on. To clean this brush, run boiling water over it, being careful to catch the discarded wax in a bowl rather than letting it run down the drain, then dry the brush with a paper towel.

Your cheese is now fully waxed and ready for aging.

## Bandaging Hard Cheeses



Bandaging, or wrapping, hard cheeses is generally done to assist proper rind formation and development of full flavor profiles and textures in hard cheese. It is used a lot on cheddars, but there are many kinds of cheese that may call for this kind of ripening technique. The basic procedure for bandaging is to rub the entire surface of the pressed cheese with fat (butter, lard, oil, etc.), a method also called larding. This stops unwanted mold from growing directly on the rind of the cheese; rather, the mold will grow on the surrounding cheesecloth, allowing the cheese to develop flavors beneath the bandaging, safely away from those unwanted growths.

### **To bandage your cheese, you will need:**

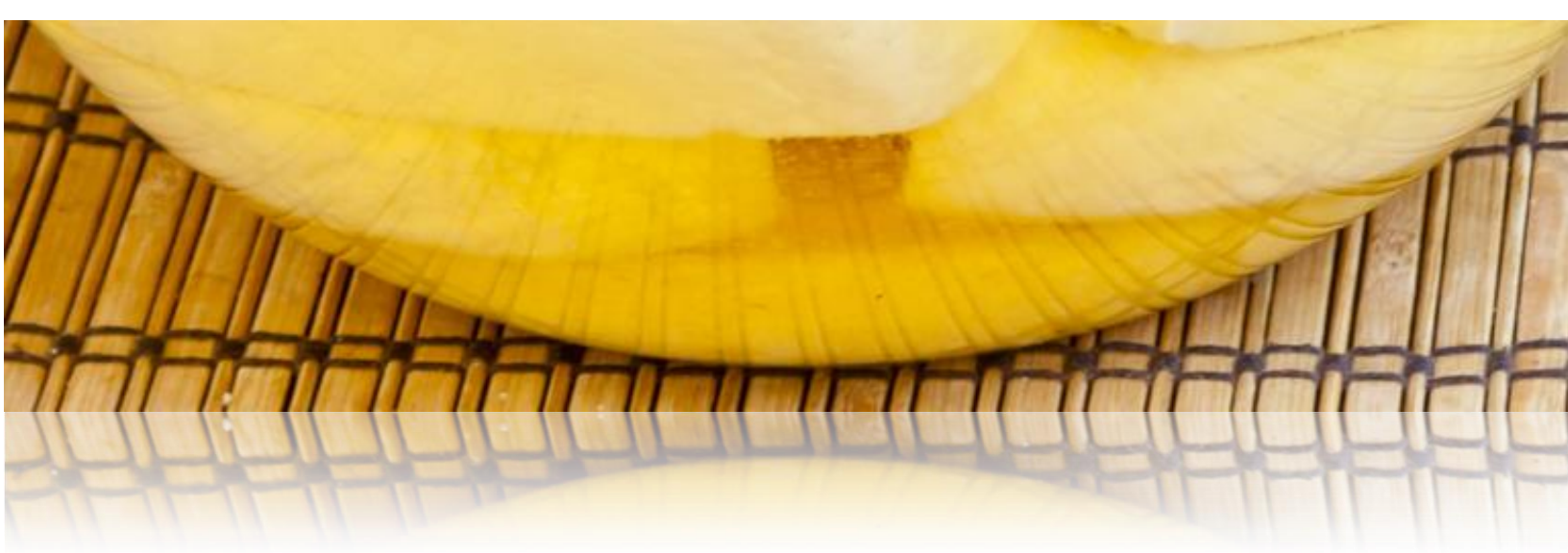
- [Cheesecloth](#)
- [Butter Muslin](#)
- 1 cup fat (your choice: butter, lard, oil, etc.)

### **Instructions**

1. Lay out all four layers of cut cheesecloth on top of one another. Put the cheese on top of them, and use sharp scissors to cut circles out of the cloth, using the cheese as a guide. Cut about 1-1/2 inches away from the edge of the cheese wheel. Cut through all four layers of cheesecloth.

2. Cut two long strips of butter muslin, just a bit wider than the sides of your cheese wheel. They should be long enough to wrap around the circumference of the cheese once, overlapping slightly.
3. Begin rubbing the cheese with the fat, using gentle circular motions. Try to get the thickness of the layer of fat as uniform as possible across the entire surface of the cheese. Once you have fully coated an end of the cheese wheel, carefully pick up one of the cheesecloth circles and place it on the larded surface. Gently press the cheesecloth into the layer of fat. Lay a second layer of cheesecloth on top of the first, repeating the rubbing and pressing steps. Do the same on the other side of the cheese, rubbing it down with fat and covering it with cheesecloth. You can carefully fold the edges of the cheesecloth circles down to the sides of your wheel. Turn the cheese on end and rub the sides with fat, taking care to cover the edges well. Wrap the strips you made earlier over these edges and across the sides of the cheese, folding and pressing as you go.
4. Place the wrapped cheese in a ripening cave or a root cellar away from drafts and sunlight for the duration of the aging period.

## Brining Hard Cheeses



Brining is generally called for on hard cheeses that require a short aging period. Some cheeses are not salted before pressing; rather, they are brined directly after pressing. A brine bath is measured according to salinity, or its strength according to the salt-to-water ratio. Your recipe will tell you how strong your brine should be depending on the type of cheese you are making.

Brining adds a more full salty flavor, and it also discourages bad bacterial growth on the surface of the cheese. Brine can also be flavored with things such as beer, ale, spices, wine, or liquor. In any case, brining helps to develop the rind and overall flavor of your cheese.

### General Ratios for Making Salt Brine

- For light brine, dissolve 13 ounces of [cheese salt](#) thoroughly into 1 gallon of cool water. Light brine is around 10% salinity.
- Medium brine is made using around 26 ounces of salt to one gallon of water, producing 20% salinity.
- Thoroughly saturated brine usually achieves 25% salinity by mixing 32 ounces of salt to a gallon of water. Some salt in saturated brine will remain undissolved. (Your cheese will float in this type of brine.)

To make brine, thoroughly dissolve the salt into room temperature water, then chill it in the refrigerator until you are ready to use it. Brine should generally be around 55°F before use,

with your cheese being about the same temperature. Sometimes you need to brine the cheese while it is still warm, though, so check your recipe for specific directions. Brine is used in one of three ways: as a soak, a spray (put in an atomizer and spritzed onto the surface), or a wash. Again, check your recipe.

After you have used the brine, it can be strained (if needed) and refrigerated for use on future cheeses. But if the brine is left at any temperature above 60°F for an extended period of time, you should probably toss it out and start over.



## Smoking Hard Cheeses

Cold-smoking hard cheese is a wonderful way to add flavor and personality to your cheese. The low-temperature smoking method is used because the goal is not to cook or melt your cheese, but merely to impart added flavor. There are a lot of cheeses that are great candidates for smoking. [Cheddar](#), [Colby](#), [Gruyère](#), [mozzarella](#), and [provolone](#) are just a few of the most popular smoked cheeses.

Smoking cheese causes the milk fat within the cheese to rise to the surface, creating a preservative skin on the surface of the cheese. Sometimes, long-term smoking will impart a slightly darker color to the exterior of the cheese. How long you smoke your cheese is up to you: the longer the smoke, the stronger the flavor.

Most smoked cheeses you will see at the market or high-end grocers will be flavored using liquid smoke, which usually makes for a very strongly flavored cheese and a noticeably darker rind and interior. Cold-smoking (without the liquid smoke) will give your cheese a delicate and superior flavor making for a more sophisticated and enjoyable cheese.

Smoking cheese can be done a number of ways. On a large scale, you can build an outdoor cold smoker very easily from things you may already have around your home. You can find plans and directions for building small cold smokers online. You can also use a wood heater if you have one, either by finding a place in the stovepipe where the smoke is cool and rigging up a way to hang your cheese there, or by redirecting the smoke and cooling it before using it to smoke your cheese. On a smaller scale, you can smoke cheese inside on your stovetop, using a wok with a smoking grate placed into it.

The type of wood you use for smoking will determine the final flavors given to your cheese. Choosing a locally available wood native to your region will probably be the most efficient choice, but make sure you know what type of wood you are using, and do adequate research into the nature and smoking quality of whatever type of wood that is. Fruit woods such as cherry, apple, pear, or peach are most popular. You can use nut woods, too, like almond, pecan, or walnut. You don't have to use just the wood, though; you can use things like nut shells or bamboo, or you can even use tea!

Before you smoke your cheese, dry it overnight in the refrigerator, then let it sit out to warm to room temperature. Keep the surface of the cheese dry. When smoking, whether in a smoker, wok, stovepipe, or any other method, keep a shallow pan of ice-water present, placed directly between the cheese and the smoke source. This will act as a guard against heat, keep the cheese cool, and prevent any melting. Most cheeses need only be smoked for a maximum of 3 hours, depending on your personal preference. Once the cheese is smoked, remove it from the smoker and set it out to air-dry and cool at room temperature. You can then wrap the cheese in [cheese paper](#) and place it in the refrigerator. Your smoked cheese will keep for as long as it would have kept unsmoked. Smoking may help it keep even longer, but it also may cause your cheese to be happily consumed faster than ever before!

# Troubleshooting Your Cheese

There are several common problems that come up when making cheese. Keep in mind that it is fairly likely that you will experience *all* of these issues at some point or another. Making cheese is a great opportunity to let go of your perfectionism and just make something yummy. So don't worry if



your first few attempts don't come out exactly as expected; drain, salt, and eat them anyway!

## **Cultured Cheese Won't Set**

This is most commonly caused by the temperature being too cool at the fermentation stage. If you have let your cheese ferment for 12 hours and there is no firming up or change in the texture of your milk (normally soft cheeses), move the cheese to the oven and turn on the light. Check every 3 hours, and when the cheese reaches the desired consistency, drain and salt.

## **Milk Does Not Coagulate**

Your milk may be old or perhaps it is pasteurized beyond usefulness. Your [rennet](#) may also be unviable or old. Try changing milks and if the problem persists, buy new rennet.

## **Milk Coagulates Too Fast**

The milk you are using may be too acidic. This can be caused by too much [culture](#) addition or an overly long ripening period. You can fix this by using less starter next time or try shortening the ripening time.

### **Curds Won't Come Together**

If you were trying to make mozzarella and you ended up with a bunch of rice-like curds that won't stick to each other, this is an example of curds that didn't come together properly. This is often caused by improper temperatures; either you used UHT (Ultra High Temperature) pasteurized milk, or your curds got too hot when you were preparing for the stretching stage, or they didn't get hot enough. The temperature of the curds before stretching should be 160° to 170°F. It's not fixable, but it is edible. Drain, salt, and use like ricotta or cottage cheese. It's delicious with fresh fruit or sprinkled on salad!

### **Coagulation Does Not Result in a Clean Break**

Your milk may simply need more time to set. Give it a few more minutes. If it is still not right, you can add more rennet in half or a quarter of the amount that you used the first time. This problem may also be due to inactive rennet. Keeping your rennet tightly closed, very cold, and away from light when you are not using it will lengthen the rennet's lifetime of viability.

### **Curds Are Too Soft**

Giving the milk a bit more time to set might help. If it does not improve, this problem may come from ultra-pasteurization or ultra-homogenization of the milk. You can try adding more rennet, depending on where you are in the cheesemaking process. You should add more rennet only to milk that has not yet been cut into curds. Adding more cultures may help, but again, only in the earlier stages.

### **Bitter Cheese**

This is normally caused by one of two things: Either the cheese was not drained enough, or the cheese was not salted enough. Add a little extra salt, stir, and try to get some more whey out. If you happen to have a cheese press, give it a shot here. Wrap your cheese (even if it's soft) in a cheesecloth and press at 10 pounds of pressure for 15 minutes. Then taste again.

Cheese can also become too bitter with age. If you made ricotta three weeks ago and it tastes bitter, it's probably better just to discard it.

## Rubbery Cheese

There are two possible causes for rubbery cheese. First, this can happen when an excess amount of rennet is used. Use a bit less rennet next time. It can also happen if cheese is overworked or overcooked, and all the butterfat runs down the drain. If you've made cheddar and it's rubbery, you may have overcheddared. Again, while it's not exactly fixable (because you can't add butterfat back into cheese) it is edible. Rubbery cheeses taste delicious when melted. Use it for pizza, grilled cheese, or on top of veggies.



## Bland Cheese

For hard cheese varieties there are several causes. Cheese that is bland or tasteless may have not expelled enough whey during the cooking process, causing the flavor to be diluted. You can try cutting the curds into smaller pieces next time, or stirring them a bit more to help them release more whey. The curds may have been heated too rapidly, and this problem can be fixed by raising the temperature of the curds and whey by only 2°F every 5 minutes during cheesemaking. Or, it may just need to be aged longer. Wrap it back up and re-wax (if it's a waxed cheese) and try again in another two weeks.

If you are finding that your hard cheese is consistently bland, you may want to start adding a little [lipase](#) to your recipes. Lipase is an enzyme that works on fat and gives cheese a distinct tang. It will make your curds softer, so be careful and add a few extra drops of rennet if necessary.

If your mozzarella or ricotta is too bland, the cheese may need a little salt. Add a little extra and taste again.

### **Curds Are Difficult to Press**

This is caused by excess stirring or cooking of curds during the curds-and-whey stages. The curds have probably expelled too much moisture to be very pliable or pressable. Always follow directions closely and avoid overstressing the curds with excessive stirring or too-high temperatures.

### **Cracks Form in Pressed Cheese**

This may mean the pressure was too light during the pressing process, resulting in curds that have not molded together completely, and causing those undesirable cracks on and within the cheese. You can try increasing pressure and pressing time. If mold begins to form in these cracks, you can try spraying brine into the cracks with an atomizer to flush the mold out, but you must ensure that you dry the cracks out thoroughly after this process, because excess moisture may encourage more mold growth. For this reason, you should not spray out any really deep cracks.

### **Cheese Surface Is Oily during the Drying Period**

The temperature may be too high in the room in which you are air-drying your cheese, causing the fat in the cheese to rise to the surface. Move your cheese to a cooler location.

### **Finished Cheese Is Too Hard, Dry, or Crumbly**

This is only a problem in hard cheeses, and it's so minor that it isn't really even a problem; more an irritation. First, remember that when making cheese at home, you're making 2-pound cheeses, not 200-pound cheeses. So a homemade cheese is going to dry out and crumble a little more than one made in a factory. Some of the most delicious artisan cheeses are crumbly. But of course if you're trying to cut a slice of cheese for a sandwich, it's nice if that cheese stays together.

You may have used a bit too much rennet, or perhaps the curd-cooking time was too long or at too high a temperature. Write this down in your cheesemaking notebook, and decrease these things, one at a time, to help pinpoint and fix the problem in future batches of cheese.

Another possible remedy is to try adding a few more layers of wax during the aging process. Check your aging cheeses regularly, and if they start to feel like big hard bricks, add some coconut oil or wax to the outside of them. There is no rule that says that you can't wax parmesan, even if it's not traditional. Also, make sure that your aging cooler stays humid. Keeping a glass of water in the refrigerator can help. Some cheesemakers hose down the inside of their caves at least once a day to create moist, flavorful, and delicious cheddars.

### **In Conclusion**

Above all, keep trying. If your cheese doesn't turn out and isn't edible, chalk it up to a learning experience and try again. It's hard to waste ingredients (especially if you're on a tight budget) but try not to get frustrated. Just remember that once you hit on the right technique for YOU, you'll save a fortune and be making an amazing artisanal product.





# **INSTRUCTIONS FOR MAKING CHEESE**

how to make all kinds

## Simple Cheeses



*T*he easiest way to make cheese is simply to culture milk, then remove as much moisture as possible. This creates a thick, creamy, slightly tangy food with a variety of uses.

Best of all, simple cheeses require practically no special ingredients or equipment: just milk, culture, and a filter.

If you have an excess of kefir, yogurt, buttermilk, or sour cream, or too much farm-fresh milk, try turning some of that into a spreadable cheese. There are a number of different recipes you can use to create variations on this theme; or try experimenting to make some of your own signature cheese spreads!

## Kefir Cream Cheese



Kefir is so easy to make, you can easily end up with extra! Here's a good way to put some of that bounty to use. You can make this with yogurt, too.

### Ingredients

- Milk kefir
- [Butter muslin](#) (tight-weave cheese cloth), [cotton bag](#), or tight-weave dish towel

### Instructions

Pour the milk kefir into the cheesecloth, cotton bag, or tight-weave towel. Hang above a bowl or jar and allow the whey to drain off for 12+ hours depending on the thickness desired. Once the desired thickness is reached, refrigerate the cheese. Use in recipes in place of cream cheese. This will have a more sour and stronger taste than standard cream cheese.

## Savory Kefir Cheese



Here is another great way to use up an abundance of kefir. The addition of herbs produces a gourmet treat.

### Ingredients

- Milk kefir
- Fresh or dried herbs (use your favorites: [French herbs](#) or [herbs de Provence](#) work well)
- [Butter muslin](#) (tight-weave cheese cloth), [cotton bag](#), or tight-weave dish towel

### Instructions

Pour the milk kefir into the cheesecloth, cotton bag, or tight-weave towel. Hang above a bowl or jar and allow the whey to drain off for 6 to 8 hours until the desired thickness is achieved. Mix in herbs and refrigerate for 2+ hours to allow the flavors to meld. Serve as a soft cheese spread on crackers, bread, etc. Also makes a wonderful vegetable dip.

## Mascarpone



Mascarpone is a light and fluffy soft cheese that is traditionally used to make tiramisù and cannoli. Mascarpone is also delicious mounded in a bowl and topped with fresh fruit.

### Ingredients

- 1 quart cream or half-and-half
- 1/4 teaspoon [tartaric acid](#) (cream of tartar) or 2 tablespoons lemon juice
- [Thermometer](#)
- [Butter muslin](#) (tight-weave cheese cloth) or tea towel

### Instructions

1. In a double boiler, gently heat the cream to 190°F. Be sure to use a thermometer to avoid overheating. While the cream is heating, dissolve the tartaric acid into 2 tablespoons of water. Once the cream has reached 190°F, remove the cream from the heat and add the tartaric acid mixture or the lemon juice. Whisk into the cream for 30 seconds to be sure it is thoroughly blended. Allow the cream mixture to sit for 5 minutes while stirring occasionally. The cream will thicken to a consistency similar to farina and should coat the back of the spoon.
2. Place a colander in a bowl and line the colander with sterile butter muslin or a sterile tea towel. Pour the coagulated cream into the cloth and let the whey drain for 1 to 2 hours or until the desired consistency is achieved. Spoon the mascarpone into a

storage container and place in the refrigerator to chill. As it chills it will continue to thicken a bit. While mascarpone should be consumed within a day or two for optimal flavor, it can be stored in the refrigerator for up to a week.

**Uses for Mascarpone**

- Cannoli
- Filling for pastry
- Cheesecake
- Tiramisù
- Mound in a bowl and serve with fresh fruit

## Queso Blanco with Citric Acid



### Ingredients

- 1 gallon whole milk
- 2 cups [buttermilk](#) (optional)
- 2 teaspoons [citric acid](#), dissolved into 1/4 cup cool water (if using buttermilk, the citric acid can be reduced to 1 teaspoon)

### Instructions

1. Place the milk and the buttermilk into a very large pot. Bring the mixture to 75°F. Turn off the heat, cover, and allow the pot to sit undisturbed for 4 hours.
2. If not using buttermilk, simply heat the milk to 75°F.
3. Begin to slowly stir in the citric acid, using long, gentle, up-and-down motions. Slowly bring the milk to 195°F, continuing to stir every now and then. Once it has reached temperature you will see the curds begin to form slowly as you stir. Keep stirring, carefully and slowly, until the curds are fully formed and the whey is watery yellow.
4. Turn off the heat and let the curds stand undisturbed for five minutes to allow all the curds to rise to the top.
5. Ladle the curds into a colander lined with cheesecloth or butter muslin. Tie the corners into a knot, making a draining bag, and suspend this bag over a bowl to



drain for a few hours, or until the queso blanco has reached the consistency you prefer.

6. Dump the drained cheese into a bowl and salt to taste, if you wish.

Store refrigerated until use, up to 2 weeks.

## Lemon Cheese



Lemon cheese is a creamy, spreadable cheese with a light, lemony flavor.

### Ingredients

- 1/2 gallon whole milk
- Juice of 3 to 4 lemons, approximately 1/4 cup
- [Cheese salt](#)

### Instructions

1. Heat the milk in a large pot over medium heat to between 185° and 200°F. Add the lemon juice and stir it in slowly, using gentle up-and-down motions, for 1 minute.
2. Cover the milk and allow it to sit, undisturbed, for 15 minutes, or until you recognize a clean break. If you have not gotten a clean break after 20 minutes, add a bit more lemon juice and wait another 15 minutes, or until it does set.
3. Line a colander with [butter muslin](#), and gently ladle the curds from the pot into the colander. Tie the corners of the butter muslin together to create a draining bag, and suspend it to drain for 1-1/2 to 2 hours, or until it stops dripping.
4. Take the cheese out of the butter muslin and place it in a large, clean bowl. Mix in the salt, and you can add herbs, spices, or fruit to it now if you wish.
5. Put the cheese in a covered container in the refrigerator until you are ready to use it.

This cheese will keep in the refrigerator for up to two weeks. Makes about one pound of cheese.

(Tip: If you only drain the cheese for 20 minutes or so while it is in the butter muslin sack, you can take it out, add mint leaves, and chill it to make a delicious, nutritious drink for summertime.)

## Potato Cheese



### Ingredients

- 2 pounds potatoes, peeled, cubed, and cooked until soft
- 2 cups [dairy kefir](#)
- 1 tablespoon sea salt

### Instructions

Mix ingredients well with a potato masher or egg beater.

Place in a covered nonmetal bowl in a warm place away from drafts and direct sunlight and leave for 2 days.

Place the potato mixture into a clean colander lined with cheesecloth. Tie the ends of the cheesecloth together to create a draining sack, and hang on a wooden spoon suspended over a large bowl or sink. Leave to drain until it stops dripping.

Transfer the potato cheese to a clean, covered plastic container. Flavor as desired with pepper, herbs, or fruit, and store in the refrigerator until you are ready to use it. Makes about 4 cups potato cheese.

## Soft Cheeses



One step up from simple acidified soft cheeses are soft cheeses made with the addition of culturing or coagulating ingredients. Mesophilic cheese starter cultures or aromatic cultures like flora danica are commonly used to control the fermentation of the milk. Rennet is added to assist coagulation.

These soft cheeses often have a more nuanced flavor or texture than the simple drained soft cheeses, and provide a tasty addition to a meal, or a flavorful appetizer or dessert.

For most soft cheeses, you will need a basic set of equipment:

- A large pot (if metal, be sure it's non-reactive such as stainless steel)
- A wooden spoon
- Colander
- [Curd knife](#) or other long-blade knife
- A [thermometer](#)
- [Butter muslin](#) or tea towel

## Cream Cheese



Cream cheese is fantastic spread on crackers and bread, or as a base for dips, cheese cake, or frosting. Cream cheese is very easy to make and is a great option for beginning cheesemakers.

### Ingredients

- 2 quarts cow milk (do not use ultra-pasteurized or ultra-high-temperature milk), or a combination of milk and cream (see tips below)
- Culture / coagulant:
  - 1 packet [cream cheese starter culture](#). This is a ready-to-use packet that includes both starter culture and rennet. If using this starter, up to 1 gallon of milk can be used.

OR

- 1/4 teaspoon mesophilic aromatic culture (e.g., [flora danica](#), [mesophilic aromatic type B](#), [MA4001](#))
- 2 drops [liquid rennet](#) or 1/4 [rennet tablet](#)

### Step One: Culture the Milk

*If using the ready-to-use cream cheese starter culture:*

1. Heat the milk to 86°F. Be sure to use fresh milk.

2. Remove the milk from the heat and thoroughly stir in the packet of cream cheese culture mixture. Do not stir longer than 15 seconds.
3. Cover the pot and leave the mixture to culture for 12 to 18 hours at approximately 72°F.
4. After 12 to 18 hours, the cheese should look like yogurt (solid if tipped but still relatively soft). You may see some whey separating from the cheese. The whey is a mostly clear liquid.

*If using a mesophilic aromatic culture and rennet:*

1. Heat the milk to 75°F.
2. Remove the milk from the heat and allow the mesophilic culture to dissolve on the surface of the milk for approximately 2 to 3 minutes. Once the culture is dissolved, thoroughly incorporate the starter culture into the milk.
3. Mix the 2 drops of rennet with 2 tablespoons of water or dissolve the rennet tablet in 1/4 cup of water. Add the rennet mixture to the milk. Using up-and-down strokes rather than a stirring motion, incorporate the rennet into the milk. Do not over-mix.
4. Cover the pot and allow the mixture to culture for 14 to 16 hours at 70° to 75°F.
5. After 14 to 16 hours, the cheese should look like yogurt (solid if tipped but still relatively soft). You may see some whey separating from the cheese. The whey is a mostly clear liquid.

### **Step Two: Strain the Cheese**

1. Place a piece of butter muslin (doubled) or a tea towel in a colander in a bowl. Gently spoon the cultured milk into the butter muslin. Gather up the corners of the muslin and tie knots to secure.
2. Hang the butter muslin filled with the cultured milk over a bowl so the whey can drain. An easy way to do this is to tie the butter muslin around a cupboard handle so the bowl to catch the whey can rest on the counter underneath.
3. Allow the cream cheese to drain for 6 to 12 hours to reach the desired consistency.
4. Knead salt into the cheese to flavor.
5. Store in the refrigerator. Use within a week.



### **Cream Cheese Tips**

- Can use up to 50% cream if desired.
- If larger batches of cream cheese are desired, use one gallon of milk (or combination of milk and cream), 1/4 teaspoon of aromatic culture, and 4 drops of liquid rennet.

## French-style Cream Cheese



French-style cream cheese is a soft, spreadable cheese with a slightly sweeter flavor than that of traditional [cream cheese](#). This recipe also calls for less culture than usually required for making cream cheese. It's a delicious, creamy treat that can be mixed with herbs or fruit to make it a bit more interesting.

### Ingredients

- 2 cups heavy cream
- 2 cups whole milk
- 1 packet [mesophilic starter](#)
- 1 drop liquid [rennet](#) diluted in 1/4 cup cool, unchlorinated water
- [Cheese salt](#) and/or herbs and spices if you wish

### Instructions

1. Mix the cream and the whole milk together in your cheese pot. Slowly warm the milk/cream mixture to 70°F.
2. Add the starter. Stir it in slowly, using steady up-and-down motions. Add the rennet in the same manner, making sure you mix it in well all the way down to the bottom of the pot.
3. Cover the pot and allow the milk to set for 72 hours, undisturbed.

4. Transfer the curds from the pot into a large bowl. Mill the curds until the consistency is pastelike. If you are going to add salt or other flavorings, do it now.
5. You can either use one large tomme mold to press the curds all together, or you can spoon them into individual serving molds. Either way, refrigerate as soon as possible, allowing the cheese to set for about a day before serving it.

This will keep in the refrigerator for up to 1 week. Makes about 1 pound of cheese.

## Crème Fraîche



Crème fraîche makes a delicious topping for soups, main dishes and even desserts. The decadent texture is rich, creamy, and very satisfying. Not only is making crème fraîche at home very easy, it allows you the option of choosing high-quality ingredients such as organic milk or cream if desired.

### **Method 1: Use a Crème Fraîche Starter Culture**

Gently heat one quart light cream, half-and-half, or cream to 86°F. Add 1 packet of [Crème Fraîche Starter Culture](#) and mix gently but thoroughly, then let set in a warm spot (70° to 80°F) for 12 hours until it thickens to the consistency of yogurt. Place mixture in a tea towel or tight-weave cheesecloth such as [butter muslin](#)) for 6 to 12 hours. Chill prior to serving. The finished crème fraîche will generally keep in the refrigerator for up to a week.

### **Method 2: Use Yogurt or Buttermilk as a Starter Culture**

Add 1 to 2 tablespoons of buttermilk or yogurt per cup of heavy whipping cream at room temperature, cover lightly, and allow to culture for 12 to 48 hours in a warm room (70° to 80°F). If a thicker consistency is desired, the crème fraîche can be strained through a tea towel or tight-weave cheesecloth such as [butter muslin](#). When the process is complete, place the finished crème fraîche in the refrigerator to chill and halt the culturing process. It will generally keep for up to a week.

### **Method 3: Use Flora Danica or Mesophilic Aromatic Starter Culture**

Use a direct-set aromatic cheese starter culture such as [flora danica](#) or [mesophilic aromatic type B](#). If you are a cheesemaker and have either of those cultures around, they can be added to room-temperature cream and cultured for around 18 hours in a warm spot (70° to 80°F). Once the process is complete, place the finished crème fraîche in the refrigerator to chill. If a thicker consistency is desired, the crème fraîche can be strained through a tea towel or tight-weave cheesecloth such as [butter muslin](#). Can be stored in the refrigerator for up to a week.

## Crème Fraîche Cottage Cheese



### Ingredients

- 1 gallon pasteurized whole cow milk
- 3/8 teaspoon [mesophilic starter culture](#)
- 1/4 teaspoon [calcium chloride](#) diluted in 1/4 cup of cool water
- 1/4 teaspoon [vegetable rennet](#) diluted in 1/4 cup of cool water
- [Cheese salt](#)
- 1 to 1-1/2 cups [crème fraîche](#)

### Instructions

1. Heat the milk to 70°F in a hot water bath or double boiler. Maintain the milk at 70°F for 15 minutes.
2. Add the starter, stirring in gently using up-and-down motions for 1 minute. Then add the diluted calcium chloride and incorporate, using the same method.
3. Remove the pot from the heat source.
4. Add the diluted rennet and incorporate using an up-and-down motion.
5. Cover the pot and let the milk sit undisturbed for 5 to 6 hours, or until you have a clean break.
6. Cut the curds into 3/4-inch pieces. Stir with a rubber spatula or a cheese spoon, gently, for five minutes.

7. Return the pot to the water bath or double boiler and heat the curds to 115°F, raising the temperature by only about 1°F per minute. Continue to gently stir the curds to help them release more whey and become firmer.
8. Line a colander with clean butter muslin and half fill a large bowl with clean, cold water and ice. When the curds are at temperature, begin ladling them into the colander. (They will be firm and a bit small.) Place the colander of curds into the cold water to stop the ripening process and to set them up. Let them sit in the cold water bath for about 5 minutes.
9. Pull the colander out of the cold water and allow all the water to drain away. Dump the cottage cheese curds into a medium-size bowl. Salt them, tossing the curds with your fingers until they are well combined with the salt. Begin folding in the crème fraîche, coating the curds evenly. Once it is all combined, put them into a covered container in the fridge to chill. Your cheese will keep for about a week and a half if kept chilled.



## Cottage Cheese



Cottage cheese makes a protein-rich breakfast or snack and is a relatively simple cheese to make at home. This recipe makes a large-curd style cottage cheese and this method is generally known as a short-set.

### Ingredients

- 1 gallon milk (do not use UHT/UP milk)
- 1/4 teaspoon mesophilic culture ([mesophilic direct-set culture](#), [flora danica](#), [mesophilic aromatic type B](#))
- 1/4 teaspoon [liquid rennet](#) or 1/4 [rennet tablet](#)
- 1/4 teaspoon [calcium chloride](#) (optional)
- 1/2 cup whipping cream (optional)

### Instructions

1. Heat the milk to 70°F.
2. Remove the milk from the heat and allow the mesophilic culture to dissolve on the surface of the milk for approximately 2 to 3 minutes. Once the starter culture is dissolved, thoroughly incorporate it into the milk. Let the mixture sit for 30 minutes.
3. If using calcium chloride, mix the calcium chloride into 1/4 cup of water. Add the mixture to the milk. Using up-and-down strokes (don't stir!), incorporate the rennet into the milk. Do not over-mix. Calcium chloride results in firmer curds and is helpful

when using milk from the grocery store which is generally more processed than farm fresh milk.

4. Dissolve the rennet in 1/4 cup of water. Add the rennet mixture to the milk. Using up-and-down strokes (don't stir!), incorporate the rennet into the milk. Do not over-mix.
5. Cover the pot and allow the mixture to sit at room temperature for 2 hours or until a firm curd has formed. (Milk should appear solid.)
6. Cut the curd using four sets of cuts:
  - The first set should be parallel cuts every 1/2 inch from the top to the bottom of the pot.
  - The second set should be perpendicular to the first set working from left to right every 1/2 inch.
  - The third set should be diagonal cuts every 1/2 inch working from the top left of the container to the bottom right.
  - The fourth and final set should be diagonal cuts every 1/2 inch working from the top right of the container to the bottom left.
7. Once the curd has been cut, allow it to sit for 5 minutes then stir gently for 2 to 3 minutes.
8. Warm the curds gently over low heat for 1 hour stirring continuously but gently. Stirring keeps the curds separated and allows the curds to heat evenly. Be careful to only increase the temperature of the curd 2° to 5°F every five minutes. It may be necessary to adjust the heat during the process.
9. When the curd reaches 115°F, hold the heat at 115°F for 10 to 15 minutes. (It may be necessary to turn the heat on and off during that period to maintain the correct temperature). Continue to stir the curd during this time to ensure even heating. The curds should be about the size of shelled peanuts and should be firm but not hard. The curds should bounce without breaking. Some experimentation may be necessary to find the right cooking period length for the curd consistency you prefer.
10. Carefully spoon the curds into a colander lined with a tea towel. Allow the whey (clear liquid) to drain off.
11. Rinse the curds in very cold water and allow them to drain completely removing all traces of whey.
12. Salt the curds and place in the refrigerator to chill.

The cottage cheese can be eaten in this dry state. If creamy cottage cheese is desired, add 1/2 cup whipping cream to the chilled curds.

Store in the refrigerator for up to 14 days.

Makes approximately 1-1/3 pounds of cheese.

## Making Cottage Cheese with Buttermilk



Using a [mesophilic starter](#) for making cottage cheese is great, but there are times when you may not have any starter available. In a pinch, you can use buttermilk as a starter. It produces a delicious small-curd cottage cheese.

### Ingredients

- 1 gallon fresh milk (cow or goat), raw or pasteurized, but not ultra-pasteurized
- 1/2 cup fresh cultured buttermilk or [buttermilk mother culture](#)
- 1 to 2 cups heavy cream if you want creamed cottage cheese. (If you are using raw milk you can skim off the cream and save it to use for this step. This will leave you with less than 1 gallon of milk to start with, but that's fine.)
- 1 teaspoon Celtic sea salt, kosher salt, or [cheese salt](#)

### Instructions

1. Pour milk into a non-aluminum pan (6- to 8-quart size). Heat the milk to 75°F and remove from heat. Stir in 1/2 cup cultured buttermilk or mother culture. Cover and keep at 75° for about 24 hours. This is not hard to do in the summer months, but you may need to get creative in the colder winter months. It works well to set the pan of milk into a large cooler next to a couple of jars of warm water and cover with a beach towel for additional insulation. Refresh the jars with warm water as they cool.

2. After 24 hours the milk in the pan will have set to a custard-like consistency and may have a layer of whey on top. At this point you can cut the curd into 1/2-inch cubes, slicing one direction, then rotating the pan to slice in the opposite direction. Don't be concerned if your cut lines seem to disappear. Let the curd set for 5 minutes. Meanwhile, heat water in the canning kettle to about 120°F.
3. Place the pan of curds in the canning kettle so that the water level surrounding the pan reaches the level of the curds inside. Gently stir the curds for 30 seconds every 5 minutes or so as the temperature of the curds slowly rises. Gentle stirring keeps the curds from sticking together (matting). When the curds reach 100°F, increase the heat under the canning kettle until the curds reach 120°F. Hold the curds at this temperature for 25 to 30 minutes, stirring more vigorously every 5 minutes. Most of the curds will be firm now. You can squeeze a few curds to see if they are still soft in the center. (A little soft is OK; runny is not.) If curds are not firm enough, continue to hold at 120°F for an additional 5 minutes.
4. Line a colander with double thickness of cheesecloth and set it over a container to catch the whey. (Save the whey for [ricotta cheese](#).) Carefully pour curds into the colander and let drain for five minutes. Gather up the corners of the cheesecloth and rinse the curds under a stream of very cold water. (Alternately you could dip the curds in a bowl of cold water.) Rinse until the water from the curds runs clear. Let the curds hang to finish draining for 15 minutes.
5. Place the curds in a bowl. Stir in salt and cream, if using. Refrigerate and use within a week.

Makes 4 to 5 cups of cottage cheese.

Note: you can freeze the dry curds for later use. When you need them, simply defrost them and stir in cream for cream-style cottage cheese or use the curds dry in recipes calling for dry-curd cottage cheese.

## Dry-curd Cottage Cheese



Dry-curd cottage cheese, also known as farmer cheese or baker's cheese, is the solid portion, or curds, that remain after milk has been cultured and slowly heated. The heating process forces the liquid whey to separate from the milk solids. As the solid portion bathes in the warm whey, aided by gentle stirring, the curds become smaller and firmer. The curds are then drained, rinsed in cold water, and allowed to hang until nearly dry. This can be anywhere from 15 minutes to an hour. Since whey contains most of the lactose, the resulting dry curds contain very little lactose, but are high in calcium and protein. Lactose is also minimized by allowing the milk to ferment for twenty-four hours before heating. The process for making dry-curd cottage cheese is the same as for making cottage cheese. The only difference is in the final step where cream is added to the dry curds to make creamed cottage cheese.

Dry-curd cottage cheese used to be sold in most supermarkets, but is harder to find currently. It is easy to make if you have some good quality milk, and buttermilk or a buttermilk starter culture. The following five easy steps will yield slightly more than 1-1/2 pounds of dry curds. The curds freeze well, so keeping a supply of them on hand is not difficult. If you have access to raw milk you can remove the cream and use only the skim milk portion. If pasteurized milk is your only option, use whole milk. (Do not use ultra-pasteurized milk, as the curd may not set properly.) The resultant whey from whole milk will be much creamier since it is only the milk solids that form the curds, not the fat. As with all cheesemaking, make sure your pans and utensils are scrupulously clean to start with.



**Ingredients**

- 1 gallon of whole milk, or raw milk with the cream removed
- 1/2 cup cultured buttermilk or buttermilk mother culture

**Instructions**

1. Heat the milk in a 6- to 8-quart non-aluminum pan to 75°F and remove from heat.
2. Stir in 1/2 cup cultured buttermilk or buttermilk mother culture. Cover and keep at 75°F for about 24 hours. This is not hard to do in the summer months, but you may need to get creative in the colder winter months. It works well to set the pan of milk into a large cooler next to a couple of jars of warm, not hot, water and cover with a beach towel for additional insulation. Refresh the jars with warm water as they cool.
3. After 24 hours the milk in the pan will have set to a custard-like consistency and may have a layer of whey on top. At this point you can cut the curd into 1/2-inch cubes, slicing one direction, then rotating the pan to slice in the opposite direction. Don't be concerned if your cut lines seem to disappear. Let the curd set for 5 minutes. Meanwhile, heat water in a canning kettle (or other pot large enough to set the 6- to 8-quart pan inside) to about 120°F. Alternatively, you could fill your sink with hot water and place the pot in the sink.
4. Place the pan of curds in the canning kettle so that the water level surrounding the pan reaches the level of the curds inside.
5. Gently stir the curds for 30 seconds every 5 minutes or so as the temperature of the curds slowly rises. Gentle stirring keeps the curds from sticking together (matting).
6. When the curds reach 100°F, increase the heat under the canning kettle until the curds reach 120°F. If you are using the sink method, place the pot of milk on a low-heat burner once they have reached reach 100°F and gently bring the curds up to 120°F. Hold the curds at this temperature for 25 to 30 minutes, stirring more vigorously every 5 minutes. Most of the curds will be firm now. You can squeeze a few curds to see if they are still soft in the center. (A little soft is OK; runny is not.) If curds are not firm enough, continue to hold at 120°F, checking firmness every 5 minutes.
7. Line a colander with a double thickness of cheesecloth and set it over a container to catch the whey. (Save the whey for other uses, if desired.) Carefully pour the curds into the colander and let drain for 5 minutes.



8. Gather up the corners of the cheesecloth and rinse the curds under a stream of very cold water. (Alternatively you could dip the curds in a bowl of cold water.) Rinse until water from curds runs clear. Let the curds hang to finish draining for 15 minutes up to an hour.
9. Place the curds in a bowl. Add 1 teaspoon of salt, if desired. They are now ready to use in a recipe calling for dry-curd cottage cheese. Refrigerate and use within a week or wrap tightly and freeze.

Makes about 1-1/2 pounds dry-curd cottage cheese.

## Farmer Cheese



This fresh, small-curd cheese can be used in recipes in lieu of [cottage cheese](#) (because it is basically the same type of cheese), or mixed with herbs and spread on homemade wheat crackers. Simple and easy, this delicious cheese can be kept in the refrigerator for quick, healthy snacking. Farmer cheese (also called farmer's cheese, farmers' cheese, or cottage cheese) originated in Europe. It is also called pot cheese, because the colonial American women used to make it and keep in a pot next to the cook stove until they needed it.

### Ingredients

- 1 gallon whole milk
- 1 packet direct-set [mesophilic](#) culture
- 1 to 2 tablespoons heavy cream
- [Cheese salt](#)

### Instructions

1. In a large cheese pot, heat the milk up to 72°F.
2. Add the starter and mix it in using slow, steady up-and-down motions for 1 minute. If using fresh cow milk, top-stir for 30 seconds or so more. Cover the milk and allow it to set for 18 to 24 hours. The curd will be soft.
3. Cut the curd into 1/4-inch cubes. Cover and let them set for 10 minutes.

4. Bring the heat up by 1°F per minute until the temperature of the curds reaches 100°F. Stir them gently every now and then to keep them from sticking together (matting). Maintain the temperature for 10 minutes, continuing to stir occasionally.
5. Increase the temperature to 112°F very slowly. This should take around 15 minutes. Once the curds have reached 112°F, keep them at that temperature for half an hour or until the curds have solidified a bit more, making them firm to the touch. If they haven't gotten more solid after 30 minutes, keep cooking and don't go to the next step until the curds have lost their custardlike consistency.
6. Let the curds settle to the bottom of the cheese pot, about 5 minutes or so.
7. Drain off the whey until you can see the curds. Line a colander with clean butter muslin and pour the curds into it, letting them drain into a bowl beneath. If you want your farmer cheese to be less sour, you can gather the edges of the butter muslin and pick the whole bundle up like a sack, then dip the bag of curds into cold, clean water a few times, and continue with draining as usual.
8. Let them drain for several minutes, then put the sack of curds into a sink or tub of ice water to cool them rapidly. Let them drain for several minutes more.
9. Pour the curds from the [butter muslin](#) sack into a bowl, and toss them with the cheese salt, adding more or less to taste. You can stir in the cream now if you wish to lend the cheese a creamier texture.

Store the farmer cheese in a covered container in the refrigerator for up to one week.

## Whole Milk Ricotta



Ricotta is traditionally made with the whey left over from other cheeses. However, this whole milk ricotta is sweet, creamy, and an excellent choice for first-time cheesemakers.

### Ingredients

- 1 gallon whole milk from cows, goats, or sheep
- 1 teaspoon [citric acid](#), dissolved in 1/2 cup cool water
- 2 tablespoons heavy cream
- Salt, to taste

### Instructions

1. Stir the citric acid and water mixture into the milk.
2. Slowly heat the milk to between 180°F and 190°F, stirring frequently. Turn off the heat and allow to set for 15 minutes. Do not stir.
3. Line a colander with cheesecloth and pour the curds and whey into it. Allow to drain for at least 30 minutes; longer if you want a dryer cheese.
4. Place the curds in a bowl and add heavy cream. Salt to taste and refrigerate.

This cheese will remain fresh and sweet for about a week.

## Traditional Ricotta



Traditional ricotta cheese is made using whey left over from cheesemaking. While not as sweet or creamy as [ricotta made using whole milk](#), traditional ricotta is a wonderful way to utilize whey that might normally be discarded.

### Ingredients

- 2 gallons fresh whey (use within a few hours of straining)
- 1 gallon milk, optional (do not use UHT/UP milk)
- 1/2 cup distilled white vinegar
- [Cheese salt](#) or non-iodized salt
- [Ricotta basket and storage container](#), optional

### Instructions

1. If using both whey and milk, combine the two. Using milk isn't necessary but does substantially increase yield.
2. Gently heat the milk to 195°F. Consider using a double boiler to prevent scorching.) Stir constantly and watch the temperature carefully. While it isn't necessary to be exact, be careful not to let the whey boil as it boils over easily and is very messy.
3. Remove the whey from the heat and stir in the vinegar. The whey will begin to curdle and some of the curd will rise to the top.

4. Place a colander in the sink and place a coffee filter (metal reusable filters are best for this) in the colander. Gently pour or spoon the mixture into the coffee filter and allow the whey to drain away. Be careful as much of the curd will likely settle on the bottom of the pot.
5. Once the pot is empty, allow the ricotta to continue to drain. 1 hour is generally sufficient for a soft ricotta. 6+ hours may be needed for a firmer ricotta.
6. Mix the ricotta with salt to taste.
7. Consider using a [ricotta basket and storage container](#) so any remaining whey can drain and keep the cheese from becoming soggy while the ricotta is stored in the refrigerator.

Store the ricotta in the refrigerator and use within one week.

Generally makes 6 to 8 ounces with only 2 gallons of whey (no added milk) but the yield can vary with each batch.

## Ricotta Salata



Ricotta salata is a dry, salted cheese that can be eaten while it is still very young. It can be sliced and used as a dessert or garnish cheese, or it may be aged (5 weeks or more) and used as a grated cheese. The younger you eat it, the saltier it will be. If you choose to age your ricotta salata, by 2 months it will have bloomed in into a very lovely mellow cheese. It is traditionally made using sheep milk, but the cow milk version is just as enjoyable.

### Ingredients

- 1 gallon whole cow milk
- 1/2 cup rich cream
- 1 teaspoon [citric acid](#) powder
- 1 tablespoon plus 1 teaspoon [cheese salt](#) (or coarse-ground, un-iodized kosher salt)

### Instructions

1. In a non-reactive 4-quart cheese pot, combine the milk, cream, citric acid, and 1 teaspoon of the salt. Mix it all very well using a wire whisk in a slow up-and-down motion. Put the pot on medium-low heat and slowly bring the milk temperature up to between 185°F and 195°F, stirring frequently with a rubber spatula to keep the milk from scorching. This process should take about 20 minutes.
2. Once the milk reaches the right temperature, you may notice the milk start to separate and the curds begin to form. When the separation process is completed,



with the whey becoming a yellowish green and appearing slightly opaque, remove it from the heat. Gently slide a rubber spatula in around the edges of the curd mass and rotate it slowly. Cover the pot and don't disturb it for 10 minutes.

3. Put a colander over a very large bowl or container large enough to catch all of the whey in your pot. Line it with damp butter muslin and ladle the curds from the pot into it. Use a skimmer to get all the curds out of the pot of whey, but if there are some stuck to the bottom of your pot, leave them, so you don't get any slightly scorched curds ruining the flavor of your cheese.
4. Sprinkle the remaining tablespoon of salt over the curds in the colander and toss them carefully with your clean hands to mix it in evenly.
5. Line a ricotta mold with a clean, damp swath of [cheesecloth](#) and place the mold on a drying rack inside a shallow whey receptacle. Scoop the cheese curds into the mold, pressing very lightly to make a level surface, then fold the ends of the cheesecloth over the top. Place a small weight, about 2 pounds, on top of the ricotta. (A pint jar filled with water seems to do the trick.) Press in this manner for one hour, then pull the cheese out of the mold and unwrap it. Very carefully invert it, rewrap it with the same cheesecloth, and put it back into the mold. Replace the same weight on top and press it for another 12 hours.
6. After the pressing time, pull the ricotta out of the mold. Unwrap it carefully, and gently rub the surface with cheese salt. Rewrap the cheese with clean cheesecloth, put it into the mold, and put the mold into the refrigerator for another 12 hours.
7. After the chilling time, repeat step 6, except that now you can continue using the same cheesecloth to rewrap it, and you don't have to get a clean piece every time. Put it back into the refrigerator. Repeat this process every 12 hours for 3 days, after which time you can stop putting it back into the mold after each unwrapping and salting, and just keep it on a drying rack in the refrigerator. If mold begins to appear, wipe it off gently with a small piece of cheesecloth wet in a vinegar-water mixture. Continue this unwrapping and salting routine for one week, replacing the cheese upon the drying rack in the refrigerator each time you are finished.
8. After 7 days, brush off any surface salt. Rewrap it and let it continue to age in the refrigerator until it is the texture and consistency you want it to be. Once it has reached the desired point, wrap it in cheese paper and continue to store it in the



refrigerator. You can eat it immediately or choose to wait and continue to age it for up to two months.

## 30-Minute Mozzarella



Makes about 3/4 pound of cheese. Takes about 30 minutes to make.

### Ingredients

- 1 teaspoon cheese salt (optional)
- One gallon of cow or goat milk
- 1-1/4 cup cool, chlorine-free water
- 1-1/2 teaspoon citric acid
- 1/4 rennet tablet or 1/4 teaspoon liquid rennet
- Large bowl of water, placed in the refrigerator when you start
- Large bowl of water, placed in the freezer when you start
- Rubber gloves (optional)

### Instructions

1. If using a rennet tablet, dissolve 1/4 rennet tablet in 1/4 cup water. Wrap the rest of the tablet in plastic and store it in the freezer. If using liquid rennet, dilute the rennet in 1/4 cup of water.
2. Mix 1-1/2 teaspoons citric acid into 1 cup water and stir until the citric acid is dissolved. Pour this into the big pot.
3. Pour 1 gallon of milk into the pot and stir vigorously with the slotted spoon, while heating the milk.

- If you're using raw milk, heat it to 88°F.
  - If you're using pasteurized milk, heat it to 90°F.
4. Take the pot off the burner. Add the rennet and slowly stir it in with an up-and-down motion of the slotted spoon for approximately 30 seconds.
  5. Cover the pot and let it sit undisturbed for 5 minutes. If you're using raw milk, let it sit for 10 minutes. Check the curd at this point. It should look like custard, with a clear separation between the curd (solid) and the whey (liquid). If the curd is too soft or the whey is too milky, let it sit for a few more minutes.
  6. Cut the curd with a knife that reaches to the bottom of the pot. [Click here for instructions on how to cut the curd.](#)
  7. Put the pot back on the stove and slowly heat it up while stirring the curds around with the slotted spoon.
    - If you're using raw milk, heat it to 90°F.
    - If you're using pasteurized milk, and you're going to use the microwave to stretch the curds, heat it to 105°F.
    - If you're using pasteurized milk, and you're going to use the stovetop to stretch the curds, heat it to 110°F.)
  8. Take the pot off the burner and stir slowly for 2 to 5 minutes. More stirring will make a firmer cheese.
  9. Pour off the floating whey.\*
  10. Stretch the curds using one of the two methods below.
  11. Form the cheese. You can make the stretched curd into a large ball, or a collection of small balls. You can braid it, or make it into a log, or roll it into a number of sticks. Be creative!
  12. Cool the cheese by submerging it in the bowl of refrigerated water. Leave it there for 15 minutes, then put it in the bowl of ice water. This cooling step is important to keep the cheese from becoming grainy.

### **USING A MICROWAVE TO STRETCH THE CURDS**

1. Ladle the curds into a large microwaveable bowl and drain off the whey. Use rubber gloves if you like. Don't press too much.
2. Microwave for 1 minute, then fold the curds gently into the center of the bowl, draining off more whey. Add 1 teaspoon salt (optional).

3. Microwave for another 30 seconds. The curd should be 160° to 170°F now. If it isn't, microwave it for another 30 seconds.
4. Stretch the curd by pulling it like taffy until it is soft and shiny. The more you work the cheese, the firmer it will be.

**USING THE STOVETOP (WATERBATH) TO STRETCH THE CURDS** (You can do this with half the curds at a time.)

1. Heat a pot of water to 185°F.
2. Ladle the curds into a colander, folding them together gently toward the center and draining off the whey as you go.
3. Dip the colander with the curds in it carefully into the hot water a few times, then use the slotted spoon to fold the curds back into the center of the colander until they become stretchy. This will happen when the curds reach 160° to 170°F.
4. Remove the curd from the colander and stretch it like taffy. If it does not stretch easily, return it to the hot water bath.
5. At this point you can add cheese salt, if you like. Then stretch the curd by pulling it like taffy until it is soft and shiny. The more you work the cheese, the firmer it will be.

\*You can save the whey and use it in other projects! Check out our website article on [Ways to Use Whey](#).

### **Troubleshooting**

**Q. The mozzarella curd never formed a solid mass. It just looks like ricotta. What do I do?**

**A.** There are two primary causes. First, it is important to be sure the curd was allowed to sit and fully form before cutting the curd. Be sure to not disturb the milk at all while the curd is forming. Second, using high-temperature pasteurized milk can cause this issue. Be sure to check the label. When in doubt, try a new brand of milk; preferably a local brand since those brands are generally less processed.

**Q. The curd disintegrated while heating. What did I do wrong?**

**A.** There are two primary causes. First, it is important to be sure the curd was allowed to sit and fully form before cutting the curd. Be sure to not disturb the milk at all while the curd is

forming. Second, occasionally a brand of milk is more acidic than other brands and requires a small recipe adjustment. Start over and reduce the citric acid in the recipe to 1 teaspoon.

**Q. My mozzarella curds aren't stretching after I microwaved them. Can I fix it?**

**A.** Your microwave may not be hot enough. Try putting them back in the microwave up to three more times at 30 seconds each to warm the curd sufficiently.

**Q. My mozzarella curds are very hot and they still aren't stretching. What do I do?**

**A.** Due to structural differences between brands of milk (including how processed the milk is), sometimes you'll need to adjust the ingredients. In this case, start over with a new batch and increase the citric acid to 1-3/4 to 2 teaspoons. It may take several adjustments to find the correct amount of citric acid for the milk you are working with. Cheesemaking is a bit of an art form.

**Q. My mozzarella is very dry. How do I make it more moist?**

**A.** Next time, skip the step where you heat the curd to 105°/110° or decrease the amount of citric acid to 1-1/4 teaspoons or take care not to stretch the mozzarella as much and cover it immediately with cold water once you are finished with the stretching process.

## Traditional Mozzarella



Please note: this recipe is not the quick, “30-minute” version of mozzarella cheese but rather the more traditional method using cultured milk. While it takes a little longer, the flavor and texture are well worth the extra effort.

### Ingredients

- 2 gallons cow or goat milk (raw or pasteurized, but not ultra-pasteurized)
- Thermophilic culture (choose one):
  - 1 packet [direct-set thermophilic culture](#) or
  - 1/8 teaspoon bulk thermophilic culture
- Rennet (choose one):
  - 1/2 teaspoon [liquid animal rennet](#), dissolved in 1/2 cup cool water or
  - 1/2 teaspoon [double-strength liquid vegetable rennet](#), dissolved in 1/2 cup cool water or
  - 1/4 [tablet vegetable rennet](#), dissolved in 1/2 cup cool water
  - 16 ounces kosher salt (optional, for brine)

### Instructions

1. In large pot, heat milk to 90°F over medium low heat, stirring frequently.
2. When milk is at 90°F, add culture, stir well, cover and allow to ferment for 45 minutes.

3. After 45 minutes, check temperature again. It should still be at 87° to 90°F. Stir well to homogenize the milk, and slowly fold in the diluted rennet. Using an up-and-down motion with your spoon will ensure that the rennet works its way through all the milk, so you can get the highest possible yield.
4. Allow the cheese to set for 60 to 90 minutes, or until the whey begins to separate from the curd. You should see a layer of mostly clear whey floating on top of the curd, and the curd should be pulling away from the sides of the pot.
5. Using a long knife, cut the curds into 1/2-inch cubes and let set for 20 minutes. Do not stir.
6. Over the next 30 minutes, slowly heat the curds to 100°F, stirring frequently. As you stir, the curds will shrink. Once the curds are at 100°F, turn off the heat and allow to set for 5 minutes.
7. Drain the whey from the curds, preserving the whey for other recipes (if desired).
8. Fill your sink with 110° to 120°F water, and set the pot containing the curds into the sink. Allow to set at this temperature for 2 to 3 hours. Every 30 minutes, use your hands to press the whey from the curds and flip the curds over. At the end of 2 to 3 hours, you should have a firm cake of curds.
9. Cut the curds into four equal pieces; these will be your balls of mozzarella. Set three of the pieces aside, and put on your gloves.
10. Heat water to between 170° and 190°F. Pour the water over your first piece of mozzarella, working it with your hands until it is smooth, shiny, and stretchy. Work quickly! The water is hot and you can burn your hands even through gloves. When the cheese is nice and stretchy, form into a ball and place in a bowl of cold water to firm up. Continue with the other three pieces.

You may brine this mozzarella using 16 ounces of kosher salt, sea salt, or cheese salt dissolved in 1 gallon of water. Leave the balls in the brine for 2 hours, then remove and pat dry before refrigerating. This cheese also freezes well; just shred it first.

Please note: It is impossible to make a truly “raw” mozzarella. All mozzarella must be heated to 170°F in order for the cheese to stretch, and pasteurization occurs at 160°F. If you are looking for a similar mild flavor in a raw cheese, try a young Monterey jack, aged no longer than 30 days.

## Fromage Blanc



Fromage blanc (*white cheese* in French) is a soft spreadable cheese with a milder flavor than yogurt. It is perfect for spreading on bread or crackers or as a dip for fruit or vegetables. Fromage blanc is very easy to make and is a great option for beginning cheesemakers.

### Ingredients

- 1 gallon cow milk (do not use UHT/UP milk)
- 1 packet [fromage blanc starter culture](#) (this product is a ready-to-use packet which includes both starter culture and rennet)  
OR use single-ingredient starter culture and a separate rennet
- Starter culture (choose one):
  - 1/8 teaspoon [mesophilic aromatic type B](#)
  - 1/8 teaspoon [flora danicae](#)
  - 1/8 teaspoon [mesophilic culture MA4001](#)
  - 1 packet [mesophilic direct-set culture](#)
- Rennet, (choose one):
  - 4 drops [liquid animal rennet](#) dissolved in 1/4 cup cool water
  - 2 drops [double-strength liquid vegetable rennet](#), dissolved in 1/4 cup cool water



## **Step One: Culture the Milk**

### Option #1: Using the Fromage Blanc Starter Culture

1. Heat the milk to 86°F. (Please note: this process will not pasteurize raw milk.)
2. Remove the milk from the heat and thoroughly stir in the packet of fromage blanc culture. Use an up-and-down motion rather than a mixing motion. Do not blend for longer than 30 seconds so as to avoid damaging the curd formation.
3. Cover the pot and leave the mixture to culture for 12 hours at approximately 72°F.
4. After 12 hours, the cheese should look like yogurt (solid if tipped but still relatively soft). You may see some whey separating from the cheese. The whey is a mostly clear liquid.

### Option #2: Using a Mesophilic Starter Culture and Rennet

1. Heat the milk to 75°F. (Please note, if using raw milk, this process will not pasteurize the milk.)
2. Remove the milk from the heat and allow the mesophilic culture to dissolve on the surface of the milk for approximately 2 to 3 minutes. Once dissolved, thoroughly incorporate the starter culture into the milk.
3. Add the rennet mixed with water. Using up-and-down strokes (don't stir!), incorporate the rennet into the milk. Do not over-mix.
4. Cover the pot and allow the mixture to culture for 14 to 16 hours at approximately 72°F (generally kitchen room temperature).
5. After 14 to 16 hours, the cheese should look like yogurt (solid if tipped but still relatively soft). You may see some whey separating from the cheese. The whey is a mostly clear liquid.

## **Step Two: Strain the Cheese**

1. Place a piece of butter muslin (doubled) in a colander in a bowl. Gently spoon the fromage blanc into the butter muslin. Gather up the corners of the muslin and tie knots to secure.
2. Hang the butter muslin filled with the fromage blanc over a bowl so the whey can drain. An easy way to do this is to tie the butter muslin around a cupboard handle so the bowl to catch the whey can rest on the counter underneath.

3. Allow the fromage blanc to drain for 6 to 12 hours to reach the desired consistency (see below).
4. Flavor fromage blanc with herbs if desired. You can mix in fresh or dried herbs. Alternatively you can mold the fromage blanc and roll it in the herbs.
5. Fromage blanc will stay good in the refrigerator for up to one week.

### **Draining Options**

The consistency of the finished cheese will depend on the length of time it is strained.

- Strain the fromage blanc for approximately 6 hours for a soft, spreadable cheese or dip.
- Strain the fromage blanc for approximately 12 hours for a cream cheese consistency.

### **Uses for Fromage Blanc:**

- Fromage blanc is similar to a thick, mild-flavored yogurt and makes a wonderful dip for fruit or vegetables.
- Spread on your favorite crackers, bagels, toast, etc. as you would cream cheese.
- Use in recipes in place of other soft cheeses such as ricotta, mascarpone, cream cheese, etc.
- Use in place of sour cream.
- Layer in a parfait with fruit and honey.
- Add a little sweetener and use fromage blanc to frost cupcakes. (This is particularly delicious on carrot cake in place of cream cheese frosting.)

### **Storing Fromage Blanc**

Fromage Blanc will stay good in the refrigerator for up to one week.

Fromage Blanc can be frozen but be sure to:

- Salt the fromage blanc well prior to freezing.
- Remove as much of the whey as possible (use a cheese press if you have one available); the drier the fromage blanc, the better it will freeze.

## Chèvre



Chèvre is a soft cheese made from goat milk and is perhaps one of the easiest cheeses to make at home.

### Ingredients

- 1 gallon goat milk (do not use UHT/UP milk)
- 1 packet [chèvre starter culture](#) (this product is a ready-to-use packet that includes rennet)  
OR use single-ingredient starter culture and a separate rennet
- Mesophilic starter culture (choose one):
  - 1/8 teaspoon [mesophilic aromatic type B starter culture](#)
  - 1/8 teaspoon [flora danica starter culture](#)
  - 1/8 teaspoon [mesophilic culture MA4001](#)
  - 1 packet [mesophilic direct-set culture](#)
  - 1/8 teaspoon bulk mesophilic culture
- Rennet, (choose one):
  - 2 drops [liquid animal rennet](#) dissolved in 1/4 cup cool water
  - 1 drop [double-strength liquid vegetable rennet](#), dissolved in 1/4 cup cool water

## **Step One: Culture the Milk**

### Option #1: Using the Chèvre Starter Culture

1. Heat the milk to 86°F. (Please note: if using raw milk, this process will not pasteurize the milk.)
2. Remove the milk from the heat and thoroughly stir in the packet of chèvre culture. (Please note: these ready-to-use packets contain both starter culture and rennet.)
3. Cover the pot and leave the mixture to culture for 12 hours at approximately 72°F (generally kitchen room temperature).
4. After 12 hours, the cheese should look like yogurt (solid if tipped but still relatively soft). You may see some whey separating from the cheese. The whey is a mostly clear liquid.

### Option #2: Using a Mesophilic Starter Culture and Rennet

1. Heat the milk to 75°F. (Please note: if using raw milk, this process will not pasteurize the milk.)
2. Remove the milk from the heat and allow the mesophilic culture to dissolve on the surface of the milk for approximately 2 to 3 minutes. Once the starter culture is dissolved, thoroughly incorporate it into the milk using up-and-down strokes with your cheese spoon.
3. Add the rennet mixed with water. Using up-and-down strokes (don't stir!), incorporate the rennet into the milk. Do not over-mix.
4. Cover the pot and allow the mixture to culture for 14 to 16 hours at approximately 72°F (generally kitchen room temperature).
5. After 14 to 16 hours, the cheese should look like yogurt (solid if tipped but still relatively soft). You may see some whey separating from the cheese. The whey is a mostly clear liquid.

## **Step Two: Strain the Cheese**

1. Place a piece of butter muslin (doubled) in a colander in a bowl. Gently spoon the chèvre into the butter muslin. Gather up the corners of the muslin and tie knots to secure.

2. Hang the butter muslin filled with the chèvre over a bowl so the whey can drain. An easy way to do this is to tie the butter muslin around a cupboard handle so the bowl to catch the whey can rest on the counter underneath.
3. Allow the chèvre to drain for 6 to 12 hours to reach the desired consistency (see below).
4. Flavor chèvre with herbs if desired. You can mix in fresh or dried herbs. Alternatively you can mold the chèvre and roll it in the herbs.

### **Draining Options**

- You can choose not to drain the chèvre at all which will leave you with a delicious and thick yogurt. (This is a great method for making goat yogurt.) A small amount of draining (less than 6 hours) will yield an even thicker yogurt-type of food.
- Drain the chèvre for approximately 6 hours for a soft, spreadable cheese.
- Drain the chèvre for approximately 12 hours for a cream cheese consistency.

### **Uses for Chèvre:**

- Spread on your favorite crackers, bagels, toast, etc. as you would cream cheese.
- Use in recipes in place of other soft cheeses such as ricotta, mascarpone, cream cheese, etc.
- Use in place of sour cream
- Layer in a parfait with fruit and honey
- Add a little sweetener and use chèvre to frost cupcakes (particularly delicious on carrot cake in place of cream cheese frosting)

### **Storing Chevre:**

Chèvre will stay good in the refrigerator for up to one week.

Chèvre can be frozen but be sure to:

- Salt the chèvre well prior to freezing.
- Remove as much of the whey as possible (use a cheese press if you have one available); the drier the chèvre, the better it will freeze.

## Moist Buttermilk Cheese Italian Spread



This cheese is made using cultured buttermilk, which is different from the liquid left over after you have agitated cream to make butter. It is better to use [cultured buttermilk](#) for this recipe, for it has a thick, sour, clabbered consistency that helps to make this cheese great. The heightened moisture in this cheese is because the curds are not heated before being drained. Let the buttermilk sit out for a few hours before you begin to make this cheese, so that the cultures within it are fully active and the buttermilk is room temperature.

### Ingredients

- 1 quart room temperature [cultured buttermilk](#)
- 1 drop liquid [rennet](#) diluted in 1/8 cup cool water (used only if you are using buttermilk made from goat milk)
- [Cheese salt](#)

### Instructions

1. Measure the temperature of your buttermilk using a [cheese thermometer](#). It should be around 72°F. If you are using buttermilk made from goat milk, add 1 tablespoon of the rennet mixture to the buttermilk. Make sure you have mixed the rennet in thoroughly before continuing.
2. Line a colander with clean [butter muslin](#) and pour the clabbered buttermilk in. Collect the corners of the butter muslin and tie them in a knot to create a bag.

Suspend this bag over a large bowl or sink to drain for one day, or until the cheese is the consistency you want it to be. If the buttermilk gets too dry, you can add tablespoons of cream until it is the right texture.

3. To flavor the cheese, mince 2 or 3 cloves of garlic, place them in a kitchen mortar and pestle, and muddle them with fresh sprigs of basil and oregano. Add this muddled herb mixture to the fresh cheese then sprinkle in salt and pepper. This spread is great on toasted French bread as an accompaniment to any pasta dish.

Fresh buttermilk cheese will keep in the refrigerator for two weeks. Cheese flavored with garlic will not keep for as long, so hold off on flavoring your cheese until just before you are ready to serve it.



## Lactic Cheese



Lactic cheese is very versatile and can be used as an herbed spread by adding salt and the spices of your choice, or left unsalted and used as a dessert ingredient, such as rolled in crepes with strawberries. It can sometimes be used in place of cream cheese, too. This is a cheese you can make in the evening, let set overnight, and drain in the morning. It is very adaptable and forgiving, making it an all-around good beginner cheese.

### Ingredients

- 1 gallon whole milk
- 1 packet [direct-set mesophilic culture](#) (or 4 ounces prepared)
- 3 drops [vegetable rennet](#) dissolved in 1/3 cup water

### Instructions

1. Heat the milk to 86°F. Sprinkle direct-set cultures over the surface of the milk, let them rehydrate for 3 to 4 minutes, then stir them in using a gentle up-and-down motion.
2. Add 1 teaspoon of the diluted rennet solution and stir again for 1 minute, using the same up-and-down method.
3. Cover and leave the cheese to set for 12 hours, or until a solid curd forms. If for some reason (like you are busy or forget about it) you leave your lactic cheese sitting at

this stage for over 12 hours, or even 18 to 20 hours, don't worry. Your cheese should be just fine. Lactic cheese is patient and adaptable.

4. The curd should resemble yogurt and may smell similar. Pour or scoop the curd out of the whey into a colander lined with butter muslin. Tie the corners of the muslin to make a bag and suspend this bag over a sink or large bowl to drain for 6 to 10 hours, or until the cheese reaches the consistency you want.
5. When the cheese is ready, pour the curds out of the butter muslin bag into a bowl. Add salt and/or herbs now if you want to. Cover the bowl and put it in the refrigerator or the cellar.

Lactic cheese stored in a cool place should keep fresh for up to 2 weeks.

## Queso Blanco



Queso blanco, meaning *white cheese* in Spanish, is a Latin American cheese. It is a firmer cheese, with a slightly sweet flavor, and is easy to make. It can be made in higher temperatures than most cheeses, which makes it a good summer cheese. Queso blanco uses few ingredients, and can be made quickly.

### Ingredients

- 1 gallon whole pasteurized or raw milk
- 1/4 cup apple cider vinegar or distilled vinegar

### Instructions

1. Heat the milk to 190°F, stirring constantly to prevent scorching. Once the milk has reached temperature, turn off the heat.
2. Add the vinegar slowly, stirring gently, until the curds begin to separate from the whey. If the amount of vinegar you added seems inadequate to make a clean break, you can add more, little by little, until you have achieved a good, clean break. Be careful, though, because adding too much vinegar will make your cheese have an unpleasant sour taste.
3. Line a colander with [butter muslin](#) and ladle the curds into it. Tie the corners into a knot, making a draining bag, and suspend this bag over a bowl to drain for a few hours, or until the queso blanco has reached the consistency you like.

4. Pour the drained cheese into a bowl, salt to taste if you want, and store refrigerated until use, up to 2 weeks.

This recipe generally makes about 1-1/2 to 2 pounds of queso blanco.

## Queso Fresco



Queso fresco, meaning *fresh cheese* in Spanish, is a popular Latin American cheese and is present in many traditional Latin American dishes. It is much like queso blanco, being an easy, low-temperature cheese, but queso fresco is a *bit* more work, for it is pressed and allowed to age slightly, thereby developing a more complex flavor than queso blanco.

### Ingredients

- 2 gallons whole milk
- 1 packet [direct-set mesophilic culture](#)
- 1/4 teaspoon liquid [rennet](#), dissolved in 1/4 cup cool water
- [Cheese salt](#)

### Instructions

1. Heat the milk to 90°F.
2. Add starter, stirring constantly for 1 minute with an up-and-down motion.
3. Remove the milk from the heat and add the dissolved rennet, and incorporate with an up-and-down motion.
4. Cover and let it set undisturbed for about 30 minutes, or until you have a clean break.
5. Cut the curd into 1/4-inch cubes.

6. Over medium-low heat, bring the temperature of the curds and whey to 95°F. Raise the heat gradually. It should take between 15 and 20 minutes. Keep stirring gently to prevent your curds from sticking together (matting).
7. Once the curds have reached the proper temperature, let them set for 5 minutes, undisturbed, then drain off the whey.
8. Add about 2 tablespoons of cheese salt to the curds, then keep them at 95°F for 30 minutes.
9. Line a cheese press with cheesecloth and put the warm curds into it. Press at 35 pounds of pressure for 5 to 6 hours.
10. Remove the cheese from the mold and put it into a covered container in the refrigerator.

The cheese will keep in the refrigerator for up to two weeks.

## Paneer



Paneer, also known as Indian cottage cheese, is one of the easiest and most versatile fresh cheeses to make at home. It is full of protein, yet, like tofu, bland enough to take on the flavor of other ingredients in a dish. It is used in many traditional Indian dishes, but also makes an ideal protein extender for many Western dishes. It doesn't melt like other cheeses so it can be crumbled or cut in cubes and still retain its shape.

### Ingredients

- 1 gallon pasteurized or raw whole milk (do not use ultra-pasteurized or UHT milk)
- 2 teaspoons [citric acid](#) dissolved in 1/2 cup lukewarm water

### Instructions

1. Heat the milk in a large saucepan over medium heat until it reaches a full boil. Stir occasionally, being careful not to let the milk scorch. When milk reaches a boil, turn the heat off.
2. Slowly stir in the citric acid using an up-and-down motion. Continue to stir as large curds form and the whey becomes more clear than milky (about 20 to 30 seconds). Remove the pan from the burner and let sit undisturbed for 10 to 30 minutes, until the curds have settled to the bottom of the pan.
3. Meanwhile, line a colander with butter muslin. If you moisten the muslin it will stay in place better. Scoop the curds into the colander. Rinse them under cool running water

for 15 to 20 seconds. Gather up the four corners of the muslin and hang the curds for about 30 minutes, until there is no more whey dripping from the curds. If you are in a hurry you can gently squeeze the bag of curds to remove excess whey.

4. Open the muslin and shape the curds into a 2-inch thick disk. Carefully fold the muslin back over this disk, making the cloth as smooth and evenly distributed as possible. This assures a smooth surface on the cheese.
5. Place the wrapped disk on a plate or tray that can collect whey. Put a heavy skillet (cast-iron works well) or other heavy object on top of the wrapped cheese for 30 to 60 minutes. Turn the disk over and press the other side for an additional 30 minutes.
6. Unwrap the cheese and store it in an airtight container in the refrigerator until ready to use.

Fresh paneer will keep, refrigerated, for 4 to 7 days.



## Traditional Quark



Quark (meaning “curd” in German) is an ancient form of soft cheese that may date back over 2000 years. It is the consistency of sour cream or yogurt, making it a popular spread. But quark can be used in a large number of ways. It can be substituted for [cream cheese](#) in cheesecake, mixed with dried fruits for a quick breakfast, or blended with herbs and salt for a tasty cracker spread. Quark is generally made with skim milk, but higher-fat milks can be used, and a bit of cream can be added to the final product to create a creamier cheese.

### Ingredients

- 2 quarts whole milk
- 2 quarts skim or reduced-fat milk,
- 1/4 teaspoon [mesophilic culture](#)
- 1/4 teaspoon [calcium chloride](#) diluted in 1/4 cup water
- 1/4 teaspoon [rennet](#) diluted in 1/4 cup water
- 2 teaspoons [cheese salt](#)

### Instructions

1. Slowly heat both milks together in a non-reactive cheese pot over low heat until the temperature reaches 72°F.
2. Turn off the heat when the milk reaches temperature and add the cultures by sprinkling them onto the surface of the milk and allowing them to rehydrate there for

4 to 5 minutes. Then incorporate them into the milk using an up-and-down motion for about 30 seconds.

3. Cover and maintain the milk at 72°F for 30 minutes.
4. Add the diluted calcium chloride and stir for 1 minute in an up-and-down motion. Repeat the same process with the diluted rennet.
5. Cover the milk and let it set at room temperature for 12 to 18 hours, or until there is a clean break and a slight layer of yellow whey floating atop the curds.
6. Return the curd to 72°F, and begin cutting it into 1/2-inch pieces. Once the curd is cut, remove it from the heat and gently stir the curds for 5 minutes.
7. Let the curds sink to the bottom of the pot, but maintain the temperature. Ladle off the top layer of whey until you can see the curds at the bottom of the pot.
8. Line a colander with [butter muslin](#) and begin ladling the curds into it. Let the curds drain for about 8 to 10 hours, or until the desired consistency is reached.
9. Put the drained cheese into a bowl and mix in the salt, adding more or less to accommodate your own personal taste.

Store your quark in a covered container in the refrigerator, and use within 2 weeks.

## Simple Buttermilk Quark



Quark is popular worldwide, particularly in Europe, probably because it is delicious (tasting like a more mild form of yogurt), but also because of its versatility as an ingredient and its ability to stand on its own. There are multiple varieties of quark: sahnquark (cream quark), made with a large portion of heavy cream; [traditional quark](#), made with whole milk; magerquark (or schichtkase) made with skim or 2% milk; and buttermilk quark, made with cultured buttermilk. Traditional quark recipes call for mesophilic cultures and calcium chloride, but this recipe makes quark easy for those not ready to rush headlong into serious cheesemaking.

### Ingredients

- 1 gallon of pasteurized milk
- 1 packet of [direct-set buttermilk culture](#)
- 1 to 2 tablespoons of heavy cream, if you want

### Instructions

1. Heat the milk in a non-reactive stockpot to around 88°F.
2. Once the milk has reached the proper temperature, add the starter by gently sprinkling it on the top of the warmed milk, then letting it float on top for around 1 minute.

3. After the cultures have had time to rehydrate, gently incorporate them into the milk using a rubber spatula, moving in slow, up-and-down motions. Once you are satisfied that the starter has been thoroughly mixed in, cover the pot and let it stand undisturbed for 24 hours, or until it has set.
4. Place a clean colander over a large bowl, and line the colander with damp butter muslin. Ladle all of the curds from the pot into the colander. Tie up the corners of the butter muslin into a knot, making a sack containing the cheese curds.
5. Put the whole thing—colander, bowl, and curds in the sack—into a cooler, cellar, or some other place where they can remain under 55°F. Leave them there for 12 hours. You can put some water into a clean container and place them atop the curd sack to assist in quicker drainage.
6. After 12 hours, check the quark. If it is too wet, leave it to drain some more. If it is too dry, spoon it into a non-reactive bowl, and add the tablespoons of cream to it, mixing thoroughly. Once the quark's consistency reaches the point to your liking, you can store it in a covered container until you are ready to use it.

Quark will keep in the refrigerator for 2 weeks.

## Hard and Semi-hard Cheeses



Hard cheeses represent the pinnacle of milk culturing expertise. Making a hard cheese is not really difficult, but takes time and patience, and often some specialized equipment.

The process of making hard cheese starts out very much like the process of making soft cheese: culturing and coagulating the milk, pressing out the moisture, and forming the cheese. But you don't stop there with a hard cheese: there is pressing the cheese to further eliminate moisture, waxing or bandaging the cheese to protect it, and aging it to bring out the complex, rich flavors.

Many hard cheeses use additional additives to enhance the flavor or texture, as in Swiss cheese, or the many "moldy" cheeses. Cultures for Health has a variety of specialized cultures and additives to create many delicious cheeses.

If you are going to make hard cheeses, it will be worth your while to invest in a cheese press. Applying strong pressure to the curd is the only way to get enough moisture out of the cheese so that it stays together in a firm block as it ages.

## Cheddar Cheese



### Ingredients

- 2 gallons cow or goat milk (do not use UHT/UP milk)
- Mesophilic culture (choose one):
  - 1 packet [direct-set mesophilic culture](#)
  - 1/8 teaspoon bulk mesophilic culture
- Rennet (choose one):
  - 1/2 teaspoon [liquid animal rennet](#), dissolved in 1/2 cup cool water
  - 1/4 teaspoon [double-strength liquid vegetable rennet](#), dissolved in 1/2 cup cool water
  - 1/4 [tablet vegetable rennet](#), dissolved in 1/2 cup cool water
- 2 tablespoons sea salt

### Instructions

1. In a large pot, heat the milk to 85°F, stirring frequently.
2. When the milk gets to 85°F, add culture, stir, cover, and allow to ferment for 1 hour.
3. Stir to homogenize the milk, and slowly fold in the diluted rennet. Using an up-and-down motion with your spoon will ensure that the rennet works its way through all the milk, so you can get the highest possible yield.



4. Allow the cheese to set for 1 hour, or until the whey begins to separate from the curd. You should see a layer of mostly clear whey floating on top of the curd, and the curd should be pulling away from the sides of the pot.
5. Using the knife, carefully cut the curds into 1/4-inch cubes and allow to set for 5 minutes. Do not stir.
6. Over the next 30 minutes, slowly heat the curds to 100°F, stirring frequently. As you stir, the curds will shrink.
7. Once the curds are at 100°F, maintain the temperature and continue stirring for the next 30 minutes. If the curds get too hot, remove from heat.
8. After 30 minutes, stop stirring and allow the curds to settle to the bottom of the pot. This will take about 20 minutes.
9. Pour the curds into a colander. Place the colander and curds back into your cheese pot and allow to drain for 15 minutes.
10. Remove the colander from the pot and turn the curds out onto a cutting board. You should have a semi-solid mass that looks like jelly. Pour the whey out of the pot, cut the mass into five slices, and place back into the pot. Cover.
11. Run a sink or basin full of 102°F water and place the pot and curds into it. Keeping the temperature of the curds right around 100°F, turn the slices every 15 minutes for the next 2 hours. This is the cheddaring process and will give your cheese its unique flavor and deliciousness.
12. After 2 hours, the curds will be shiny and very firm. Remove them from the pot and cut into 1/2-inch cubes. Place back in the pot, cover, and place in the sink filled with 102°F water.
13. In 10 minutes, stir gently with your fingers or a wooden spoon. Repeat twice more.
14. Remove the pot from the sink and add salt. Stir gently once more.
15. Line the cheese press with a piece of cheesecloth and carefully place the curds into a cheese press. Wrap the cloth around the cheese and press at 10 pounds of pressure for 15 minutes.
16. Remove the cheese from the press, unwrap, and flip the cheese. Re-wrap using a fresh piece of cheesecloth, and press at 40 pounds of pressure for 12 hours.
17. Remove the cheese from the press, unwrap, and flip the cheese. Re-wrap using a fresh piece of cheesecloth, and press at 50 pounds of pressure for 24 hours.

18. Remove the cheese from the press and air dry for 2 to 3 days, until smooth and dry to the touch.
19. Wax the cheese and age at 55° to 60°F for at least 60 days. (Click here for [practical methods for aging cheese](#).)



## Stirred-curd Cheddar Cheese



Stirred-curd cheddar, similar to farmhouse cheddar, could also be called “shortcut cheddar,” for it is a faster and easier way to make this popular cheese. Traditional cheddars take longer and require more attention to detail, while this type of cheddar is good for both beginning cheesemakers and those with less time to devote to cheesemaking.

### Ingredients

- 2 gallons whole milk
- 1 packet direct-set [mesophilic](#) culture
- 1/2 teaspoon liquid [rennet](#) diluted in 1/4 cup water
- 2 tablespoons [cheese salt](#)
- You can also color this cheese, if you wish. If you are going to do this, you can have 4 drops of [cheese coloring](#) diluted in 1/4 cup water ready to go.

### Instructions

1. Heat the milk to 90°F. Add the starter and mix it in using an up-and-down motion for 1 minute. Cover milk and leave it to ripen for 45 minutes.
2. Mix in the coloring, if you are using it, and stir it in using an up-and-down motion.
3. Check to make sure the milk is still 90°F. If it isn't, bring the temperature back up. Add the rennet and stir in using the same up-and-down gentle motions for 1 minute. If you are using farm-fresh cow milk, top-stir for 2 more minutes. Cover the milk and

allow it to set at 90°F for 45 more minutes, making sure you keep a steady 90°F temperature.

4. Once you have a clean break, cut the curd into 1/4-inch cubes.
5. Allow the curds to set for 15 minutes, then heat them to 100°F, bringing the temperature up by a maximum of 2°F every 5 minutes. Stir frequently to keep the curds from sticking together (matting). Once the curds reach 100°F, maintain the temperature for 30 more minutes, and keep stirring periodically but not continually. After the last 30 minutes is up, cover the curds and whey and let them rest for 5 minutes.
6. Drain off the whey and pour the curds into a colander suspended over a large bowl. Drain them for several minutes, then pour the curds back into the pot and stir them with your fingers. Don't allow your curds to drain in the colander for too long, or they will begin to mat. If some have matted by the time you have dumped them back into the pot, *very gently* break them up with your fingers.
7. Add the salt to the curds in the pot and mix it in well. Try not to squeeze the curds.
8. Keep the curds in the pot at 100°F for 1 hour, stirring them with your fingers every now and again to keep them from matting. (You can fill a sink or a large bowl with water and set the pot into it, and keep the surrounding water at 100°F by taking out some water when the temperature begins to drop then adding heated water until it reaches the proper temperature again.)
9. Scoop the curds into a 2-pound cheese press lined with cheesecloth. Press at 15 pounds of pressure for 2 minutes.
10. Remove the cheese from the press, peel off the cheesecloth, flip the cheese, re-dress it, and put it back into the press at 30 pounds of pressure for 10 minutes.
11. Remove, undress, flip, and re-dress the cheese. Place it back into the press at 40 pounds of pressure for 2 hours.
12. Remove, undress, flip, and re-dress the cheese. Place it back into the press at 50 pounds of pressure for 24 hours.
13. Remove the finished cheese from the press. Peel away the cheesecloth and dry the cheese on a drying mat at room temperature away from drafts for 3 to 5 days or until the rind is dry to the touch. Flip it about 5 times a day during the drying process. After it has dried, wax it and age it at 45° to 50°F for 2 to 5 months.

## Colby Cheese



Colby cheese was developed in America and named for the town in Wisconsin where it originated. Colby is a milder form of cheddar, and a washed-curd cheese, making it moister than traditional cheddars. It is one of the more popular cheeses and its easy process and short aging time makes it a good basic beginner hard cheese.

### Ingredients

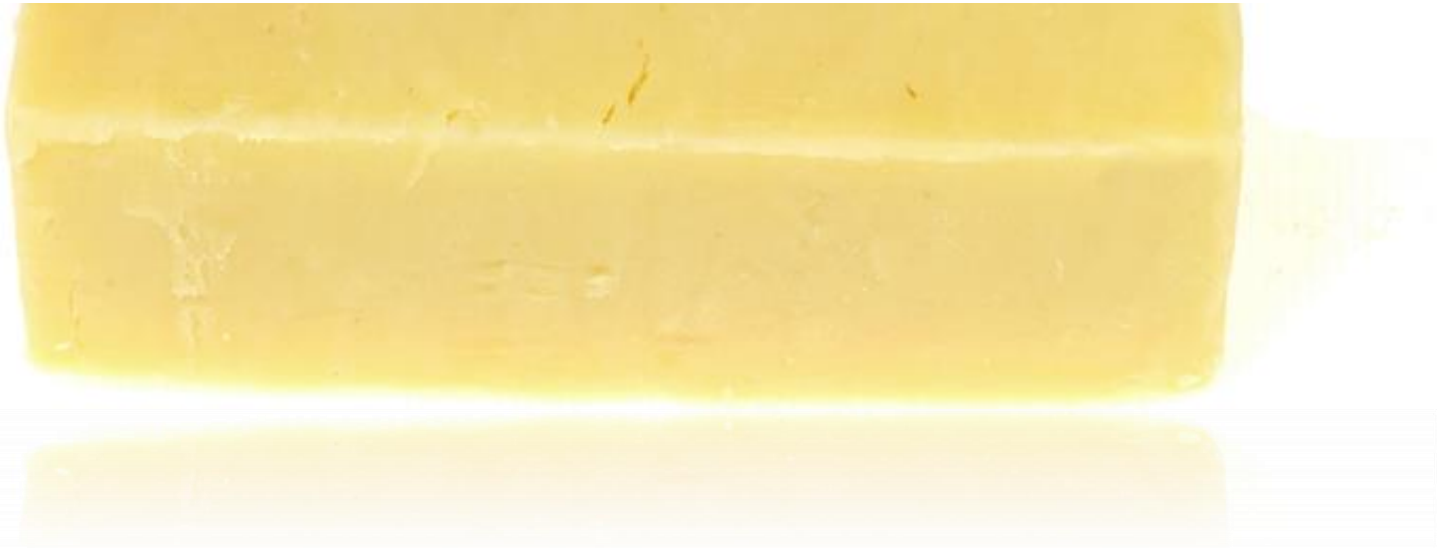
- 2 gallons whole milk
- 4 drops [cheese color](#) dissolved in 1/4 cup cool water (optional, for color)
- 1 packet [direct-set mesophilic starter](#)
- 1/2 teaspoon [rennet](#) dissolved in 1/4 cup of cool water
- [Cheese salt](#) (about 2 tablespoons)

### Instructions

1. Heat the milk to 86°F.
2. Add the starter culture by sprinkling it on top of the milk, and let it rehydrate for a few minutes before stirring it in with an up-and-down motion of the spoon.
3. Cover the milk and allow it to set, undisturbed, for one hour. If you are using coloring, stir it into the milk now.

4. Make sure that the milk is still at 86°F. Add the diluted rennet. Mix it in well, using gentle up-and-down motions. Stir it for 1 minute, then stir just in the top part of the milk for 2 more minutes. Cover it and let it set, undisturbed, for 1/2 hour.
5. If after 30 minutes you have a clean break, cut the curd into 3/8-inch cubes. Stir them gently, then let them set for 5 minutes.
6. Heat the curds and whey 2°F every 5 minutes, until they are at 102°F. Stir to prevent the curds from matting (sticking together). Maintain the temperature at 102°F for 1/2 hour. Periodically stir them gently during this time, trying to keep them from matting.
7. Pour off the whey until the amount in the pot just covers the curds. Continuing to stir, add 60°F (cool) water until the temperature in the pot reaches 80°F. Maintain the 80°F temperature for 15 minutes. Stir frequently.
8. Drain the curds in a colander lined with cheesecloth. Allow them to drain for 15 minutes.
9. Mill the curds, breaking them to thumbnail-size pieces and gently mixing in the salt.
10. Line a 2-pound mold with cheesecloth and pour the salted curds in. Press them at 20 pounds of pressure for 20 minutes.
11. Take the cheese out of the mold, peel away the cheesecloth, flip it over, rewrap, and replace it into the mold. Crank the press to 30 pounds and leave it for 20 more minutes.
12. Flip it again in the same manner as before, then press at 40 pounds for 1 hour.
13. Flip it again, and press it at 50 pounds for 1 hour.
14. Take the cheese out of the mold, take off the cheesecloth, and air-dry it somewhere cool and dark for a few days, or until the outside is dry to the touch. Wax it, and age it at around 55°F for 2 to 3 months.

## Derby Cheese



Derby cheese is a milder cheddar originating from Derbyshire, England. It has a higher moisture content than traditional cheddar and a shorter aging period.

### Ingredients

- 2 gallons whole milk
- 1 packet [direct-set mesophilic starter](#)
- 1/2 teaspoon [rennet](#) dissolved in 1/4 cup of cool water
- 2 tablespoons [cheese salt](#)

### Instructions

1. Heat the milk to 84°F. Add the starter and mix slowly for 1 minute, with an up-and-down motion. Cover and allow to ripen for 45 minutes.
2. Keeping the temperature steady at 84°F, add the diluted rennet using the same up-and-down motion used for incorporating the starter. If you are using farm-fresh cow milk, mix for 2 minutes longer.
3. Cover and allow to set for 1 hour, or until you have a clean break. When this is done, cut the curd into 1/2-inch cubes.
4. Heat the curds to 94°F, increasing the temperature by only 2°F every 5 minutes. Stir periodically to keep the curds from sticking together (matting). Once the

temperature has reached 94°F, maintain the temperature and stir continuously for 10 minutes.

5. The curd will be matted by this point. Scoop out the mass and place it on a cutting board that has been set upon a towel. Cut the curd into 1/2-inch slices. If the curd has not matted, don't despair. This might mean the curd temperature went below 94°F while you were stirring it. Fix it by scooping the curds into a colander, then suspending the colander over the hot whey in the pot and placing the lid on top of that. Leave the curds this way for 5 minutes (no longer!), and you should have a solid, cuttable curd.
6. Lay the curd slices on a draining board and cover them with a clean towel that has been dampened in 94°F water. Let them drain this way for 1 hour. Keep the covering towel hot and damp for the duration of the draining period. Turn the slices over every 10 minutes.
7. Place the curd slices in a bowl and gently mill them with your fingers into quarter-size pieces, being careful not to squeeze them too much. After they are all of fairly uniform size, add the salt and stir it in with your hands.
8. Put the curds into a 2-pound cheese press lined with butter muslin. Press at 15 pounds of pressure for 10 minutes.
9. Take the cheese out of the press, peel away the butter muslin, flip it, rewrap it, and place it back into the press at 30 pounds of pressure for 2 hours.
10. Remove, undress, flip, and re-dress the cheese and press it at 50 pounds of pressure for 24 hours.
11. Take the cheese out of the press, undress it, and place it on a drying mat at room temperature away from drafts to dry for about 3 to 5 days, or until the outside rind is dry to the touch. Wax the cheese, and age it at 50° to 55°F for 2 to 3 months.



## Southwestern Spicy Cheese Curds



Cheese curds are a slightly different take on traditional hard cheeses. Since the curd is not pressed, it separates easily into slices or chunks, and lends itself to flavoring. The spicy chilies are a perfect offset to the creamy cheese.

### Ingredients

- 1 gallon whole milk
- 1/8 teaspoon [mesophilic starter culture](#)
- 1/2 teaspoon liquid [rennet](#) diluted in 2 tablespoons cold water
- [Cheese salt](#)
- 1 can diced chilies, drained
- Cayenne pepper or red pepper flakes

### Instructions

1. Heat the milk to 88°F using a water bath method in 98°F water. This should take about 15 minutes.
2. Remove the milk from the water bath once it has reached temperature. Sprinkle the starter over the surface of the milk and allow it to rehydrate for 5 minutes. Then stir it in slowly with a whisk, using steady up-and-down motions. Cover and maintain the temperature at 88°F for 45 minutes to allow the milk to ripen.

3. Add the diluted rennet and stir in using the same up-and-down motions used for incorporating the cultures. Replace the lid and maintain the temperature between 88° and 86°F. Leave the milk undisturbed for 40 minutes to allow it to set.
4. Once you have a clean break, cut the curds into 1/2-inch pieces. Place the pot over medium-low heat, and bring the temperature of the curds and whey up to 102°F over about 1/2 hour, stirring frequently to shrink the curds to the size of peanuts. Cover and maintain the temperature for about 30 more minutes, stirring less frequently to prevent excess matting of the curds.
5. When the curds are done, they should lump together when a handful of them are gently squeezed in your hand. Press the lump with your thumb. If the curds separate easily, they are ready. Cover the pot and allow the curds to settle to the bottom.
6. Line a colander with damp [butter muslin](#). Place it over a clean bucket or a bowl large enough to catch and save the whey. Pour the curds into the colander and allow them to drain for 10 minutes. Pour the captured whey back into the pot.
7. Bring the whey back up to 102°F. Remove the cheesecloth from under the curds in the colander, suspend the colander of curds over the pot, and place the lid on top of it all. Maintain the whey temperature at 102°F for 10 minutes. This should cause the curds to melt into a slab.
8. Flip the slab of cheese curds every 15 minutes for 1 hour, maintaining the temperature of the whey at around 98°F.
9. The curd slab should look white and a bit shiny at the end of the heating / flipping period, like cooked chicken. Transfer the whole slab to a clean cutting board, and cut it into strips, like French fries. Place the strips into a bowl and toss with about 1 tablespoon of salt until they are all thoroughly coated. Put the curds back into the colander and place the colander over a clean, empty bowl.
10. Let the curds sit uncovered in the colander, to dry for about a day.
11. Place the curds in a bowl and mix in a dash more salt to taste, the chilies, and as much of the pepper as you want, according to your own spicy tolerance.

You can serve the cheese immediately, or put the curds into a zipper-style bag and store them in the refrigerator for up to 2 weeks.



## Manchego



Manchego is an easy and versatile cheese to make, because it is rich and flavorful whether you age it for a week or a month. You can make it with cow milk, goat milk, or a combination of the two! If you use only cow milk, consider adding lipase for a stronger flavor. Manchego melts beautifully and is wonderful on top of pasta or vegetables.

### Ingredients

- 2 gallons fresh milk from cows, goats, or both
- 1/4 teaspoon [lipase powder](#), dissolved in 1/4 cup cool water and allowed to set for 20 minutes (optional)
- Mesophilic culture (choose one):
  - 1 packet [direct-set mesophilic culture](#)
  - 1/8 teaspoon bulk mesophilic culture
- Thermophilic culture (choose one):
  - 1 packet [direct-set thermophilic culture](#)
  - 1/8 teaspoon bulk thermophilic culture
- Rennet (choose one):
  - 1/2 teaspoon [liquid animal rennet](#)
  - 1/4 teaspoon [double-strength liquid vegetable rennet](#), dissolved in 1/2 cup cool water
  - 1/4 tablet [vegetable rennet](#), dissolved in 1/2 cup cool water

- 2 pounds sea salt

**Instructions**

1. Heat the milk to 86°F. Add both the mesophilic and the thermophilic cultures and stir well using up-and-down motions. Cover and allow to ferment for 1 hour.
2. Add the lipase and stir well. Then stir to homogenize the milk, and slowly fold in the diluted rennet, using an up-and-down motion.
3. Allow the cheese to set for 30 to 45 minutes, or until the whey begins to separate from the curd. You should see a layer of mostly clear whey floating on top of the curd, and the curd should be pulling away from the sides of your pot. If you use lipase, this may take a little longer.
4. Using a long knife, cut the curds into 1/2-inch cubes and allow to set for 5 minutes. Do not stir.
5. Stir the curd with the whisk for 30 minutes, slicing it into small pieces. The curds should all be roughly the same size.
6. Over the next 30 minutes, slowly heat the curds to 100°F, stirring frequently. As you stir, the curds will shrink. Once the curds are at 100°F, turn off the heat and allow to set for 5 minutes.
7. Pour the curds into a press lined with cheesecloth, and press at 15 pound of pressure for 15 minutes.
8. Using a fresh piece of cheesecloth, flip the cheese, and press again at 15 pounds of pressure for 15 minutes.
9. Repeat this process twice more, rinsing the cheesecloth in clean, cool water each time and hanging to dry.
10. Finally, press at 30 pounds of pressure for 8 hours, or overnight.
11. Mix 2 pounds of sea salt with 1 gallon of cold water to make a brine. Place the cheese in the brine and let it soak for 6 hours, flipping every 2 hours.
12. Take the cheese out of the brine and age at 55° to 60°F for as long as you like. Coat the cheese daily with olive or coconut oil, and if mold appears wipe it off with a clean cloth dipped in salt water or vinegar.

## Monterey Jack Cheese



Monterey Jack is a popular semi-hard cheese that was first developed in the American west. It is mild and flavorful, and melts easily. It is traditionally made with cow milk, but goat milk will work equally well.

### Ingredients

- 2 gallons cow or goat milk (do not use UHT/UP milk)
- Mesophilic culture (choose one):
  - 1 packet [direct set mesophilic culture](#)
  - 1/8 teaspoon bulk mesophilic culture
- Rennet (choose one):
  - 1/2 teaspoon [liquid animal rennet](#), dissolved in 1/2 cup cool water
  - 1/4 teaspoon [double-strength liquid vegetable rennet](#), dissolved in 1/2 cup cool water
  - 1/4 [tablet vegetable rennet](#), dissolved in 1/2 cup cool water
- 1 tablespoon sea salt

### Instructions

1. Heat the milk to 90°F. Add culture, stir well using an up-and-down motion, cover, and allow to ferment for 30 to 45 minutes.

2. Stir to homogenize the milk, and slowly fold in the diluted rennet using an up-and-down motion.
3. Allow the cheese to set for 45 minutes, or until the whey begins to separate from the curd. You should see a layer of mostly clear whey floating on top of the curd, and the curd should be pulling away from the sides of the pot.
4. Using a curd knife, carefully cut the curds into 1/4-inch cubes and allow to set for 45 minutes. Do not stir.
5. Over the next 30 minutes, slowly heat the curds to 100°F, stirring frequently. As you stir, the curds will shrink.
6. Once the curds are at 100°F, maintain the temperature and continue stirring occasionally for the next 30 minutes. If the curds get too hot, remove from heat. After 30 minutes, let the curds rest for 5 minutes.
7. Pour about half of the whey out, leaving enough to just cover the top of the curds. Maintain the curds at 100°F for the next 30 minutes, stirring every few minutes to prevent them sticking together.
8. Pour the curds into a cheesecloth-lined colander. Place the colander and curds into the sink, and add sea salt. Stir carefully and allow to drain.
9. Line a cheese mold with cheesecloth. Press at 5 pounds of pressure for 15 minutes.
10. Using a fresh piece of cheesecloth, flip the cheese and press at 10 pounds of pressure for 12 hours.
11. Remove the cheese from the press and air-dry for 2 to 3 days, until smooth and dry to the touch.
12. Wax the cheese and age at 55° to 60°F for at least 30 days. If using raw milk, age for at least 60 days. The flavor of this cheese will become stronger and sharper with longer aging.

## Simple Jack Cheese



This variation on traditional Jack cheese is rich and creamy and pairs well with fruit for a light snack or dessert.

### Ingredients

- 1 gallon whole milk
- 1 cup heavy cream
- 1/2 teaspoon aromatic mesophilic starter such as [mesophilic aromatic type B](#) or [flora danica](#)
- 1/2 teaspoon liquid [rennet](#) diluted in 1/4 cup cool water
- Cheese salt
- Butter or lard (room temperature)

### Instructions

1. Heat milk to 89°F, slowly. It should take about 20 minutes.
2. Turn off the heat. Sprinkle the starter over the milk and allow it to rehydrate for 5 minutes, then stir it in using your cheese spoon in up-and-down motions. Cover and maintain the temperature at 89°F for 45 minutes to ripen the milk.
3. Add the rennet by pouring it through your perforated cheese spoon into the milk, then stirring it in in up-and-down motions. Cover the pot and let it set undisturbed for 30 minutes, or until you have a clean break.

4. Continue to maintain the temperature at 86°F and cut the curds into 1/2-inch pieces. Bring the temperature up to 101°F over 30 minutes, stirring constantly to prevent the curds from sticking together (matting). They should become more firm, shrinking to the size of small beans.
5. Ladle off enough whey to expose the curds. Continue to stir frequently for 45 minutes to 1 hour, maintaining the temperature between 98°F and 100°F.
6. Ladle off most of the remaining whey and add cool (50°F) water until the curd temperature is down to 79°F. Let the curds rest for 4 minutes at this temperature.
7. Place a clean colander lined with damp cheesecloth over a bowl large enough to capture the whey. Ladle the curds into it. Toss and mill the curds with your hands for about 30 minutes to keep them from matting. Toss in the salt and incorporate thoroughly.
8. Line a clean 5-inch tomme mold with damp cheesecloth. Place the mold over a draining rack and spoon the curds into it. Let the curds drain for 10 minutes, then fold the tails of the cheesecloth over the top of them. Place the follower on the covered curds and press at 1 pound of pressure for 15 minutes.
9. Take the cheese out of the mold, peel away the cheesecloth, flip the cheese over, and re-dress the cheese in the cheesecloth. Place the cheese back into the mold and press at 4 pounds of pressure for 10 hours.
10. Take the cheese out of the mold and allow it to air-dry in a cool room away from drafts and direct sunlight for 24 hours.
11. Rub the cheese with butter or lard. Then bandage the cheese with cheesecloth and age it at 50°F for at least 3 months, flipping it once a week. When it has finished aging, vacuum-seal it and store it in the refrigerator until you are ready to eat it.

## American Brick Cheese



This is a basic, all-purpose cheese that can be used in a variety of ways: on crackers, for sandwiches, with fruit for dessert, or just as-is for a quick snack.

### Ingredients

- 2 gallons whole cow milk
- 1/2 teaspoon [direct-set mesophilic starter](#) (Meso II)
- 1/2 teaspoon liquid [rennet](#) diluted in 1/2 cup cool water
- [Cheese salt](#)

### Instructions

1. Heat milk in a 10-quart non-reactive pot on low heat to 88°F. This should take around 18 to 20 minutes.
2. Once this temperature has been reached, turn the heat off. Sprinkle the starter over the surface of the milk. Leave it to rehydrate for 5 minutes, then stir it in with your cheese spoon, using smooth, up-and-down motions until it is thoroughly incorporated. Cover and maintain the temperature at 88°F for 15 minutes to ripen.
3. Add the diluted rennet slowly and stir in using the same technique used for incorporating the cultures. Cover and let the milk sit undisturbed, for 35 to 40 minutes, maintaining the temperature at 88°F.



4. Once you have a clean break, cut the curds into 1/2-inch cubes. Do not stir, but let the cut curds sit undisturbed for five minutes.
5. Return the pot to low heat, and very slowly heat to 98°F, bringing the temperature up by only about 1°F every 3 to 4 minutes. Stir continuously during this heating period to prevent the curds from sticking together (matting), and to cause them to release more whey and shrink to the size of peanuts.
6. Once 98°F has been reached, turn off the heat. Cover and maintain the temperature, allowing the curds to rest for about 20 minutes, or until they have sunk to the bottom of the pot.
7. Line a colander with clean, damp cheesecloth or butter muslin. Carefully begin scooping the warm curds out of the pot and into the lined colander. Let them drain in the colander for about 5 minutes, then move them, using the cloth around them as a sack, into an 8-inch tomme mold, keeping the cloth between the curds and the mold. Pull the cloth around the edges, eliminating any big wrinkles, and smooth it out as much as possible. Fold the tails of the cloth over the top of the curds, patting it slightly to get rid of any mussed spots.
8. Set the follower on top of the covered curds, and press at 5 pounds of pressure for 15 minutes. Remove the cheese from the mold, unwrap it, flip it over, rewrap it and carefully place it back into the mold. Press the cheese again at 10 pounds for 12 hours.
9. Prepare about a gallon of medium-strong brine (28 ounces of salt to 1 gallon of water), and chill it to 50°F. Take the cheese out of the mold and place it into the chilled brine. Put the cheese and brine together into the refrigerator and let the cheese soak in this manner for 2 hours.
10. Take the cheese out of the brine and place it on a rack to air-dry in a cool, dark place away from drafts until the surface of the cheese is dry to the touch, or for about 24 hours. If any mold begins to develop on the surface of the cheese, simply rub it off with a small piece of cheesecloth wet in brine or a vinegar-water solution.
11. Wax the cheese and age it at 55°F for up to 4 months. Flip the cheese about once a week to ensure even ripening.

## Haloumi



Haloumi is a hard cheese of Greek origin. It does well in hot weather, as the salt on the surface of the cheese from brining helps to inhibit the growth of bad bacteria and unwanted molds.

### Ingredients

- 2 gallons whole milk
- 1 packet [mesophilic culture](#)
- 1/2 teaspoon liquid [rennet](#), diluted in 1/4 cup cool water
- [Cheese salt](#)
- Cold water: about a gallon or so for brining

### Instructions

1. Bring the milk temperature up to 86°F over low heat in your cheese pot.
2. Add the diluted rennet to the milk once it has reached temperature. Incorporate the rennet using slow, steady up-and-down motions. Stir in this manner for 1 minute, a bit longer if you are using farm-fresh cow milk.
3. Cover and let the milk ripen for 30 to 45 minutes, undisturbed. Once you have a clean break, cut the curds into 1/2-inch cubes.
4. Bring the temperature up slowly, at the rate of 2°F every 5 minutes, until the curds and whey reach 104°F. Stir them gently while you heat them to keep the curds from

sticking together (matting). Once the milk has reached 104°F, maintain that temperature for 20 minutes, continuing to stir gently every now and again.

5. Line a colander with clean [cheesecloth](#), and suspend it over a large bowl or sterilized bucket. Spoon the warm curds from the pot into the colander, and allow them to drain until the flow of whey slows. Save the drained whey and the remains in the pot.
6. Pack the drained curds into a 2-pound cheese mold lined with clean cheesecloth. Press at 10 pounds of pressure for 3 hours. Pull the cheese out of the mold and peel away the cheesecloth. Flip the cheese over and re-dress it with the cheesecloth. Place it back into the mold and press again at 10 pounds for 3 hours.
7. Using your cheese pot, heat up the reserved whey to 190°F. Maintain the temperature. Place the pressed cheese in the hot whey and cook it for 30 to 35 minutes or until it has shrunk a bit and floats in the whey.
8. Carefully remove the cheese from the whey and place it on a rack to cool for about 45 minutes, or until it is dry and cool to the touch.
9. Make a medium-heavy brine (about 28 ounces of salt in 1 gallon of water), and chill it to 55°F. Place the dried cheese into a large plastic bowl and pour the chilled brine over it until the cheese is completely covered. (If it floats, weigh it down with something clean and sterile and heavy.)
10. Store the cheese in the brine in your refrigerator for about 5 to 10 days, after which you can pull it out of the brine (save the brine, if you'd like) and wrap it in [cheese paper](#). It will keep in the refrigerator for up to two months in this manner. It is ready to be eaten from the time it is placed in the brine, so enjoy it whenever you choose.

## Edam Boule Cheese



Edam is a mild cheese that is typically formed into a round (boule) rather than being pressed. It improves with age and is a great accompaniment to fruits.

### Ingredients

- 2 gallons skim milk
- 1/2 teaspoon [mesophilic](#) starter
- 1 teaspoon [cheese coloring](#) diluted in 1/3 cup cool water
- 1/2 teaspoon [liquid rennet](#) diluted in 1/4 cup cool water
- [Cheese salt](#)

### Instructions

1. Heat the milk slowly over low heat to 88°F. Turn off the heat.
2. Stir in the starter using slow up-and-down motions. Cover and maintain the temperature at 88°F for 30 minutes. Leave the milk undisturbed for the duration of the ripening period.
3. Add the cheese coloring, using a whisk to incorporate thoroughly.
4. Add the rennet, pouring it through your perforated cheese spoon into the milk then stirring for a full minute, using slow up-and-down motions, right down to the bottom of the pot. Cover and let it set for 30 to 45 minutes, maintaining the temperature at 88°F.

5. Once you have a clean break, cut the curds into 1/2-inch pieces and let them rest for 5 minutes. Begin to slowly raise the temperature to 92°F, stirring gently but often to keep from sticking together (matting). The curds will begin to shrink and become firmer. Once 92°F has been reached, turn off the heat and let the curds sit, uncovered and undisturbed, for 30 minutes.
6. The curds will have sunk to the bottom. Ladle whey, transferring it to another container, until you can see the curds sitting on the bottom. Save the whey (see step 9). Stir the curds for 20 minutes, or until they begin to mat and cling together. Add hot water to the pot until the curds and whey come up to 99°F, and then keep them at that temperature for 20 minutes. The curds should settle again.
7. Line a colander with clean, damp [butter muslin](#) and suspend it over a large bowl, bucket, or sink. Ladle the curds into it. Let the curds drain in the colander for 5 minutes. Toss in 1 tablespoon of the salt.
8. Divide the curds evenly into two portions, tying up each portion into a draining sack of its own. Use your hands to shape the curds within the draining sack into a ball shape (boule). Let them hang for 30 minutes to drain thoroughly.
9. Place the saved whey back into your cheese pot and heat it to 122°F. Remove it from the heat. Take the boules out of the draining sacks and submerge them in the warmed whey for 20 minutes, taking care to maintain the temperature. Turn the cheeses a few times within the whey. Re-dress the cheeses into their cloth draining sacks and hang them up to drain again for 6 hours this time.
10. Prepare 2 quarts of medium brine (26 ounces of salt to 1 gallon of water), and chill it to 50°F. Remove the cheeses from their cloth sacks and submerge them in the brine. Put a cover over the container of brine and cheese and put it into the refrigerator overnight.
11. Take the boules out of the brine and pat them dry with a paper towel. Put them on a cheese mat and allow them to air-dry for 1 to 2 days.
12. [Wax](#) the cheese. Ripen at 55°F and 85% humidity for 2 to 3 months. Flip the cheese repeatedly during the aging process. The cheese can be aged for up to 6 months for a fuller, more developed flavor.

## Provolone



Provolone is a “pulled” cheese, like mozzarella. It is also traditionally smoked, in the original Italian style, but today most provolone is generally made much milder and less overpowering.

### Ingredients

- 1 gallon pasteurized whole milk
- 1 packet [thermophilic starter](#)
- 1/4 teaspoon [lipase powder](#) dissolved in 1/4 cup cool water
- 1/4 teaspoon liquid [rennet](#) dissolved in 1/4 teaspoon cool water
- [Cheese salt](#) and cold water (for brining)

### Instructions

1. Heat the milk to 97°F.
2. Add the starter and mix in well for 1 full minute, using your cheese spoon in up-and-down motions. Cover the milk and allow to ripen undisturbed for 1 hour, continuing to maintain the temperature at 97° F.
3. Add the dissolved lipase mixture, and mix in well. Allow the milk to rest for 10 minutes.



4. Add the diluted rennet and stir it in well using the same up-and-down motions used for incorporating the starter, continuing to stir for 1 full minute. Cover and let the milk set for 20 minutes, undisturbed.
5. Once you have a clean break, cut the curds into 3/8-inch cubes. Allow the cut curds to rest for 10 minutes after cutting.
6. Begin heating the curds while stirring them very gently, bringing the temperature up only 2°F per minute until the temperature reaches 144°F. Turn off the heat and allow the curds to sit for 15 minutes.
7. Scoop all the curds out of the whey and place them into a clean colander, then set that colander over the pot of warm whey to help keep the temperature of the curds up to at least 105°F while they rest for 30 more minutes.
8. Take a small piece of curd and dip it into clean water that has been heated to 180°F. Pull it a bit, and if it does not stretch, place it back into the colander and try again every 15 minutes until it does. (This can take a long time, so be patient.) Once the curd stretches smooth and shiny, start cutting the curd into 1-inch slices and placing them into the hot water. Let them sit in the water until all of them stretch easily.
9. Wearing gloves if you want, use your hands to stretch the curds, and form the whole thing into a large ball. Then begin to shape the ball into a jug shape, with one end smaller than the rest. At the top, where the opening of the jug would be, make a small indentation and being working the curd up the neck of your jug shape and into the indentation you have made. If the curd gets hard to work with, dip it back into the hot water.
10. Once you have finished working the cheese, place it into a bowl of ice water. Meanwhile, make a brine using 2 pounds of salt mixed into 1 gallon of water, and chill it.
11. Take the cheese out of the ice water and place it into the brine, and leave it to soak for 2 hours.
12. Take the cheese out of the brine and pat dry using paper towels. Tie a cord around the small end of the cheese and hang in the ripening area, such as a cellar or refrigerator, for 2 to 12 months, or until you are ready to eat it. (This cheese may be cold-smoked before hanging, if you wish.)



## Crescenza



Crescenza is an Italian cheese, one of the softest of the firm cheeses. It has a creamy texture and no rind, and has a mild and delicate flavor. It can be eaten alone, or used as the filling for some dishes.

### Ingredients

- 2 gallons whole milk
- 1/4 teaspoon [direct-set mesophilic starter](#)
- 1/4 teaspoon [rennet](#) dissolved in 1/4 cup of cool water
- [Cheese salt](#)

### Instructions

1. Heat the milk over low heat to 90°F.
2. Turn off the heat once the milk has reached temperature, and stir in the starter, using gentle up-and-down motions for 1 minute. Cover and maintain the temperature at 90°F for 30 minutes, undisturbed.
3. Add the diluted rennet, using gentle up-and-down motions. Cover and allow it to set at room temperature for 45 minutes, or until you have a clean break.
4. Cut the curds into 1-inch pieces, then cover and let the curds and whey sit undisturbed for about 10 minutes. Stir the curds with a rubber spatula for 5 minutes, pulling the curds from the bottom to the top. Allow the curds to settle again, then

ladle off the whey until you can see just the tops of the curds, sitting at the bottom of the pot.

5. Use a Taleggio mold set on a draining rack and lined with clean, damp butter muslin. Ladle the curds carefully into the mold. Turn the tails of the butter muslin over the top of the curds and let the curds sit in the mold and drain for 3 hours. While you are waiting for the cheese to drain, make a light brine (13 ounces of salt to 1 gallon of water) and chill it.
6. Turn the cheese out of the mold and peel away the cloth. Pour the light brine into a plastic container with a lid and put the cheese into it. Let the cheese sit in the brine for 2 hours, flipping it periodically.
7. Remove the cheese from the brine and pat it dry with a paper towel. Place it onto an airing mat to air-dry for about 1 hour, someplace cool and away from drafts. You can wrap it in plastic wrap or vacuum-seal it at this point.

Crescenza is best if eaten within 1 week, though it may keep longer if you vacuum-seal it.

## Traditional Parmesan Cheese



Parmesan is familiar to most people as a sharp, hard cheese, usually shredded or grated and used as a garnish or accent. The long aging period develops the flavor.

### Ingredients

- 2 gallons fresh milk from cows, goats, or both
- 1/4 teaspoon [lipase powder](#), dissolved in 1/4 cup cool water and allowed to set for 20 minutes (optional)
- 1 packet [direct-set thermophilic culture](#) (use 1/8 teaspoon if using bulk packet)
- Rennet (choose one):
  - 1/2 teaspoon [liquid animal rennet](#), dissolved in 1/2 cup cool water
  - 1/4 teaspoon [double-strength liquid vegetable rennet](#), dissolved in 1/2 cup cool water
  - 1/4 [vegetable rennet tablet](#), dissolved in 1/2 cup cool water
- 2 pounds sea salt (non-iodized) or cheese salt
- 1 gallon water
- Olive oil

### Instructions

1. Heat the milk to 87°F. Add the thermophilic culture and lipase, and stir well. Cover and allow to ferment for 45 minutes.

2. Check temperature and make sure milk is no warmer than 90°F. Stir to homogenize the milk, and slowly incorporate the diluted rennet using an up-and-down motion with your spoon to ensure that the rennet works its way through all the milk, so you can get the highest possible yield.
3. Allow the cheese to set for 30 to 45 minutes at 90°F, or until the whey begins to separate from the curd. You should see a layer of mostly clear whey floating on top of the curd, and the curd should be pulling away from the sides of your pot. If you use lipase, this may take a little longer.
4. Using a long knife, cut the curds into 1/4-inch cubes.
5. Stir the curd with a whisk, slicing it into small pieces. The pieces should all be roughly the same size.
6. Over the next 25 minutes, slowly heat the curds to 100°F, stirring frequently with your wooden spoon. As you stir, the curds will shrink.
7. Slowly heat the curds to 125°F, stirring to prevent matting. The curds should be small, and if you bite one it should squeak in your teeth. When they have reached 125°F, turn off the heat and allow the curds to rest for 5 minutes.
8. Pour the curds into a press lined with cheesecloth, and press at 5 pounds of pressure for 15 minutes.
9. Using a fresh piece of cheesecloth, flip the cheese and press, again, at 10 pounds of pressure for 30 minutes.
10. Repeat this process again, at 15 pounds of pressure for 2 hours, rinsing your cheesecloth in clean, cool water each time and hanging to dry.
11. Finally, press at 20 pounds of pressure for 12 hours, or overnight.
12. Mix two pounds of sea salt with 1 gallon of cold water to make a brine. Place the cheese in the brine and let it soak for 24 hours.
13. Take the cheese out of the brine and age at 55° to 60°F for at least 8 months. (Click [here for practical methods for aging cheese.](#)) Coat the cheese daily with olive or coconut oil, and if mold appears wipe it off with a clean cloth dipped in salt water or vinegar.

## Simple Parmesan Cheese



This alternative recipe for parmesan cheese does not use the lipase flavor additive, and is made with skim milk rather than whole milk.

### Ingredients

- 2 gallons skim milk
- 1/4 teaspoon [thermophilic starter culture](#)
- 1/2 teaspoon [rennet](#) dissolved in 1/4 cup cool water
- [Cheese salt](#)
- Olive oil (for rubbing)

### Instructions

1. Heat milk to 94°F using a hot water bath system. The temperature should be brought up slowly, over about 20 minutes. When the milk is at 94°F, remove the pot of milk from the heat source.
2. Sprinkle the starter over the milk and allow it to rehydrate for 5 minutes before whisking it in thoroughly.
3. Cover and maintain temperature for 45 minutes while the milk ripens.
4. Add the diluted rennet and slowly whisk in for 1 minute or so. Cover and allow to set for 45 minutes. When you have a clean break, use a whisk to cut the curd into 1/4-inch pieces. Let the curds rest for 10 minutes.

5. Slowly raise the temperature to 124°F. This should take about an hour. Keep stirring to keep the curds from sticking together (matting) and to firm them up a bit. When the temperature reaches 104°F, stop stirring and allow the curds to settle and mat for the duration of the heating period, or until the temperature reaches 124°F. Once you have achieved this temperature, cover the pot and maintain the temperature for 10 minutes.
6. Line a colander with damp butter muslin. Suspend it over a large bowl or sink. Ladle the matted curds into it, and let them drain for 5 minutes. Transfer the curds (in the butter muslin) to a 5-inch tomme mold or 8-inch press. Let them continue to drain for 10 more minutes.
7. Pull up the ends of the butter muslin and fold the ends over the top of the curds. Place the follower on top. Press at 10 pounds for 30 minutes.
8. Pull the cheese out of the mold, peel away the cloth, flip the cheese over, and rewrap it in the cloth. Press again at 10 pounds but this time for 1 hour.
9. Remove, undress, flip, and re-dress the cheese again. Place it back into the mold and press at 10 pounds for 12 hours.
10. While the cheese is being pressed, prepare a near-saturated brine (about 30 ounces of salt to 1 gallon of water) and put it into the refrigerator with a lid on it to chill. It should be about 50° to 55°F.
11. Remove the cheese from the mold and peel away the butter muslin. Take the brine out of the refrigerator and pour it into a container big enough to hold the wheel of cheese. Place the cheese into the brine and put the container of brine and cheese back into the refrigerator. Let the cheese soak for 12 hours in this manner, flipping it over halfway through the brining time.
12. Take the cheese out of the brine and pat it dry with a clean towel. Place it on a cheese mat or drying rack. Let it dry at room temperature for 1 to 2 days, or until it is dry to the touch. Continue flipping the cheese every now and again during this drying period.
13. Age the cheese in a ripening box or cold cellar (at 50° to 55°F) for 2 weeks, flipping once every day. After this time, continue to age for 3 months, flipping it once a week. After three months, rub the entire surface of the cheese with olive oil. Continue to rub with oil every three months of aging.

14. If any unwanted mold develops on the rind of the parmesan, use a bit of cheesecloth wet in a vinegar water solution to wipe it away, and oil the cheese again.

If you are patient enough, this cheese is great if aged for up to a year, but you can eat and enjoy it around the 7-month point. Once the cheese has been cut into, it will store best if wrapped in cheese paper and stored in the refrigerator.



## Asiago



Asiago is a firm, mold-pressed cheese originating from Italy. This cheese can be eaten after only 3 weeks of aging, but some people hold off and allow it to get older. The shorter-aged form of Asiago is sometimes referred to Asiago Pressato. Since this recipe makes two small wheels, you could try both delightful forms of Asiago.

### Ingredients

- 6 quarts whole milk
- 2 quarts skim milk
- 1/2 teaspoon [direct-set thermophilic culture](#)
- 1/2 teaspoon liquid [rennet](#) diluted in 1/4 cup cool water
- [Cheese salt](#) (for brining)

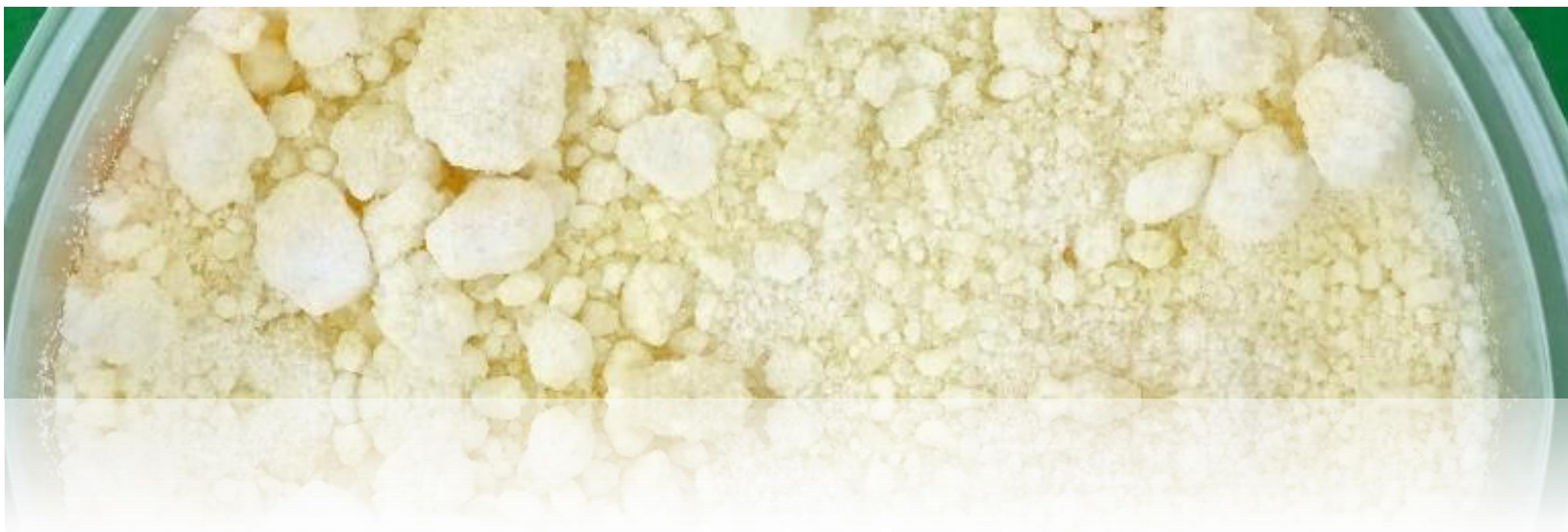
### Instructions:

1. Heat the milks together in your cheese pot over low heat. Bring the temperature up slowly to 92°F. (This should take about 25 minutes.)
2. Stir in the starter by sprinkling it across the surface of the milk, letting it rehydrate for about 5 minutes before stirring it in with your cheese spoon with long, up-and-down motions for 1 solid minute.
3. Cover the milk and maintain the temperature at 92°F for 45 minutes. After this ripening time, stir in the rennet using the long, up-and-down motions used for

incorporating the starter. Cover and let it set for 1 hour, continuing to maintain the temp at 92°F for the duration of the time.

4. Once you have a clean break, cut the curds into 1/2-inch pieces and let them rest for about 5 minutes. Slowly start to bring the temperature to 104°F. Once the curds have reached this temperature, remove them from the heat and stir the curds continuously for 15 minutes to shrink the curds to about dime-size.
5. Place the curds back onto the stove at low heat and carefully bring the heat up to 118°F, continuing to stir frequently. Once this temperature has been reached, stop stirring the curds and allow them to settle. Cover and maintain the temperature at 118°F.
6. Use a ladle to remove the whey until you can just see the tops of the curds. Line two Italian draining baskets with cheesecloth and place them on a draining rack. Spoon the warm cheese curds into the lined molds. Pull the tails of the cheesecloth up and over the top of the curds. Gently compact the curds into the mold by pressing the curds a few times with the back of your hand.
7. Place a follower on top of the filled molds and press at 8 pounds of pressure for 1 hour. Remove, flip, and re-dress the cheese, then press at 8 pounds again for 8 more hours.
8. While the cheese is being pressed, make about a gallon of saturated brine (32 ounces of salt to 1 gallon of water) and chill it to 50°F. After the cheeses are pressed, take them out of the molds and put them into the brine. Place them somewhere cool, like the refrigerator, to soak for 12 hours. Flip them a few times during the soaking period.
9. Take the cheeses out of the brine and pat them dry. Place them onto a drying rack and cover them with clean cheesecloth. Air-dry for several days or until the surface of the cheese is dry to the touch. Flip them a few times during the drying process.
10. Place the cheeses into the ripening box, cave, or cellar and cover them loosely. Keep the ripening area cool and humid. (About 85% humidity is preferable.) To deter mold and help rind development, brush the cheeses with brine about twice a week for 3 weeks. At 3 weeks, the Asiago will be ready to eat, but you can age it longer by just continuing to brush it twice a week for 3 months to a year.

## Romano



Romano cheese, like parmesan, is known for its sharp flavor. It can be shredded or grated and added as a garnish to soups, pizza, pasta, and more.

### Ingredients

- 2 gallons skim milk
- 3/4 cup heavy cream
- 1 packet [direct-set thermophilic starter](#)
- 1/4 teaspoon [lipase powder](#), dissolved in 1/4 cup cool water
- 1/2 teaspoon liquid [rennet](#), diluted in 1/4 cup cool water
- [Cheese salt](#) (about 2 pounds) for brine
- 1 to 2 tablespoons olive oil

### Instructions

1. Bring the milk temperature up to 88°F over medium-low heat. Stir in the heavy cream as it is heating.
2. Once temperature has been reached, add the starter and the lipase. Stir in gently with your cheese spoon using up-and-down motions for one full minute. Cover the milk and allow it to ripen for 10 minutes, undisturbed.
3. Stir in the diluted rennet for several minutes using up-and-down motions, then cover the milk and allow it to set undisturbed at 88°F until the curd gives a clean break.

4. Cut the curd into 1/4-inch cubes with your curd knife.
5. Heat the cut curds to 116°F over the span of 45 minutes, bringing the temperature up by only 2°F every 5 minutes. Maintain 116°F for 30 minutes, or until the curds become quite firm. Drain off the whey at this point.
6. Line a 2-pound cheese mold with clean, damp [cheesecloth](#). Scoop the curds into the mold and press at 5 pounds of pressure for 15 minutes.
7. Remove the cheese from the mold and remove the cheesecloth. Flip the cheese over and re-dress it in the cheesecloth. Place the cheese back into the mold and re-apply the pressure at 10 pounds for 30 minutes.
8. Remove, undress, flip, and re-dress the cheese. Place it back into the mold and press at 20 pounds of pressure for 2 hours.
9. Repeat the flipping procedure, and replace the pressure at 40 pounds of pressure for 12 hours. Make a saturated brine (32 ounces of salt in 1 gallon of water) and chill it.
10. Remove the cheese from the mold. Peel away the cheesecloth and place the cheese into a large non-reactive bowl. Pour in the brine and allow the cheese to soak for 12 hours in the bowl of brine, covered and set into the refrigerator.
11. Take the cheese out of the brine and pat it dry with paper towels.
12. Air-dry the cheese on a rack in a place away from drafts and direct sunlight for 5 to 6 hours, or until the rind isn't damp.
13. Age the cheese in a ripening box or cellar at 55°F for a minimum of two months. (85% humidity is optimum.) Flip repeatedly during the aging period. After 2 months, rub the rind of the cheese gently with olive oil to prevent excess drying and cracking.

This cheese can be aged for 5 to 12 months longer.

## Swiss Cheese



Swiss cheese is well known for its pockets of air, created during the culturing process by the active propionibacteria.

### Ingredients

- 2 gallons fresh milk from cows, goats, or both
- 1 teaspoon [propionibacteria](#), dissolved in 1/2 cup milk
- 1 packet [direct-set thermophilic culture](#) (use 1/8 teaspoon if using bulk packet)
- Rennet (choose one):
  - 1/2 teaspoon [liquid animal rennet](#), dissolved in 1/2 cup cool water
  - 1/4 teaspoon [double-strength liquid vegetable rennet](#), dissolved in 1/2 cup cool water
  - 1/4 [vegetable rennet tablet](#), dissolved in 1/2 cup cool water
- 2 pounds sea salt (non-iodized) or cheese salt
- 1 gallon water
- Olive oil

### Instructions

1. Heat the milk to 87°F. Add the thermophilic culture and stir well. Add propionibacteria and stir for at least 1 minute. Cover and allow to ferment for 15 minutes.

2. Check temperature and make sure milk is no warmer than 90°F. Stir to homogenize the milk, and slowly fold in the diluted rennet. Using an up-and-down motion with your spoon will ensure that the rennet works its way through all the milk, so you can get the highest possible yield.
3. Allow the cheese to set for 30 to 45 minutes at 90°F, or until the whey begins to separate from the curd. You should see a layer of mostly clear whey floating on top of the curd, and the curd should be pulling away from the sides of the pot.
4. Using a long knife, cut the curds into 1/4-inch cubes.
5. Stir the curd with a whisk, slicing it into small pieces. The pieces should all be roughly the same size.
6. Keep the curds at 90°F and stir with the wooden spoon, working out the whey, for 35 minutes.
7. Over the next 25 minutes, slowly heat the curds to 120°F, stirring frequently with your wooden spoon. As you stir, the curds will shrink. Keep the curds at 120°F for 30 minutes. The curds should be small, and if you bite one it should squeak in your teeth. A handful of curds, squeezed into a ball, should fall apart in your hands.
8. Pour the curds-and-whey through a strainer, saving the whey for future projects.
9. Pour the curds into a press lined with cheesecloth. Work quickly and do not let the curds cool. Press at 10 pounds of pressure for 15 minutes.
10. Using a fresh piece of cheesecloth, flip the cheese and press, again, at 15 pounds of pressure for 30 minutes.
11. Repeat this process again, at 15 pounds of pressure for 2 hours, rinsing the cheesecloth in clean, cool water each time and hanging to dry.
12. Finally, press at 20 pounds of pressure for 12 hours, or overnight.
13. Mix 2 pounds of sea salt with 1 gallon of cold water to make a brine. Place the cheese in the brine and let it soak for 24 hours.
14. Take the cheese out of the brine and age at 55° to 60°F for one week. Flip and wipe daily with a damp cheesecloth dipped in salt water.
15. Age the cheese in the kitchen (or another warm room) for 2 to 3 weeks. Flip and wipe daily with a damp cheesecloth dipped in salt water. The cheese should swell and will have a characteristic Swiss cheese smell.
16. Place the cheese back in your aging refrigerator for 12 weeks or more. Flip once or twice a week and remove mold with cheesecloth dipped in salt water.



## Gouda



Gouda is named for the Dutch town in which it was developed during the thirteenth century. It is a washed-curd semi-firm cheese with a tangy taste and creamy texture.

### Ingredients

- 2 gallons whole milk
- 1 packet direct-set [mesophilic](#) culture
- 1/2 teaspoon [rennet](#) diluted in 1/4 cup cool, unchlorinated water
- [Cheese wax](#)
- 2 pounds [cheese salt](#)
- 1 tablespoon [calcium chloride](#)
- 1 gallon cold water

### Instructions

1. Bring the milk to 90°F. Mix in the starter using up-and-down motions, making sure it is incorporated thoroughly. Cover the milk and allow it to ripen for 10 minutes.
2. Add the diluted rennet and stir gently with an up-and-down motion for 1 minute. If using farm-fresh cow milk, top-stir for 1 more minute. Cover and allow to set for 1 hour, or until you have achieved a clean break.
3. Cut the curd into 1/2-inch cubes and allow them to rest for about 10 minutes.



4. Pour off about one-third of the whey, then add 175°F water back into the curds until the overall temperature reaches 92°F.
5. Let the curds rest again for 10 more minutes. Pour off the whey and water again until you can just see the tops of the curds. Now add more 175°F water until the temperature reaches 100°F, and maintain the temperature at 100°F for 15 minutes, stirring occasionally to keep the curds from sticking together (matting). After the 15 minutes, allow the curds to set for 30 minutes, undisturbed.
6. Pour off the remaining whey/water mixture. Line a 2-pound cheese press and rapidly fill it with the warm curds, being careful not to break them up too much.
7. Press at 20 pounds of pressure for 20 minutes.
8. Take the cheese out of the mold, peel away the cheesecloth, flip it over, rewrap it in the cheesecloth, and place it carefully back into the mold. Press at 40 pounds of pressure for 20 minutes.
9. Remove, undress, flip, and re-dress the cheese again and place it back into the mold. Press at 50 pounds of pressure for 14 to 18 hours. Remove from the press.
10. Make a saturated brine solution (32 ounces of salt to one gallon of water), and add the calcium chloride to it. Mix it very well, being sure it is as dissolved as you can get it. Soak the cheese in it, flipping it every hour or so. Soak it for 12 hours total.
11. Take the cheese out of the brine and dry it by using paper towels to gently pat the surface. Place your cheese on a cheese mat and allow it to air-dry for 2 weeks.
12. Wax your cheese, then age it in a cool, dark place.

The cheese is ready to eat at 3 to 4 months, but 6 to 9 months is a good full ripening period. This is a cheese that gets better with time, so patience will pay off.

## Gruyère



Gruyère is a sweet, slightly salty cheese from Switzerland. The flavor can vary as the cheese ages, becoming earthier and more complex.

### Ingredients

- 2 gallons whole cow milk
- 1/2 teaspoon [MM100 mesophilic starter culture](#)
- 1/2 teaspoon liquid [rennet](#) diluted in 1/4 cup cool water
- [Cheese salt](#)

### Instructions

1. Heat the milk in your cheese pot over low heat to 70°F.
2. Turn off the heat. Sprinkle the starter over the surface of the milk, and allow it to rehydrate for 5 minutes. Stir in with whisk, using up-and-down motions, for 1 minute. Cover and maintain the temperature at 70°F for 45 minutes to allow the milk to ripen.
3. Turn the heat back on and raise the temperature slowly to 86°F. After the milk has reached this temperature, add the diluted rennet by pouring it through the cheese spoon into the milk. Then stir it in for about 1 minute using up-and-down motions. Cover the pot and let it sit, undisturbed, for 35 to 40 minutes, or until you have achieved a clean break.

4. Maintain the temperature of the milk at 86°F. Cut the curds into pea-size pieces, stir them for 10 minutes, then let them rest for 5 minutes, covered.
5. Ladle out about 1/3 of the whey in the pot, and then add 3 cups of hot (130°F) water. When the temperature in the pot reaches 92° to 94°F, add 3 more cups of hot water. Stir for 5 minutes, then add 2 more cups of hot water.
6. Add the salt and stir it into the curds and whey. Keep adding 130°F water as needed to maintain the curds and whey at a temperature of around 97°F. Constantly stir the curds until they begin to feel a bit springy in your hands when you gently squeeze them. This should take about 20 minutes.
7. Ladle off enough of the whey to expose the curds.
8. Using damp butter muslin, line a clean, 8-inch tomme mold and place it on a draining rack. Gently scoop the warm curds out of the pot with your hands or a cheese spoon into the lined mold. Press them into the mold gently with the back of your hand. Pull out any wrinkles in the butter muslin, and fold the tails of the cloth over the top of the curds. Place the follower on top of the covered curds, and press the cheese at 8 pounds of pressure for 30 minutes.
9. Take the cheese out of the mold, peel away the butter muslin, flip the cheese over, and re-dress with the muslin. Place it back into the mold and press again at 8 pounds for 30 more minutes. Repeat this process for about 3 to 4 hours or until all the excess whey has been expelled. When pressing has been completed, leave the cheese out on your kitchen counter in the mold without any pressure, for about 3 more hours.
10. Place the cheese into the refrigerator and leave it there overnight. It is ready to eat now, as a fresh, young cheese, or you can continue to age it by brining and storing.
11. To brine the cheese, make 1/2 gallon of fully saturated brine (32 ounces of salt in 1 gallon of water) and seal it with a lid. Leave this in the refrigerator overnight as well.
12. Take the cheese and the brine out of the refrigerator and place them together into a non-corrosive container with a lid. Place the covered container of brine and cheese back into the refrigerator for about 8 more hours.
13. Take the cheese out of the brine and pat it dry with paper towels. Place it on a rack to air-dry on the counter away from drafts and direct sunlight for about 12 hours.
14. Age the cheese at about 50° to 55°F and 85% humidity for 1 month or as long you wish to age it. Flip the cheese about three times a week during the aging period and remove any unwanted mold with cheesecloth soaked in brine.

## Havarti



Havarti is an interior-ripened cheese that is rindless and smooth with small and irregular openings (“eyes”). It has a cream to yellow color and an aroma that can be somewhat sharp in the stronger varieties. The taste is buttery, from somewhat sweet to very sweet, and it is slightly acidic.

### Ingredients

- 2 gallons whole cow milk
- 1/2 teaspoon [MM100 mesophilic starter culture](#)
- 1/2 teaspoon liquid [rennet](#) diluted in 1/4 cup cool water
- [Cheese salt](#)

### Instructions

1. Heat the milk in your cheese pot over low heat to 70°F.
2. Turn off the heat. Sprinkle the starter over the surface of the milk, and allow it to rehydrate for 5 minutes. Stir in with whisk, using up-and-down motions, for 1 minute. Cover and maintain the temperature at 70°F for 45 minutes to allow the milk to ripen.
3. Turn the heat back on and raise the temperature slowly to 86°F. After the milk has reached this temperature, add the diluted rennet by pouring it through the cheese spoon into the milk. Then stir it in for about 1 minute. Cover the pot and let it sit, undisturbed, for 35 to 40 minutes, or until you have achieved a clean break.

4. Maintain the temperature of the milk at 86°F. Cut the curds into 1/2-inch pieces, stir them for 10 minutes, then let them rest for 5 minutes, covered.
5. Ladle out about 1/3 of the whey in the pot, then add 3 cups of hot (130°F) water. When the temperature in the pot reaches 92° to 94°F, add 3 more cups of hot water. Stir for 5 minutes, then add 2 more cups of hot water.
6. Add the salt and stir it into the curds and whey. Keep adding water that is 130°F as needed to maintain the curds and whey at a temperature of around 97°F. Constantly stir the curds until they begin to feel a bit springy in your hands when you gently squeeze them. This should take about 20 minutes.
7. Ladle off enough of the whey to expose the curds.
8. Using damp butter muslin, line a clean, 8-inch tomme mold and place it on a draining rack. Gently scoop the warm curds out of the pot with your hands or a cheese spoon into the lined mold. Press them into the mold gently with the back of your hand. Pull out any wrinkles in the butter muslin, and fold the tails of the cloth over the top of the curds. Place the follower on top of the covered curds, and press the cheese at 8 pounds of pressure for 30 minutes.
9. Take the cheese out of the mold, peel away the butter muslin, flip the cheese over, and re-dress with the muslin. Place it back into the mold and press again at 8 pounds for 30 more minutes. Repeat this process for about 3 to 4 hours or until all the excess whey has been expelled. When pressing has been completed, leave your cheese in the mold without any pressure, out on your kitchen counter for about 3 more hours.
10. Place the cheese into the refrigerator and leave it there overnight. It is ready to eat now, as a fresh, young cheese, or you can continue to age it by brining and storing it if you choose.
11. Make 1/2 gallon of fully saturated brine (32 ounces of salt in 1 gallon of water) and seal it with a lid. Leave this in the refrigerator overnight as well.
12. Take the cheese and the brine out of the refrigerator and place them together into a non-corrosive container with a lid. Place the covered container of brine and cheese back into the refrigerator for about 8 more hours.
13. Take the cheese out of the brine and pat it dry with clean paper towels. Place it on a rack to air-dry on your counter away from drafts and direct sunlight for about 12 hours.

14. Age the cheese at about 50° to 55°F and 85% humidity for 1 month or as long you wish to age it. Flip the cheese about three times a week during the aging period and remove any unwanted mold with cheesecloth soaked in brine.

## Feta



Feta cheese makes a wonderful addition to salads or sandwiches, or as a garnish for meat or vegetables. Generally made with goat milk, it can be made with cow milk if desired. This recipe makes 1 pound of feta cheese.

### Ingredients

- 1 gallon goat or cow milk
- Rennet: 1/2 teaspoon [liquid rennet](#) or 1/2 [rennet tablet](#)
- Mesophilic culture (choose one):
  - 1 packet [feta cheese starter culture](#)
  - 1 packet direct-set [mesophilic starter culture](#)
  - 1 tablespoon yogurt
- 1/8 teaspoon [calcium chloride](#) diluted in 1/4 cup water (optional) (Note: Milk that is not produced locally often is not as fresh and goes through additional processing to ensure its safe arrival at the store. If you are using non-local milk to make feta, consider using calcium chloride to improve the chances of firm curd formation.)

### Instructions

1. Warm the milk in a stainless steel (or other non-reactive) pot to 86°F. If using calcium chloride, incorporate the mixture of diluted calcium chloride into the milk as the milk starts to warm up.



2. Add the culture to the milk and stir thoroughly. Allow the milk to sit undisturbed for an hour at room temperature.
3. Once the milk is ready, dilute the rennet in 1/4 cup cool water. Mix the rennet/water into the milk using an up-and-down motion with your spoon (not a stirring motion). Incorporate the rennet but do not over-mix.
4. Place a lid on the pot and let the milk mixture sit undisturbed overnight. The next morning, check that the milk has gelled and there is a clean break in the curd.
5. Use a knife to cut the curd into 1/2-inch cubes. If necessary, use very clean hands to check the bottom of the pot for curds that may have been missed.
6. Gently stir the curd off and on over the next 20 minutes. The curds should become somewhat retracted.
7. Place a tea towel, cotton bag, butter muslin, or multi-layered cheese cloth in a colander. Pour in the curds and allow the visible whey to drain off. Once the whey has drained, tie the cloth in knots and hang it over the sink or a bowl. Allow the curd to drain for another 4 hours or until no more whey drips off.

While feta can be eaten fresh, the flavor is more pronounced if it is aged in a brine solution. Make a brine solution using 1/3 cup non-iodized salt and 1/2 gallon of water. Place the curds in the brine solution in a jar with a lid in the refrigerator. Brine for 4 to 5 days if using store-bought goat milk or for 30 days if using farm-fresh goat milk.

Extra tip: If you find that your curd doesn't set firmly enough, some cheese makers suggest mixing 1/8 teaspoon calcium chloride diluted in 1/4 cup water into the milk the next time you make feta.



RECIPES

**RECIPES**

over 40 ways to use cheese

## Snacks, Appetizers, and Sides



A plate with a few different cheeses and a little sliced sourdough bread or fruit wedges can be a meal all by itself! Or, add a little cheese to a favorite snack or salad for a new and delicious menu offering. Experiment with different varieties, and even mix different cheeses for extra flavor.

## Garlic and Feta Cheese Ball



A cheese ball makes a tasty and attractive appetizer for any occasion!

### Ingredients

- 8 ounces [cream cheese](#), room temperature
- 4 ounces [feta cheese](#), crumbled
- 4 ounces grated sharp [cheddar cheese](#)
- 1 teaspoon garlic powder
- 1 teaspoon onion powder
- 2 tablespoons softened [butter](#), ghee, or bacon fat (adds a unique flavor)
- 1 cup toasted pecans, finely chopped
- 1/4 cup crumbled crispy bacon (optional)

### Instructions

1. Blend cheeses together in a large bowl.
2. Stir in garlic and onion. Add enough of the butter to make a smooth mixture. If desired, mix in the crumbled crispy bacon.
3. Divide in half and shape each half into a ball. Roll each ball in about half of the chopped pecans.
4. Cover with plastic wrap and store in the refrigerator until serving time. These also freeze well.

Note: If your batch of feta cheese turns out softer than you wanted, consider using the entire batch in place of the cream cheese and feta in this recipe. This is great served with [Sourdough Bacon, Rosemary, and Cracked Peppercorn Crackers](#).

## Vegetable Soup with Feta



Add a little delicious feta to a vegetable soup for a robust and creamy lunch.

### Ingredients

- 2 tablespoons olive oil
- 1 onion, diced
- 2 leeks, diced
- 1 pound red potatoes, scrubbed and cubed
- 5 or 6 large carrots, peeled and sliced thin
- 1 green bell pepper, cored and sliced into 1-inch strips
- 6 cups water
- 8 ounces [feta cheese](#)
- Juice of 1 lemon
- Salt and pepper

### Instructions

1. Sauté the onion and leeks in the oil over medium-high heat until they are translucent. Transfer to a stock pot and add the potatoes, carrots, pepper, and water. Bring to a rolling boil and boil for 5 minutes, then reduce the heat and cover. Allow the soup to simmer on low for 15 to 20 minutes.

2. Turn off the heat and uncover the soup. Test the potatoes to make sure they are done. Once they are cooked thoroughly, allow the soup to cool for a few minutes, then stir in the feta and lemon juice. Serve warm with tortillas or French bread.



## Mediterranean Lentil Salad with Feta



If you cook up a pan of lentils once a week, you will have lentils you can quickly make a salad with. If you don't have some on hand, cook up just what you need to make this Mediterranean-inspired lentil salad. It's a tasty side dish, but can be a light main dish and lunch salad by itself.

### Ingredients

- 1 cup [sprouted and dried lentils](#)
- 2 cups water
- 1/2 cup sliced green onion (about 4 to 6)
- 1 carrot, peeled and diced
- 2 stalks celery, diced
- 1/2 cup diced zucchini
- 1/4 cup fresh parsley leaves, chopped
- 2 tablespoons fresh oregano leaves, chopped (or 2 teaspoons dried oregano)
- 1 cup diced artichoke hearts, optional
- 1/4 cup fresh lemon juice
- 1/2 cup olive oil
- 1 large clove garlic, crushed or minced
- 1/2 to 1 cup crumbled homemade [feta cheese](#)
- Salt and pepper to taste

## Instructions

1. Bring the water to boil in a medium-size saucepan over high heat. Add lentils to boiling water and reduce heat to a simmer. Cook until lentils are soft but not mushy, about 15 minutes. Drain and set aside to cool.
2. Meanwhile, chop the vegetables and herbs.
3. Mix the lemon juice, olive oil, and garlic together in a small bowl or pitcher.
4. When the lentils have cooled to room temperature, combine them with the chopped vegetables and herbs. Pour the dressing over and mix together well. Stir in feta cheese. Taste and adjust salt and pepper. Because feta is very salty, add it before tasting for salt since you may not need much.
5. Chill until serving time.

This may be made a day ahead of time and served cold or at room temperature.

## Salami, Cream Cheese, and Pickle Rollups



This appetizer plate is teeming with enzymes, beneficial bacteria, and flavor when made with traditionally cultured versions of today's more processed ingredients. Make them for your next dinner party, reunion, or holiday and enjoy knowing that these are homemade and full of cultured goodness.

### Ingredients

- 24 slices of hard salami
- 8 ounces cultured [cream cheese](#), softened at room temperature (kefir or yogurt cheese could be used as well)
- 4 large [lacto-fermented dill pickles](#) (or more if using small pickles)

### Instructions

1. Spread salami slices with cream cheese.
2. Wrap the salami slices with cream cheese around the pickles.
3. Slice the wrapped pickles 1/2-inch thick.
4. Lay everything out on a platter and place a toothpick in each bite.

Tip: Look for naturally cured hard salami, generally indicated by the ingredient lactic acid on the label.

## Nori Poppers (using cream cheese)



This is a delightful fusion of western and eastern flavors, easy to make and even easier to eat!

### Ingredients

- [Cream cheese](#)
- [Yogurt](#) or [sour cream](#)
- Pickled jalapeño peppers
- Sushi nori (seaweed wrappers)
- Bamboo sushi roller (optional)

You will need about 2 to 4 tablespoons of cream cheese per nori wrapper, and one or two small jalapeños.

### Instructions

1. Add a little yogurt or sour cream to the cream cheese, and mix well to make the cream cheese spreadable.
2. Slice the jalapeños into thin strips.
3. Spread a thin layer of cream cheese mix (about 1/4 inch thick) on a nori wrapper, leaving about 1/2 inch of the wrapper free of spread on one end.

4. Along the center of the roll, and parallel to the un-dressed end, make a line of jalapeño strips. Make another line of jalapeño strips halfway between the first strip and the end of the nori wrapper opposite the un-dressed end.
5. Starting at the end away from the un-dressed end, roll up the nori fairly tightly, making sure to keep the jalapeño strips from sliding around. You can use a sushi roller for this, or just do it by hand. Run a wet finger (can use jalapeno juice) along the un-dressed end of the nori to close up the roll.
6. Cut the roll crossways, into about 1/2-inch sections, and serve as bite-size snacks.



## Stir-fried Queso Blanco



Here's an unusual way to prepare a soft, mild cheese and add a savory twist!

### Ingredients

- 1 pound [queso blanco](#), cut into 1-inch cubes
- 2 tablespoons olive oil
- 1 small purple onion, peeled and sliced thin
- 1 cup sliced red and yellow bell peppers
- 1 cup thinly sliced cabbage
- 1/4 cup slivered almonds
- 1/2 cup sliced mushrooms
- 2 cloves garlic, peeled and minced
- 1 cup marinade:
  - 1 cup tart [kombucha](#) or apple cider vinegar
  - 1 tablespoon chopped parsley
  - 1 tablespoon soy sauce

### Instructions

1. Marinate the queso blanco cubes in a large, covered bowl in the refrigerator for 1 hour.

2. Heat the oil in a wok over medium heat. Add cheese, marinade, onions, peppers, cabbage, mushrooms, almonds, and garlic. Stir-fry for 3 to 4 minutes over medium-high heat.
3. Cover and cook for 5 minutes longer. Keep stirring occasionally to prevent scorching or sticking.

Serve over a bed of hot white rice or linguini.



## Marinated Mozzarella Appetizers



This always disappears quickly at parties. Serve with fancy toothpicks.

### Ingredients

- 1 batch [30-minute mozzarella](#), cooled and cut into 1/2-inch cubes
- 1/2 cup extra virgin olive oil
- 2 tablespoons chopped sun-dried tomatoes (not necessary to reconstitute first)
- 1 large clove garlic, minced fine
- 1 tablespoon chopped fresh parsley
- 1 tablespoon finely chopped fresh basil (can substitute 1 teaspoon dried)
- 1 teaspoon chopped fresh thyme (or slightly less than 1/2 teaspoon dried)
- Salt to taste if mozzarella is not salty

### Instructions

1. Combine all ingredients and refrigerate for 3 to 4 hours up to overnight.
2. Let come to room temperature before serving.

Olive oil may congeal overnight in refrigerator, but will liquefy again at room temperature.

## Mozzarella, Sweet Potato, and Mushroom Stuffed Peppers



There is something about a stuffed pepper that is irresistible... especially when cheese is involved!

### Ingredients

- 3 sweet bell peppers
- 1/4 cup extra virgin olive oil
- 3 cloves garlic, finely minced
- 3 to 4 stems fresh basil
- 1/4 teaspoon oregano
- Red pepper flakes
- 1 cup [fresh mozzarella](#), cubed small
- 1 sweet potato, washed, cooked, and mashed
- 4 ounces shitake mushrooms, stemmed and coarsely chopped
- Sea salt and pepper, to taste
- Juice of 1 lime

### Instructions

1. In a skillet, heat 1 tablespoon olive oil, and sauté mushrooms, garlic, red pepper flakes, and basil for 3 to 5 minutes. Add mozzarella. Toss to combine. Season with sea salt and pepper to taste. Turn off the heat and set aside.

2. Cut tops off the peppers, leaving the peppers whole. Save the removed tops. Scoop out seeds and cores from peppers. Brush the outsides of the peppers with olive oil. Mix some of the remaining olive oil with cooked ingredients in skillet, only enough to coat well. Stir in the mashed sweet potato, blending well.
3. Fill peppers with skillet fillings and replace the tops.
4. Cook peppers on preheated grill over indirect heat or in the oven at 400°F. Bake until peppers become tender and the skin begins to char.
5. Cut each pepper into halves and sprinkle with the lime juice. You can also use a balsamic vinaigrette or just plain olive oil for drizzling instead of the lime juice.

## Mushroom, Apple, and Jarlsburg Salad



Jarlsberg is a sweet, nutty cheese with wide, round holes (“eyes”). You can also make this recipe with Emmental or even a mild Swiss cheese.

### Ingredients

- 1 pound mushrooms, rinsed and drained
- 1 large apple, Golden Delicious or Pink Lady
- 3 tablespoons lemon juice
- 5 ounces Jarlsburg cheese, cut into 1x1/8-inch strips
- 1/2 head iceberg lettuce, washed and drained
- 8 ounces fresh spinach, washed and drained

### Dressing

- 2 tablespoons sour [kombucha](#)
- 2 tablespoons mustard
- 8 tablespoons walnut oil
- 2 tablespoons fresh parsley, chopped
- Salt and pepper to taste

### Instructions

1. Slice the mushrooms thin. Set aside in a medium bowl. Core the apple and slice it thin, too. Add it to the mushrooms in the bowl and toss with the lemon juice.
2. Place all dressing ingredients into a small-mouth quart jar and shake vigorously. Season the dressing with the salt and pepper and shake once more. Refrigerate it until you are ready to use it.
3. Tear the lettuce and spinach into bite-size pieces and toss until blended.
4. Add the mushrooms and apples. Toss with the Jarlsburg.
5. Drizzle with the dressing. Serve immediately.



## Cold Peas and Paneer Salad



Slightly reminiscent of the traditional Indian dish, mutter paneer, this salad uses both homemade yogurt and paneer to boost the nutrient content and make it good as a side dish or a vegetarian entrée.

### Ingredients

- 1 pound fresh or frozen peas, steamed until just tender (about 5 minutes)
- 1/2 pound fresh [paneer](#) (about 1/2 batch)
- 2 tablespoons ghee
- 1/2 cup chopped onion (about 1 small onion)
- 2 cloves garlic, crushed
- 1 teaspoon fresh grated ginger
- 1/2 to 1 teaspoon turmeric
- 1 teaspoon ground coriander
- 1/2 teaspoon salt
- 1/4 teaspoon cayenne pepper
- 2 tablespoons chopped sundried tomatoes (or try using 1/2 cup quartered cherry tomatoes)
- 1 cup plain [homemade yogurt](#)

## Instructions

1. Steam peas and set aside to cool.
2. Melt ghee over medium-high heat in a large skillet. Once ghee is hot, brown paneer on all sides in ghee. Remove from skillet and add onion to ghee. Sauté onions until soft, but not browned. Stir in garlic and ginger when onions are almost done and sauté them briefly with the onions. Set aside to cool.
3. Mix turmeric, coriander, cayenne, tomatoes, and yogurt together. When peas and onion mixture have cooled, combine them with the yogurt dressing. If the mixture seems a little dry, add some additional yogurt.
4. Refrigerate several hours for flavors to blend.



## American-style Saag Paneer



This is a little less spicy than traditional Indian saag paneer, and uses easy-to-find ingredients. It's likely to become a family favorite!

### Ingredients

- About 8 to 12 ounces freshly made [paneer](#) (about half a recipe)
- 1/3 cup ghee
- 3 (10-ounce) packages frozen chopped spinach, thawed and drained to remove excess liquid, or 2 pounds fresh baby spinach, chopped, lightly steamed, and drained well
- 1 large onion, chopped fine
- 1-inch piece of fresh ginger, peeled and grated
- 3 to 4 cloves garlic, minced fine
- 1 to 2 tablespoons homemade curry powder (see recipe below)
- 1 cup thick homemade [yogurt](#)
- Cooked basmati rice

### Instructions

1. Make the curry powder.
2. Melt ghee in a large skillet over medium-high heat. Cut paneer into 1/2-inch cubes and sauté in hot ghee until golden-brown on each side. Turn the pieces of paneer

carefully to avoid having scrambled paneer. Remove paneer from skillet, drain on a paper towel, and set aside. Leave remaining ghee in skillet.

3. Add onions, garlic, and ginger to ghee in skillet. Cook, stirring constantly, until onions are tender. Place in blender container and blend to a paste-like consistency. Put back into skillet and stir in 1 to 2 tablespoons curry powder, depending on how spicy you like things.
4. Add spinach to spice paste and gently heat over medium heat until hot. Stir in reserved paneer. Remove from heat and stir in yogurt. Serve over hot basmati rice.

### **Curry Powder Ingredients**

- 2 tablespoons coriander seeds
- 1 tablespoon cumin seeds
- 1 tablespoon cardamom seeds
- 1 tablespoon whole black peppercorns
- 1 teaspoon fennel seeds
- 4 whole cloves
- 1/2 teaspoon mustard seeds
- 2 dried red chilies (omit chilies if you want a mild / no-nightshade curry powder)

### **Curry Powder Instructions**

1. Add the spices (not the chilies) to a dry skillet and toast over medium heat until spices are fragrant, but not browned.
2. Remove from heat and let cool. Stir in the chilies (if using), broken in pieces, and seeds discarded.
3. Place the mixture in a coffee or spice grinder and blend until powdered.
4. Stir in 1 tablespoon powdered [turmeric](#).

Use immediately or store in a tightly covered jar for up to 1 month.

## Cheesy Kale-stuffed Mushrooms



These delectable and versatile morsels can be served as an appetizer or a light meal. If you don't have full-fat ricotta cheese you may substitute whey ricotta or part-skim ricotta or, for a very extravagant flavor, cream cheese. No kale? No problem. Use spinach or Swiss chard instead. No fresh greens? Use frozen, defrosted spinach. Vegetarian? Omit the bacon. Any way you fix them, you'll get rave reviews.

### Ingredients

- 1-1/2 pounds large mushrooms (large baby bells or small portabellas work well)
- 1 cup full-fat fresh [ricotta cheese](#) (preferably homemade)
- 1/2 cup grated fresh [parmesan cheese](#)
- 3/4 cup crumbled [feta cheese](#) (preferably homemade)
- 1 large pastured egg
- 3 slices uncooked bacon
- 1/2 medium onion, chopped fine
- 1 pound (approximately) fresh baby kale, spinach, or chard, chopped (about 8 cups or use a 1-pound package of frozen chopped spinach, thawed and squeezed dry)
- 1 teaspoon dried oregano
- 1 clove garlic, crushed or minced fine
- 1/2 to 1 teaspoon salt (start with the lesser amount and adjust to taste)
- Fresh ground pepper, optional

- Dash of cayenne pepper, optional

### Instructions

1. Wash and dry mushrooms; remove stems and set caps aside. Chop stems finely and set aside separately.
2. Wash kale (or other greens) and spin or pat dry; chop and set aside.
3. Chop onion; set aside.
4. Dice bacon into small pieces. Fry in a heavy skillet until crispy; remove with a slotted spoon and drain on a paper towel. Set aside. Reserve bacon fat for sautéing vegetables.
5. Sauté onions and mushroom stems in the bacon drippings. For vegetarian version, use 2 tablespoons ghee for sautéing. When onions are soft and mushrooms have released most of their liquid, stir in oregano, chopped greens, and garlic. Continue to cook and stir until greens are wilted and most of the liquid has evaporated. Salt to taste and set aside to cool for 10 minutes. Add freshly ground pepper and cayenne, if desired.
6. In a large bowl, combine cheeses and egg. Stir in cooled mushroom mixture. Fold in cooked chopped bacon. Spoon filling into mushroom caps. Place filled mushrooms into a 9x13-inch baking dish. Bake at 350°F for 30 to 40 minutes, until mushrooms are soft and filling is set. Remove from pan, discard cooking liquid, and serve hot, warm, or cold.

## Mozzarella Leeks with Oil and Vinegar



Leeks add just the right amount of tang to creamy mozzarella for this savory side dish.

### Ingredients

- 2 pounds fresh leeks, rinsed and drained (just the white parts)
- 1 cup fresh basil leaves, rinsed and drained
- 8 ounces [mozzarella](#), cut into 1/4-inch thick slices
- 2 tablespoons olive oil
- 1 teaspoon apple cider vinegar (with the mother)
- [Sea salt](#) and black pepper

### Instructions

1. Preheat the oven to 400°F.
2. Boil the leeks in water with a pinch of salt for 7 to 10 minutes, or until they are cooked but still firm. Drain away the water.
3. Put the hot leeks into a glass baking dish, and cover them with a layer of basil leaves. Lay the sliced cheese over the basil.
4. Place the dish, uncovered, into the oven. Watch it, and when the cheese has melted and is bubbly and slightly browning, pull it out.
5. Mix the oil and vinegar together, mix in some salt and pepper to taste, and drizzle it over the cheese.

This dish is great if served hot with a loaf of freshly baked bread.



## Mozzarella, Tomato, and Quinoa Salad



Reminiscent of Caprese salad, this makes a refreshing summer side dish or a vegetarian entrée and is also a great way to feature your homemade fresh mozzarella cheese.

### Ingredients

- 1 cup quinoa
- 2 cups diced fresh Roma tomatoes
- 1 cup cubed fresh [mozzarella](#)
- 1 tablespoon olive oil
- 1 clove garlic, crushed
- 1/4 cup chopped fresh basil
- 1/4 cup minced shallots (or substitute green onions)
- Salt and pepper to taste

### Instructions

1. Rinse quinoa and soak overnight in 2 cups warm water with 2 tablespoons whey or apple cider vinegar. In the morning, drain and rinse.
2. Toast quinoa in a dry skillet over medium-high heat, stirring constantly. When quinoa is toasted, add 1-1/2 cups water, then cover and cook over medium heat for 20 minutes until tender. Transfer to a large bowl and allow to cool to room temperature.



3. When quinoa is cool, stir in tomatoes, shallots, basil, garlic, olive oil, and cheese. Add salt and pepper to taste.

## Herbed Red Potatoes with Crème Fraîche



Crème fraîche provides the perfect complement to the savory herbed potatoes. Make enough so everyone can have second helpings!

### Ingredients

- 3 pounds small red potatoes, washed and quartered
- 3 tablespoons [cultured butter](#)
- 3/4 cup [crème fraîche](#)
- 1/4 cup chopped onion greens
- [Sea salt](#), black pepper, basil, and garlic powder (or 2 cloves of minced garlic, if you have them)

### Instructions

1. Boil potatoes in just enough water to cover until they are tender, about 20 minutes.
2. Drain potatoes and transfer them to a large glass or enamel bowl. Add butter. Use a large spoon or ladle to mash the potatoes together *just* a bit to blend the butter. Leave some large chunks.
3. Add the salt, basil, and garlic powder to taste, stirring them in gently with the spoon. Then pour in the crème fraîche, stirring and blending as you pour.
4. Top with pepper, chopped onion greens, and more butter, if desired. Serve warm.

## Crème Fraîche Vinaigrette



This creamy dressing has the perfect blend of flavors to enhance any salad.

### Ingredients

- 3 tablespoons [crème fraîche](#)
- 4 tablespoons sour [kombucha](#) or apple cider vinegar
- 1 egg yolk
- 2 teaspoons mustard (try using [kombucha mustard](#))
- 1/2 cup extra virgin olive oil
- Salt and pepper to taste

### Instructions

1. Using a whisk, blend the crème fraîche, kombucha or vinegar, yolk, and mustard. Begin adding the oil very slowly, continuing to stir with the whisk. The vinaigrette will begin to thicken.
2. Add the salt and pepper to taste. Blend thoroughly and use immediately.

This dressing does not store well, due to the raw egg. Makes 3/4 cup of vinaigrette.

## Blue Cheese Dressing



Those who love blue cheese dressing can attest to the fact that once you've had really good blue cheese dressing, you just won't be satisfied with the bottled kind.

Most blue cheese dressing recipes contain a combination of cultured dairy and mayonnaise as the base. To that you add blue cheese, some acidity, salt, and pepper. In this version the mayonnaise is replaced with additional cultured dairy. With the right ratio of acidity, blue cheese, and seasonings, you won't even miss the mayonnaise!

### Ingredients

- 1 cup [sour cream](#)
- 1/2 cup heavy cream
- 1/2 cup [buttermilk](#)
- 3/4 teaspoon fine-grain sea salt
- 1/2 teaspoon black pepper
- 4 teaspoons raw red wine vinegar
- 5 ounces [raw blue cheese](#)

### Instructions

1. Combine sour cream, heavy cream, buttermilk, salt, pepper, and vinegar in blender. Blend a few seconds, until smooth.

2. Crumble in blue cheese and blend again.

Allow to sit for several hours in refrigerator before serving.

## Easy Probiotic-rich Caesar Dressing



Caesar salad dressing often has a raw egg to provide flavor, body, and a little protein. Since caution must be taken when consuming raw eggs, many people prefer not to use them in dressings. This recipe uses yogurt and mayonnaise to replace the egg, and makes a great, full-bodied dressing for a classic Caesar salad.

### Ingredients

- 1/2 cup full-fat [yogurt](#)
- 1/4 cup [lacto-fermented mayonnaise](#)
- 2 tablespoons grated fresh [parmesan cheese](#)
- 1 large clove garlic, pressed or minced fine
- 1/8 each teaspoon salt and pepper

### Instructions

1. Whisk all ingredients together until thoroughly blended.
2. If dressing is too thick, thin with a small amount of milk.

For Caesar salad, pour dressing over pieces of torn romaine lettuce and top with sourdough croutons and more parmesan cheese.



## Lactic Cheese and Cultured Buttermilk Ranch Chip Dip



A quick and easy dip you can stir up in a snap, that is healthier than store brands, and delicious besides.

### Ingredients

- 1/2 cup fresh [lactic cheese](#)
- 1/4 cup fresh [sour cream](#)
- 1/2 cup homemade [buttermilk ranch dressing](#) (see below). You can also use ranch dressing from the store, if you wish.

### Instructions

1. In a medium-size bowl, blend the lactic cheese and sour cream with a hand blender until smooth.
2. Slowly add the dressing, mixing it in well after you add each little bit. Taste it, and add more dressing if it seems too bland, more sour cream if it is overpowering. If it is too thin, add more lactic cheese and blend it well.

Serve chilled with potato chips or cut vegetables. Will keep in the refrigerator for 1 to 2 weeks.



### **Ranch Dressing Ingredients**

- 1 cup [cultured buttermilk](#)
- 1 tablespoon vinegar
- 1-1/2 tablespoons lemon juice
- 2 tablespoons chopped chives
- 2 tablespoons chopped parsley
- 1/8 teaspoon ground black pepper
- Salt to taste

### **Ranch Dressing Instructions**

1. Mix all the ingredients in a large bowl with a whisk or hand mixer until well blended.
2. Add the salt just a bit at a time, tasting the dressing after each addition.
3. Once the dressing is to your liking, chill it. If you are not going to use it soon, keep it in the refrigerator for up to one week.

## Main Dishes



Cheese is one of the most versatile foods in the world. Abundant in proteins and healthy fats, cheese can range from the very mildest and creamiest of cultured milks to strong, nuanced, sturdy foods that stand up on their own as delicious meals.

Add flavorings and foods to cheese, or add cheese to other foods and menu items to provide flavor, nutrition, and variety to your meals. Using cheeses from around the world can add an international flair to your menus, and stretch your food budget as well.

Feel free to be creative with cheese! Use mild or sweet cheeses to smooth out a spicy dish, or sharp flavorful cheeses to perk up a bland recipe.

## Gluten-free Blueberry Cottage Cheese Pancakes



These pancakes are higher in protein than most pancakes with the addition of cottage cheese and eggs. They don't need any topping other than a little fresh cultured butter, but a blueberry sauce will make an extra special breakfast treat! Make these pancakes small and leave plenty of space between them on the griddle because they spread a lot as they cook.

### Ingredients

- 1-1/2 cups [homemade cottage cheese](#)
- 4 eggs
- 1/2 cup plus 2 tablespoons sprouted brown rice flour
- 2 tablespoons arrowroot or tapioca powder (you can use 1 cup of the sprouted brown rice flour and omit the arrowroot if you want)
- 1/2 teaspoon baking soda
- 1/2 teaspoon salt
- 3 tablespoons honey
- 2 tablespoons butter, melted
- 1 tablespoon gluten-free vanilla extract
- 1 cup fresh blueberries (if you use frozen berries they will discolor the batter, but it will still taste good)
- Coconut oil for griddle

## Instructions

1. In a medium-size bowl combine cottage cheese, eggs, vanilla, melted butter, and honey.
2. In a smaller bowl stir together flour, arrowroot, salt, and soda.
3. Pour flour mixture into cottage cheese mixture and stir to combine. Fold in blueberries.
4. Brush coconut oil over surface of griddle that has been heated to about 325°F. Drop spoonfuls of batter on the griddle and cook until bubbles start to break on surface; turn and cook until brown on both sides, about 4 minutes total. Be careful not to let the griddle get too hot or the pancakes will burn on the surface before they are done on the inside.

## Cottage Cheese and Spinach Filled Ham Rolls



Use thin slices of ham instead of bread wraps for a tasty “sandwich” that can’t be beat.

### Ingredients

- 1-1/2 pounds thinly sliced naturally cured ham
- 2 cups cooked soaked or [sprouted brown rice](#)
- 1 cup [cottage cheese](#)
- 1 pastured egg plus 1 egg white (save yolk for sauce)
- 1/2 cup finely chopped onion
- 1 (10-ounce) package frozen spinach, thawed and squeezed dry, or 1 pound of fresh spinach, steamed until wilted and squeezed dry
- 1/2 teaspoon salt
- 1/2 to 1 cup of mustard sauce (see below)
- Paprika, optional

### Instructions

1. Mix sauce ingredients together and set aside.
2. In a medium-size bowl mix cottage cheese, eggs, brown rice, onion, spinach, salt, and enough mustard sauce to hold mixture together.

3. Place about 2 tablespoons of spinach mixture on each ham slice and roll up. Place seam side down in a buttered 9x11-inch baking dish. Spoon sauce over. Sprinkle with paprika if desired.
4. Bake at 350°F, uncovered, for 30 to 35 minutes.

**Mustard Sauce Ingredients**

- 2 tablespoons Dijon-style mustard
- 2 cups [cultured sour cream](#)
- 1 egg yolk
- 1 tablespoon arrowroot powder
- Salt and pepper to taste

**Mustard Sauce Instructions**

Mix all ingredients together and whisk until smooth.



## Cottage Cheese Blintzes with Soaked-flour Buttermilk Crepes



Crepes are related to blini, the Ukrainian thin pancake. These cheese blintzes, typically served during the Jewish spring holiday of Shavuot, are ideal for a brunch any time of the year. You can vary the fruit according to the season. They are especially delicious with freshly made cottage cheese.

### Filling Ingredients

- 2 cups creamed [cottage cheese](#)
- 1 egg
- 1 tablespoon honey

### Filling Instructions

Mix together and chill to use for filling crepes.

### Crepes Ingredients

- 1-1/2 cups sifted whole wheat or [sprouted wheat flour](#) (sift to remove some of the bran)
- 1 teaspoon salt
- 2 cups [cultured buttermilk](#)
- 4 eggs



### **Crepes Instructions**

1. About 12 hours before making crepes mix sprouted flour and buttermilk together; cover loosely and let sit at room temperature. When ready to cook add salt and eggs; whisk together. Add up to 1/4 cup water if needed for a thin batter.
2. Spread a small amount of melted butter, ghee, or coconut oil in a heavy 8-inch skillet. (Cast-iron works great for this.) Heat on medium-high heat. When the skillet is hot, pour in about 1/4 cup batter and tilt skillet to spread the batter evenly over the surface. Cook until lightly browned on bottom and just set on top. The top of the crepe will be dry to the touch, but not brown. Turn out onto parchment paper.
3. Continue making crepes, adding more butter to the pan as needed, until all batter is used.
4. Place several tablespoons of the cottage cheese mixture in the center of each crepe. Fold up the bottom side over the cottage cheese, then fold in the left and right sides, and roll up to fully encase filling.
5. Place several filled blintzes in the skillet with additional butter; brown on both sides. Remove to a buttered 9x13-inch baking dish and keep warm in a 200°F oven while you brown the remaining blintzes.
6. Dust with powdered sugar and serve with sour cream and fruit.

## Spinach Ricotta Quiche



A quiche is a delightful way to serve eggs plus the ingredients of your choice. The tartness of spinach combined with the creamy sweetness of ricotta makes this dish irresistible for breakfast, lunch, or dinner.

### Ingredients

- 1 (9-inch) pie crust of your choice (homemade, gluten-free, etc.)
- 2 (10-ounce) packages organic frozen chopped spinach, thawed and squeezed dry
- 1/4 cup finely chopped onion
- 3 tablespoons [butter](#)
- 1/2 teaspoon [Celtic sea salt](#)
- Dash of pepper
- 1/4 teaspoon ground nutmeg
- 2 cups fresh [ricotta cheese](#)
- 1 cup cream or half-and-half
- 1/2 cup grated fresh [parmesan cheese](#)
- 3 pastured eggs

### Instructions

1. Preheat oven to 400°F. Bake pie crust for 5 minutes; remove to a cooling rack. Reduce oven temperature to 350°F.

2. Sauté onions in butter until translucent; stir in spinach, salt, pepper, and nutmeg. Remove from heat and transfer to a large bowl.
3. Add ricotta, parmesan, cream, and eggs to spinach mixture; stir to combine. Pour into pre-baked pie shell.
4. Bake at 350°F for 50 minutes, until filling is set and slightly browned.

Serve hot or at room temperature. Makes 6 to 8 servings.

## Italian Sausage, Spinach, and Ricotta Squares



These quiche-like squares are especially popular with men who don't normally eat quiche. They are firm and meaty, good hot or cold, and easy to make.

### Ingredients

- 1 pound bulk Italian sausage (if using links, remove casings and break up)
- 2 (10-ounce) packages frozen spinach, thawed and squeezed dry
- 6 pastured eggs, slightly beaten
- 1 cup ricotta cheese
- 2 cups grated [mozzarella cheese](#)
- 1/2 cup grated fresh [parmesan cheese](#)
- 1 clove garlic, minced
- Salt and pepper to taste

### Instructions

1. In a large skillet, brown Italian sausage over medium-high heat until no pink remains in meat. Drain excess grease. Stir in garlic and drained spinach. Set aside to cool.
2. Add eggs and cheeses to sausage mixture. Add salt and pepper to taste.
3. Pour into a buttered 2.5-quart glass baking dish. Bake at 375°F for 45 minutes or until top is firm to the touch and center is set.

Serve warm as a brunch dish or cold as an appetizer.

## Ricotta Pancakes with Butter-Honey Syrup



### Ingredients

- 2 cups sifted, finely ground wheat flour
- 1 tablespoon honey
- 2 teaspoons baking powder
- 1/2 teaspoon baking soda
- 1/2 teaspoon sea salt
- 2 large eggs, separated
- 2 cups whole milk
- 1/2 cup [ricotta](#), well drained

### Instructions

1. In a large bowl, beat the egg yolks, milk, and ricotta. In a separate medium-size bowl, mix dry pancake ingredients together with a whisk.
2. In a small bowl, beat the egg whites until stiff.
3. Add the dry ingredients slowly to the large bowl of wet ingredients, mixing with a wooden spoon just until blended. Add the egg whites one spoonful at time, folding them in with a rubber spatula.
4. Heat a large cast-iron or nonstick griddle over medium-high heat. Oil with olive or vegetable oil just until shiny.

5. When a droplet of water dances on the surface of the griddle, it is ready. Cook the pancakes (about 1/4 cup batter per pancake) until golden on both sides.
6. Transfer the pancakes to a platter and keep warm in a 200°F oven while you make the syrup.

#### **Butter-Honey Syrup Ingredients**

- 1/2 cup fresh butter
- 1 cup honey
- 2 teaspoons cinnamon

#### **Butter-Honey Syrup Instructions**

1. Melt the butter in a medium-size sauce pan, stirring frequently to keep it from scorching.
2. Once the butter is completely melted, add the syrup and stir until it is hot throughout.
3. Turn off the heat and add cinnamon. Stir to blend and transfer the hot syrup to a non-glass serving container.

Serve pancakes hot, drizzled with the syrup. Makes 15 to 16 small pancakes.



## Spinach Ricotta Dumplings



In Italian these are called *Gnocchi Verde*. You can just call them delicious! They can be made ahead and frozen, or made a day ahead of time and just reheated, covered, in a 300°F oven for 15 minutes.

### Ingredients

- 2 tablespoons butter or ghee
- 1 tablespoon finely chopped onion
- 3 (10-ounce) packages organic frozen chopped spinach, thawed and drained
- 1 cup [ricotta cheese](#)
- 3/4 cup sprouted wheat or unbleached flour (or sweet white rice flour for gluten-free option)
- 1 cup grated fresh [parmesan cheese](#), divided
- 3/4 teaspoon [Celtic sea salt](#)
- 1/4 teaspoon pepper
- 1/4 teaspoon organic garlic powder
- 1/4 teaspoon ground nutmeg (freshly grated is nice)
- 2 tablespoons fresh chopped parsley
- 2 pastured eggs, slightly beaten
- 1/2 cup melted butter (save for later)
- 6 to 10 cups boiling water or chicken broth



## Instructions

1. In a large skillet over medium-high heat, sauté onion in butter until onion is translucent. Stir in drained spinach and cook until almost dry, about 5 minutes. Add ricotta cheese and cook an additional 2 minutes. Remove from heat and let cool to room temperature.
2. Stir in flour, 1/2 cup parmesan cheese, salt, pepper, nutmeg, garlic, parsley, and eggs.
3. Shape into walnut-sized balls, using additional flour as needed. (If not cooking immediately, coat with flour and store in a single layer in a covered glass dish in the refrigerator for up to 24 hours.)
4. Drop about 12 dumplings at a time into barely boiling water. Cook 5 to 6 minutes or until dumplings float to the surface. Remove from water with slotted spoon and place in a 9x13-inch glass baking dish and keep warm. Repeat until all dumplings are cooked.
5. Melt the remaining 1/2 cup of butter and use it to drizzle the cooked dumplings. Sprinkle with the remaining 1/2 cup parmesan cheese. Serve hot.

## Artichoke, Spinach, and Ricotta Calzones



With creamy ricotta cheese, tangy parmesan, and the complementary flavors of artichoke and spinach, this is a delicious take on a favorite Italian dish.

### Ingredients

- 2 cups homemade [ricotta cheese](#)
- 1 package frozen artichoke hearts, defrosted, drained, and chopped
- 1 (10-ounce) package frozen chopped spinach, thawed and squeezed dry
- 8 ounces sliced mushrooms
- 1/4 cup finely chopped onions
- 1 teaspoon dried basil or 1 tablespoon chopped fresh basil
- 1/2 cup grated fresh [parmesan cheese](#)
- 1 clove garlic, minced
- 1 tablespoon [butter](#) or ghee
- 2 batches of [sourdough pizza crust recipe](#) or other favorite pizza dough

### Instructions

1. Melt butter in a large skillet over medium-high heat. Add onions and mushrooms; sauté until vegetables are tender and mushrooms give up some of their liquid. Stir in garlic, artichokes, spinach, and basil. Cook an additional 1 to 2 minutes. Remove from heat and cool to room temperature.

2. Add ricotta and parmesan cheeses to cooled vegetables; mix together well.
3. Divide pizza dough into 10 pieces. Roll each piece into an 8-inch circle. Place about 1/3 cup of filling on pizza dough. Fold in half and pinch edges together. Place on a baking sheet and brush with olive oil, if desired.
4. Bake calzones for 20 minutes in 400°F oven. Eat hot or cold.

## Spinach Ricotta Pie



This is a variation on a recipe found in an old cookbook published in the 1940s. It is a delicious combination of the flavors of homemade cheese and fresh spinach. Serve it with garlic bread and salad for dinner, or as a quick breakfast with a glass of milk. You can also make this pie with asparagus instead of spinach.

### Ingredients

- 1 (9-inch) pie crust
- Olive oil
- 1 small onion, chopped
- 2 cups fresh baby spinach, washed, squeezed dry, and chopped coarse
- Salt and pepper
- 1 pound homemade [ricotta](#)
- 1 cup homemade [mozzarella](#), shredded
- 1 cup homemade [parmesan](#), grated
- 3 eggs, lightly beaten

### Instructions

1. Preheat the oven to 350°F. Butter a pie pan, and roll out the pie crust, placing it into the pie pan and folding under, crimping and trimming the edges.

2. Heat about 1/2 tablespoonful of olive oil in a large skillet. Add the onion and cook it until it has softened. Stir in the spinach and salt and pepper to taste. Cook for about 5 minutes, or until it is all blended and tender.
3. Combine all the cheeses in a large bowl. Whisk in the eggs. Stir in the cooked spinach and onions, mixing it all very well.
4. Spoon the cheese / spinach mixture into the piecrust. Place in the oven and bake until the filling is set right through to the center and the crust is golden, about 35 to 40 minutes. Let it cool before serving.

## Southwest Lasagna with Queso Blanco



A perfect fusion of American cuisine in a traditional Italian dish!

### Ingredients

- 1 package sprouted corn tortillas
- 1 pound ground beef (preferably grass-fed)
- 1/2 to 3/4 pound homemade [queso blanco](#) (about 1/2 recipe)
- 3 cups tomato sauce (homemade or canned organic tomato sauce)
- 2 cloves garlic, minced
- 1/2 cup chopped onions
- 1 teaspoon dried oregano, crushed
- 2 teaspoons ground cumin
- 1/2 teaspoon salt
- 1/4 teaspoon pepper
- 4-ounce can diced green chilies
- 3 cups (12 ounces) shredded pepper jack cheese

### Instructions

1. Brown ground beef in a large skillet over medium-high heat. Stir in onions, garlic, oregano, cumin, salt, pepper, and green chilies and cook until onions are



translucent. Stir in tomato sauce. Cover and simmer over low heat for 15 minutes. Meanwhile, butter a 9x13-inch pan.

2. Place a few spoonfuls of the meat sauce mixture on the bottom of the pan. Place 4 tortillas over sauce. Cut tortillas to fit if necessary. Spread additional sauce over tortillas. Crumble half of queso blanco over meat sauce. Top with 1 cup of pepper jack cheese. Repeat with second layer. Finish with a layer of tortillas, sauce, and pepper jack cheese.
3. Bake at 350°F for 45 minutes or until nicely browned and bubbly. Let cool for 10 minutes before cutting. Makes 6 to 8 large servings.



## Turkey and Queso Blanco Enchiladas



Queso blanco, with its mild flavor and firm texture, helps extend the meat in this dish, making it an economical and tasty kid-pleaser meal. Look for organic or free-range ground turkey if possible.

### Ingredients

- 1 pound ground turkey
- 1 tablespoon butter, ghee, or chicken fat
- 1/2 pound [queso blanco](#)
- 1/2 cup chopped onion (about 1 small onion)
- 1 or 2 cloves minced garlic
- 1 (4-ounce) can or 1/2 cup fresh chopped mild green chilies
- 1 teaspoon crushed dried oregano
- 1/2 teaspoon ground cumin
- 1 (15-ounce) can red enchilada sauce
- 1 (15-ounce) can organic tomato sauce (or 2 cups homemade tomato sauce)
- 12 organic corn tortillas (preferably [sprouted](#))
- 2 cups shredded raw or homemade [jack cheese](#)
- 1/2 cup sliced ripe olives, if desired

**Instructions**

1. In a large skillet over medium-high heat, brown turkey in fat of choice. Stir in onions, chilies, garlic, oregano, and cumin. Cook, stirring constantly, about 4 minutes.
2. Mix enchilada and tomato sauces together. Stir queso blanco and 1 cup of the mixed sauce into the meat mixture. Remove from heat.
3. Butter a 9x13-inch glass baking pan plus a smaller rectangular glass baking dish and place several spoonfuls of sauce in the bottom of each.
4. Heat the tortillas in a dry cast-iron skillet, one at a time, until they are pliable. Place 1/4 to 1/3 of the filling in the center of each tortilla and top with 2 tablespoons grated cheese. Roll up and place seam-side down over sauce in baking pan. Repeat with tortillas until pans are full. Pour remaining sauce over enchiladas and top with remaining cheese. Sprinkle with sliced olives.
5. Bake at 350°F for 30 minutes or until cheese is melted and starting to brown.

## Crustless Bacon, Artichoke Heart, and Onion Quiche



Dry-curd cottage cheese is easy to make and since it is not readily available to purchase in most supermarkets, it pays to learn how to make your own. You can switch up the vegetables in this quiche for an almost endless variation of quiches.

### Ingredients

- 2 cups [dry-curd cottage cheese](#) (about 1/2 recipe)
- 2 cups grated [jack cheese](#) or [cheddar cheese](#)
- 10 fresh, large pastured eggs
- 1/4 pound bacon (sugar-free, if possible), cooked until crispy
- 4 green onions, sliced
- 1 cup chopped artichoke hearts, frozen and thawed, or canned and drained
- 1/4 cup sweet rice flour
- 1 teaspoon baking powder
- Dash of [Celtic sea salt](#)

Note: The rice flour and baking powder can be omitted if you are on an SCD or GAPS program.

### Instructions

1. Butter a 9x13-inch glass baking dish and set aside. Preheat oven to 350°F.

2. Cook bacon until crispy in a skillet or the oven. Remove to a paper towel to drain. Crumble the bacon when it has cooled.
3. Break eggs into a large bowl. Whisk until foamy. Stir in cheeses, crumbled bacon, artichoke hearts, and green onions. If using the rice flour and baking powder, add them in now and stir to thoroughly combine. Add salt as needed.
4. Pour into prepared baking dish. Place in preheated oven and bake for 35 to 45 minutes, until center is set and top is nicely browned.
5. Remove from oven and cool on a wire rack for 10 minutes before cutting.

Serve hot, warm, or cold. Refrigerate any leftovers.

## Bread Pudding with Gruyère



Bread pudding is a great way to use up bread that's a little past its prime. With a sweet cheese, it would be a great dessert. Using savory Gruyère and some chicken broth makes it practically a complete meal in itself!

### Ingredients

- 3 tablespoons [cultured butter](#)
- 3 small onions, sliced
- 2/3 cup green onions, chopped
- 3 cloves garlic, peeled and minced
- 12 cups day-old whole wheat bread, cubed
- 3 cups [Gruyère](#), shredded
- 3 large eggs
- 1 cup chicken broth
- 2 cups cream
- 1/2 cup chopped chives
- Salt and pepper

### Instructions

1. Preheat oven to 350°F.

2. Melt butter in a cast-iron skillet over low heat. Sauté onions and garlic in butter just until soft. Turn off the heat.
3. In a large bowl, combine Gruyère, bread cubes, green onions, and sliced onions.
4. In another large bowl, whisk together the eggs, chicken broth, and cream. Add the salt and pepper. Pour this mixture over the bread mixture. Let them sit together for 10 minutes to allow the bread to soak up the liquid.
5. Butter a 13x9-inch glass or dark nonstick pan. Pour the egg and bread mixture into the buttered pan and cover it with foil. Place in the preheated oven and bake for 30 minutes. After that, remove the foil and bake another 10 to 15 minutes to allow the top of the dish to get browned and toasty. Remove from oven and sprinkle on the chives. Let cool 10 minutes before serving.



## **Desserts**



Besides being the perfect addition to nearly any recipe, or a satisfying meal or snack on its own, cheese can also be a great dessert food. Whether presented on a platter with a selection of fruits, or as part of a sweet pastry recipe, cheese can make a perfect finish to a great meal.



## Tiramisù



This popular Italian dessert is traditionally made with ladyfingers, but you can also use a homemade pound cake with your own healthy ingredients. This can be made one or two days ahead of time. Just cover with plastic wrap and keep refrigerated until ready to serve.

### Ingredients

- 3 cups [mascarpone](#)
- 1/2 to 2/3 cup mild-flavored honey (start with the lesser amount and add more if you like things sweeter)
- 1/4 cup Marsala wine or 1-1/2 teaspoons vanilla extract
- 1/2 cup heavy whipping cream (use 3/4 cup if not using Marsala)
- 2/3 cup freshly brewed espresso or strong coffee
- 1/2 cup unrefined sugar (rapadura or Sucanat)
- 1 homemade pound cake, gluten-free if desired
- Unsweetened cocoa powder

### Instructions

1. Make coffee syrup by dissolving unrefined sugar in freshly brewed coffee. Simmer for 5 minutes. Set aside to cool.
2. In a large bowl beat together the mascarpone, honey, Marsala (if using), and whipping cream with an electric mixer until the mixture is fluffy.

3. Cut cake into 1/2-inch slices. In a lightly buttered 2.5-quart glass baking dish, place a layer of cake slices, cutting to fit as needed. Brush enough of the cooled coffee syrup over the pieces to moisten, but not saturate the cake.
4. Spread half of the cheese mixture over the cake slices, and smooth with a spatula.
5. Repeat layers one more time. Refrigerate any coffee syrup left over, and use to replace part of the liquid in chocolate cake or brownie recipes.
6. Just before serving, sprinkle top with cocoa powder. For best results, place the cocoa powder in a sieve and shake over the surface. Do not sprinkle on ahead of time or the cocoa will pick up moisture from the cream layer and not look attractive.

## Mascarpone Apple Torte (gluten-free)



Part apple pie, part cheesecake, but 100 percent delicious!

### **Crust Ingredients**

- 1/4 cup [butter](#)
- 1/3 cup honey
- 1/2 teaspoon vanilla extract
- 1 cup blanched almond flour

### **Crust Instructions**

1. In a small saucepan, gently heat honey and butter over low heat until both are very soft. The butter does not need to be fully melted. Add almond flour and vanilla. Stir to combine.
2. Butter a 9-inch springform pan. Press dough onto the bottom and up the sides about 3/4 inch. Place in refrigerator while mixing filling.

### **Filling Ingredients**

- 1/4 cup honey
- 1 teaspoon vanilla extract
- 4 ounces [mascarpone](#), softened
- 4 ounces [cream cheese](#), softened (can use all mascarpone if desired)

- 1 large pastured egg

### **Filling Instructions**

1. In a medium to large mixing bowl combine all ingredients and blend with a hand mixer or immersion blender until smooth. Pour into prepared crust.
2. Sprinkle apple topping (see below) over cream cheese mixture.
3. Bake at 400°F for 25 to 35 minutes, until filling is mostly firm (it will set up more as it cools) and topping is nicely browned. Remove from oven and cool on a wire rack. Refrigerate for several hours before cutting.

### **Topping Ingredients**

- 4 cups peeled and diced apples (try Golden Delicious or Granny Smith)
- 1/2 cup unrefined sugar (rapadura or Sucanat)
- 1/2 teaspoon organic ground cinnamon
- 1/2 cup chopped crispy nuts (walnuts or pecans, soaked 12 hours then dehydrated until crispy)

### **Topping Instructions**

1. In a small bowl, mix apples, sugar, and cinnamon together until apples are completely coated with sugar and cinnamon.
2. Stir in chopped nuts.
3. Sprinkle over cream cheese filling.

## No-cook Chocolate Ricotta Pudding



This pudding is thick, and so rich a small dish will more than satisfy you. Serve with fresh berries for a contrast to the richness, and cookie crumbles for a lovely crunch. It's best to use whole-milk ricotta cheese in this recipe as low-fat will produce a grainy pudding. This recipe is a perfect no-cook dessert for hot summer days.

### Ingredients

- 1/2 cup Sucanat or other granulated unrefined sugar (demerara, turbinado, rapadura, etc.)
- 1 pound [ricotta cheese](#)
- 1/4 cup good cocoa powder
- 1/4 teaspoon vanilla extract

### Instructions

1. Place Sucanat in food processor and process to make powdered Sucanat.
2. Add 1 pound ricotta cheese and 1/4 cup cocoa powder, and continue processing until blended.
3. Add the vanilla extract towards the end of processing.
4. Blend for another minute or until smooth and rich. If your processor is having trouble, or you would like to thin the pudding just a bit, add a splash of any type of milk.

5. Spoon the mixture into four serving dishes and refrigerate for at least an hour, or up to 24 hours.

Serve with fresh berries and crumbled crunchy cookies.



## Cream Cheese Frosting



This is incredibly simple to make, and an easy addition to any baked dessert.

### Ingredients

- 2 cups unrefined cane sugar (can use regular sugar)\*
- 7-ounce package natural cream cheese or about 3/4 cup [homemade cream cheese](#)
- 2 tablespoons butter, softened
- 1 teaspoon vanilla extract
- 1 to 2 teaspoons cream, if needed to thin

### Instructions

1. Blend sugar in a high-powered blender until powdered. Stir into softened cream cheese.
2. Add butter and vanilla and whip until light and fluffy, adding additional cream if necessary to obtain the desired texture.
3. Spread over cooled cake. Refrigerate until serving time and refrigerate any leftovers.

\*If this frosting is made with unrefined sugar, it will be tan in color rather than white.



## Raw and Cultured Pumpkin Cheesecake



This is one of those dessert recipes that adapts easily to using cultured foods. And because of the healthy fats in the recipe, the sweetener is kept to a minimum.

This dessert is perfect for Thanksgiving or anytime throughout the fall or winter. With a hint of pumpkin and a dash of warming fall spices, this is sure to be a hit at your Thanksgiving table.

### **Crust**

- 1 cup graham cracker crumbs, preferably sprouted or sourdough
- 4 tablespoons unsalted butter, melted and cooled slightly
- 1/4 teaspoon ground ginger

### **Filling**

- 1 cup pumpkin purée (plain)
- 4 tablespoons [cultured butter](#), softened
- 16 ounces [cultured cream cheese](#) (or well-drained [kefir cheese](#))
- 1 teaspoon pure vanilla extract
- 1-1/2 teaspoons pumpkin pie spice
- 1/4 teaspoon salt

- 1/2 cup powdered Sucanat (granulated Sucanat that has been powdered in a blender)

### **Instructions**

1. Preheat oven to 400°F. Line a 9-inch springform pan with parchment paper or grease a 9-inch pie pan.
2. In a medium bowl, combine graham cracker crumbs, ground ginger, and melted butter. Press mixture into bottom of prepared pan and about 1/4 inch up the sides. Bake 7 to 8 minutes or until golden brown. Set aside to cool.
3. In a medium bowl, beat pumpkin purée, softened butter, cream cheese, vanilla, spices, and salt until smooth. Mix sugar in, 1/4 cup at a time, then beat until smooth. Transfer pumpkin mixture to prepared pan, spreading it out evenly over the crust. Cover and chill until set, about 6 hours, or overnight. Remove outer ring of pan and peel off parchment paper. Cut into slices and serve.

## Gluten-free Ricotta and Yogurt Cheesecake



Cheesecake is always a winning dessert, and this one will have your guests asking for more!

### Ingredients

- 1/2 cup finely chopped crispy walnuts (nuts that have been soaked and dehydrated)
- 1 tablespoon softened butter or coconut oil
- 2 cups thick [ricotta cheese](#)
- 1 cup drained, thick [yogurt cheese](#) (or use all ricotta if desired)
- 4 eggs
- 2 tablespoon arrowroot powder
- 1 tablespoon lemon juice
- Zest from 1 lemon
- 2 teaspoons vanilla extract
- 1/2 cup honey

### Instructions

1. Butter an 8-inch springform pan (the kind with 2.5-inch sides). Dust bottom and sides with finely chopped walnuts.
2. Mix ricotta cheese with yogurt cheese. Blend in eggs, lemon juice, vanilla, honey, arrowroot, and zest. Stir until smooth. Pour into prepared pan.

3. Bake at 350°F for 1 hour 15 minutes, then turn off the oven. Let the cake cool in the oven for 15 minutes, then transfer the pan to a rack and let cool to room temperature. Refrigerate until completely cold, then carefully remove sides of pan.
4. Top with fresh sliced strawberries, if desired.

Makes 10 to 12 servings.

## Easy Decadent Strawberry Cheesecake Ice Cream



This recipe makes a deliciously rich and smooth ice cream reminiscent of custard-based ice creams, but requires no cooking. Start the process of making the cream cheese the day before you plan to make the ice cream. You can use other berries, or even a combination of berries, but you might need to strain the berries through a sieve if they have a lot of seeds. The recipe works well with either raw or pasteurized cream.

### Ingredients

- 1 quart cream, raw or pasteurized, but not ultra-pasteurized
- 1 packet [mesophilic starter culture](#)
- Approximately 1 quart strawberries, washed, stemmed, and mashed to make 2 cups of chunky strawberry puree
- 1/4 to 1/2 cup sweetener of choice
- Pinch of unrefined salt

### Instructions

1. Heat cream to 75°F and combine cream with mesophilic starter; cover and let rest at room temperature for 12 hours. You should have a solid curd at the end of the rest period.
2. Cut the curd into 1-inch cubes and pour into a colander that has been lined with [butter muslin](#). Let curd drain for 1 to 4 hours, until much of the whey has been

released, but the cheese is still a little runny. It should have the consistency of yogurt rather than a thick cream cheese.

3. Combine 2 cups of the “cream cheese” with 2 cups of mashed strawberries. Add a pinch of unrefined salt and sweeten to taste with maple syrup, honey, or organic sugar. Usually 1/4 to 1/2 cup is plenty.
4. Pour into the freezer container of a 1.5-quart ice cream maker and freeze according to the manufacturer’s directions. Ice cream will be soft-set at the end of the churning time. Transfer to a freezer container and freeze until firm, about 1 to 2 hours.

If you are making this a day ahead of time, remove the ice cream from the freezer and let sit at room temperature to soften for 15 minutes before serving.