

Cheesemaking

For the rest of Us



www.cheeseandyogurtmaking.com

1 INTRO

Making cheese is **child's play**.

People who use fancy French words to scare you off are banned from reading this book.

Seriously.



It's hard milk. We ain't splitting the atom here folks, just milk- into curds and whey- and anybody with ten bucks in their back pocket can do it.

We are here to tell you that for the odd hour and a few cents you can make some lovely grub and get on with your life. There are a handful of steps, a handful of ingredients, a handful of things that can go wrong that with some effort you can eradicate with practice just like any hobby... and that's it. Hard milk.

Okay, opposite are just a few tit-bits that we have stumbled across that make cheese a little more of a big deal than this book thinks it is. It will be our job to convince you otherwise and give you the confidence to know not all cheesemakers wear reindeer moccasins and normal people can give it a crack without joining Greenpeace.

If you like cheese puns ("This is the 'whey' to make cheese, gfaw gfaw"), or think good Cheddar is mystical nourishment, or that people can't possibly understand the 'emotional journey' you've been on making Feta with your grandmother, then you may need another book. May I recommend Barnes and Noble? We hear they have lots of self-help books in the 'Spirits and Wizardry' section.

Disclaimer: If your Skype 'mood message' is a quote from Gandhi, this read is perhaps not emotionally sensitive enough for you. Please leave exit left.

"How can anyone govern a nation that has two hundred and forty-six different kinds of cheese?" Charles De Gaulle

Man up Charlie, and tidy up Paris on your way out, will you?

*"A meal without some cheese is like a beautiful woman with only one eye."
Jean Anthelme Brillat-Savarin*

Jeany, Jeany, Jeany. I think you need to put that plate of Brie down and take a nice long nap.

*"Cheese- milk's leap toward immortality."
Clifton Fadiman*

Pretentious? Moi? Oh, hang on Cliff, you did a funny, that's the spirit.

There is some science and some tricky stuff that we will cover, and it is important so we brought in our resident cheese geek.

We hope we have set the tone and we promise this cheese-making beginners' guide will help set you on the way to making some lovely cheese. Heck, maybe even some yogurt. You could go crazy and maybe even do both. 'Cos we're adults and we do what we want.



There is some science and some tricky stuff that we will cover, and it IS important so we brought in our resident cheese geek. Every home should have one. Ours fits under the stairs nicely and comes out to give us quotes on protein structures and the biological composition of milk. His name is Bruce, and he has more letters after his name

than Idi Amin (His Excellency, President for Life, Field Marshal Al Hadji Doctor Idi Amin Dada, VC, DSO, MC, Lord of All the Beasts of the Earth and Fishes of the Seas and Conqueror of the British Empire in Africa in General and Uganda in Particular). For simplicity's sake we will stick with just Bruce and you will see him pop up in his 'Brucie Box' when there's some science that will help a beginner get a grasp on what's going on.



We may even call on the services of our buddy Paul, a cheese expert and self-sufficiency author from England and like all good plain-speaking Northerners, he likes to call a cheese a cheese. Unless it's yogurt. You know what we mean.

The 'Cheese and Yogurt Making' Team.

2 HISTORY

The history of cheese is useful, and not just so you can sound smug at the in-laws' Trivial Pursuit evening, when you get the only cheese question right (and, ironically, get a cheese wedge for your troubles).



Wisconsin Dairy School, early 1900's

A history of cheese will give you a sense of why Swiss cheeses are the way they are, Brie is the 'King of Cheese', how to this day in England you can still 'cheddar' Cheddar in Cheddar, Italian Mozzarella stretched over the Atlantic to become a staple of pizzas and how the ghastly American 'burger' cheese has been left behind, leaving a flourishing artisan cheese industry in its wake and made the country home to some of the best new cheeses in the world...

No cheese history is complete without the possibly apocryphal story of a shepherd, a desert, and an animal's stomach full of milk. Legend has it many, many centuries ago a shepherd in the Middle East stored milk in a sheep's stomach and the natural enzyme, rennin, solidified (coagulated) the milk into something approaching cheese. We imagine he was delighted to be crowned the founder of cheese- you know, just after a fifty mile sandy trek in one hundred degree heat, rounded off with a nice, refreshing, creamy cup of... hang on, the milk's stuck in the...oh cr*p.

We will fast forward the Sumerians, the ancient Greeks and Egyptians and pull up swiftly to the Romans. As the Romans swept Europe, their army marched on its stomach all right, and that stomach was full of cheese styles from the four corners of its pillaged empire. They refined goats' and sheep's cheeses, the processes of aging and smoking, and as experts of the longer-lasting hard cheese was even able to trade with it across their expanding territory. The word 'fromage' comes from the Latin 'formaticum', 'forma' to shape, and 'aticum' to age, when Romans would press curds using their famous bowls. Next time you see one in a museum poke your nose inside and see if they missed a bit. (While we are being smarmy and quoting Latin, the very word 'cheese' comes from the Latin 'caseus' and anyone lucky enough to end up in New Haven on the North East coast of America should check out the cheese shop of that very name to see just how far, literally, cheese has come).

And so the evolution of cheese marched on and despite China (the Bai people), India (Paneer, a simple cheese still popular today) and some cheesemaking in the Middle East, it was Europe- in particular the monasteries- that moved the industry forward when the Romans had been royally spanked and since gone home. From the Middle

**And Swiss
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without eyes
are called blind.
Of course they
are.**

Ages onwards cheese, along with our other friend beer, was refined by monks and we salute them for keeping these two great compatible pleasures alive and well.

In the late Middle Ages modern cheeses that we know and love today became established, including Parmesan, Gouda and Camembert. The Swiss, with their large areas of pasture and newly honed technique of storing cheese, stamped their own 'Emmental' style on the industry and the introduction, much later, of dozens of Swiss dairies saw the beginnings of what we know now as mass production. The characteristic holes found in Swiss cheese, known as 'eyes', are caused by a specific culture that releases carbon dioxide, just like a fizzy drink. And Swiss cheeses without eyes are called 'blind'. Of course they are. (If that ever comes up in that Trivial Pursuit game, you owe us a drink.)

While the Italians perfected Mozzarella, Provolone and Parmesan, and the Dutch Gouda and Edam, it was France and England that really stepped up the dazzling number of varieties on offer. Much later, the explosion of Italian cuisine in America- driven by immigrants leaving Europe for a better life- helped see Mozzarella become a staple of pizza lovers and make the cheese the bestseller in the States.

Back over the pond, the British developed their famous blue cheese, Stilton, by using a special culture and piercing their cheese to allow the blue veins to develop, producing a strong flavor that has become legendary. Cheddar, a village in Somerset, still produces its eponymous

firm cheese and managed to produce its own verb- to 'cheddar'. This technique involves cutting the curds into slabs and stacking them on top of each other so the weight from above drains and presses the curd below. The location was no mistake either- the caves around Cheddar made for perfect conditions (before electricity- imagine that, no texting while at work!) and storing cheese to this day is called placing in a 'cave'.

The French led the way with milk varieties covering sheep, goat and cows' milk (or even mixtures of them), creating international bestsellers such as Comté, Brie, Camembert, Raclette and Roquefort. Regional cheesemakers have become fiercely protective of their origins and yet names like Brie may, to the layman, appear to be a more general term for a soft cheese with a white mold. Yet as far back as Emperor Charlemagne, who took a liking to Brie, this cheese took on extra importance. The story goes, as Europe's borders were being carved up after the Napoleonic wars, each country brought a cheese to the table during one of the meeting's lighter moments, with the Brie the runaway winner. Today, Brie's title as the 'King of Cheese' is still linked to those historical tales.

As the Old World continued its cheese love affair the immigrants of America learnt both the techniques of their mother countries plus a more efficient mass-production method than the Swiss. Assembly-line style production began in 1851 under a pioneer called Jesse Williams. With scientific developments of cultures and rennet, American cheese making managed quantity, but failed to make up ground on the Europeans when it came to quality, until very recently.



Today, the explosion of 'artisan' cheesemaking in America has seen not only an increase in the range of locally made American cheeses, but the quality is now rivaling- and in many contests beating- their European counterparts who had inspired the new wave of New World cheesemakers.

Modern Mass Production Today

While beginners may struggle with the subtleties of a Brie or a Camembert, experts will tell you getting the distinctive, subtle differences in each of the hundreds of cheeses we see today requires decades, if not centuries, of knowledge and refinement.

You better get started.



3 STUFF YOU NEED

We often get professionals spending serious dollar with us on kit that they need to develop their product ranges or make huge quantities of cheese. They don't need this book and you don't need to spend big bucks to get off the ground either.



You could buy everything off our website and we'd sure love the business. But think about this. You know that abdominal cruncher you bought from that late night cable commercial? You know, the one under that musky blanket in the garage? Try this instead. Wedge your feet under the couch and start pumping out those sit-ups like you're in Rocky II and you still get that washboard stomach, right?

It's the same starting out with cheese. Check your cupboards before spending the month's rent check on expensive knife sets and multiple saucepans. Work your way up from basic cheeses and as you get proficient, grow your kit and ingredients accordingly. From a simple soft cheese eaten immediately to complex blue cheeses aged for months, the process remains fairly similar. Start simple, use what you have, get competent making a small range of cheeses well, then branch out and improve your equipment and supplies.

For yogurt, many people use their oven on a very low heat to incubate their milk. You can go all out and buy a yogurt maker and expensive glass jars and maybe one day you will and that's great, call us. Good equipment will yield better results as you aim for consistency and scale. So for example, a decent thermometer is an investment but a basic one for beginners is just fine too. Also pH test papers are not needed until you know why and how to control acid in your cheese in the first place. For many mid-to-expert level cheesemakers pH papers are vital. Remember that rich kid at school sports day with the expensive new sneakers with gold colored spikes? He came last didn't he? Don't be that kid.

We assume you probably have a colander, some measuring cups and measuring spoons. Plastic storage containers with airtight lids will also be useful as you begin to store cheeses.

EQUIPMENT:

The key is not just using equipment that can be cleaned down easily, but is non-reactive.

Pots n Pans

Cleanliness is crucial with whatever you use, so no matter how squeaky clean you are, make life easy and avoid aluminum pots. Stainless steel and glass is perfect. The key is not just using equipment that can be cleaned down easily, but is non-reactive. With heat and ingredients thrown together, reactive metals can affect flavor. A big pot or saucepan than can hold a gallon or two is best and you can invest in larger sizes as you progress.

Ladle

An angled perforated ladle, or skimmer, is also a crucial bit of kit. This allows you to lift curds from the whey in your pot and for stirring milk. Use stainless steel if you can.

Curd knife

A long, rounded edge knife (a palette knife will also work) is important for cutting curds all the way to the bottom, without scratching the pot or pan as you do so. If you only have a regular knife, be careful not to scratch the base as you chop up your curd.

Thermometer

This is a beginners' guide so we are all about saving the pennies. A basic thermometer that allows you to measure up to 200°F/93°C will work for you as you make your first basic cheeses. However, measuring accurately is crucial and investing a few bucks in a good thermometer is worth the outlay when you make a lot of cheese regularly. A thermometer with a pan clip is most useful to leave you hands free and watch the progress of your milk heating/cooling. As a rule heat your milk slowly, as this allows the whey to be expelled properly from the curd.



Hygrometer

This item is not the first thing on your shopping list but they are cheap (under \$10) and they are useful. This little gadget checks for humidity and will definitely be a must when you move from beginner to expert and start to want to control moisture levels as you age your cheeses.

Cheesecloth

Now this is worth investing in. A decent quality cheesecloth is not expensive and is used for both straining and lining molds for pressing. Rinsing immediately in cool water is crucial. A good cheesecloth will also stand up to being boiled to sterilize for reuse. A cloth with oversewn edges is also advised as it means strands of cloth will not get in your cheese, which if used to age your cheese can cause infection (and if you're really unlucky the most stinky and unexpected flossing of your life).

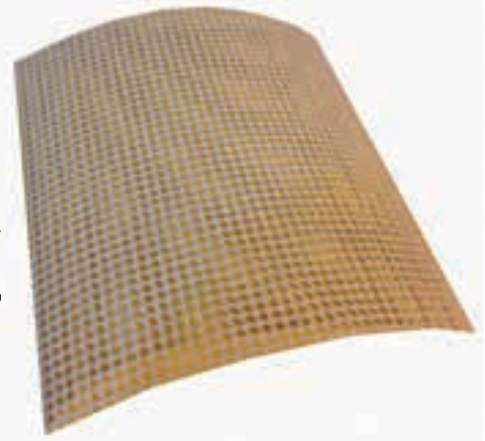


Butter Muslin

A tighter weave than cheesecloth, muslin is used for straining soft cheeses as it lets less softer curds through. Muslin and cheesecloth are very similar and you can double up on your cheesecloth if you find you are losing curd and don't have muslin to hand. Muslin is also used for bandaging cheeses.

Cheese Mats

When freshly made cheese is sitting, it releases whey. If the cheese is not lifted off the surface it will sit in its own whey—something to avoid. Plastic matting allows air underneath the base of the cheese and for the whey to drain away. Any similar matting will do, but ‘Dairythene’ or similar material is best as, like plastic molds and followers, it can be sterilized easily.



Atomizer

A bottle that can deliver a fine spray through the nozzle will be useful for spraying the solution of some mold-ripened cheeses. If you don't have something that will do the job and you are dipping your toe into cheese making, this can wait until you are ready for making these types of cheeses. Save your money and spend it on the best milk you can afford— that's far smarter use of your money right now. If you are loaded, do what you like. Buy twenty diamond-encrusted atomizers and throw nineteen into a lake. Our recipes add the culture into the milk and avoid the spraying stage, but you will see other recipes that insist on spraying— so look out for it.



Wax

Coating your cheese prevents the wrong types of bacteria developing as well as preventing it from drying out while aging. Colors vary and won't affect flavor in any way but certain cheese types stick to a particular color, like red for Edam and black for certain aged cheeses. Buy proper cheese wax from a cheese supplier. While we are pushing you to save every dollar starting out, don't melt the candles on the mantelpiece for cheesemaking. Proper cheese wax can be strained and reused.

Coating

A slightly newer product available from cheese suppliers is a plastic, breathable coating. The aqueous emulsion is brushed on and is food grade, and is preferred by some cheesemakers as an alternative to wax. It also contains bactericidal agents so, like wax, good bacteria does its business on the inside while those filthy ‘outsider’ bacteria are left knocking on the door.



Molds and Forms

Molds are used for draining and shaping cheeses before aging. Build up a range over time as you know what cheeses you like and the shapes and styles of molds you need. For less than five bucks you can buy a mold from Dairythene or similar plastic material, but for considerably more you can get stainless steel. Both are easy to sterilize after use but you won't need the latter as a beginner.

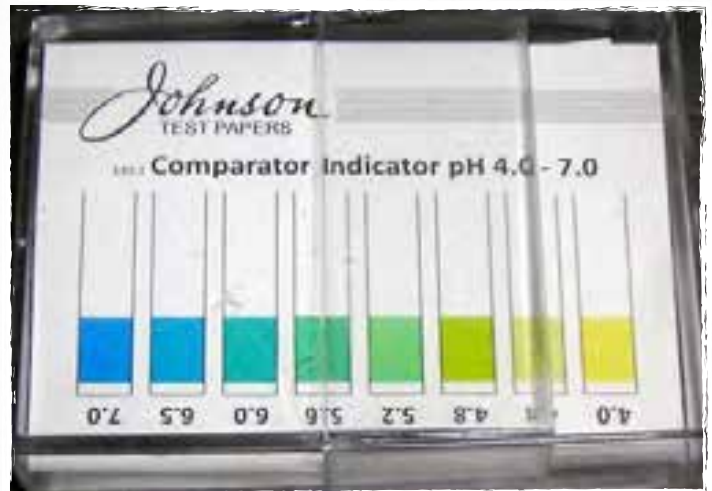
The molds typically are round but there are specialist shapes for other cheeses. Some molds come with a follower- effectively a plastic lid- that allows you to press cheeses evenly from above. Molds have holes to allow whey to drain from them, with the exception of ricotta molds. These 'basket' molds have wider slits for faster drainage suitable for ricotta production. When pressing a cheese you can line your mold with a cheesecloth and place on a cheese mat.



Certain shapes are synonymous with a particular cheese, for example the pyramid-shaped Chèvre, or the domed Gouda. However, rules are like pie-crusts and there to be broken. A couple of larger molds with followers, a cylinder mold and a couple of standard beaker molds will cover most types of cheese you make as you start out.

pH Test Papers

Once you have progressed from your first soft cheeses and have a couple of jacks, mozzarellas and Gorgonzolas to your name, you can work on climbing to the next Jedi level of cheesemaking- controlling acid levels. pH test papers are cheap and with mastering the use of them you become able to understand how salt is absorbed into the cheese- crucial to producing consistent... erm... consistency in your cheese. Some professionals invest in a more expensive digital meter rather than the strips.



Hydrometer (Brinometer)

Now this is definitely one piece of kit that you won't be rushing out to buy any time soon. If you become more expert at cheesemaking you will need to measure salt solutions more accurately- and this is the kit to do it. Brainey Bruce will be delighted to cure any insomniacs wishing to learn more about specific gravity-something you need to understand to use this gadget.



On a serious note- entering the realm of consistent professional cheesemaking takes knowledge and dollars. More advanced books than this would cover more accurate acidity measurement using Sodium Hydroxide and Phenolphthalein...typically called an acidometer kit costing hundreds of dollars. Glad you asked? Oh, you didn't.

Brucie Box: A consistent pressure applied is crucial. Too much pressure traps whey and causes the cheese to be too acidic and crumble.



A heart of Mold

Cheese Presses

There are three types of cheese press. The job of a press is, obviously, to press your cheese. This creates the desired texture and moisture level. But a proper press does more than just squash curd. A proper press will evenly and (this is crucial as you develop) measurably presses your cheese the EXACT amount a recipe requires. When you get accurate recipe instructions you will be given measurements in psi (pounds per square inch). Some recipes will be a little more lenient and give you a weight instead to place on top (10lb for example).



A Double Dutch Press

- 1) D.I.Y- Dumbbells, a bag of sand, buckets of water, a Christmas stocking full of forgotten walnuts...

On the positive side- free. In the negative column- not so measurable.

- 2) A Dutch press- These presses are a reasonable investment but will last you a long, long time and allows you to accurately press your cheese using the lever arm. This is best for beginners to medium-level cheesemakers and will bring great, consistent results.
- 3) A cylinder 'screw' press- this screws down from two sides and evenly presses your cheese. These can run to over \$200 and should only be considered by serious cheesemakers. The cheaper Dutch style press should run for half that and more than do the job for pressing cheeses until you get to expert level.

Storing Cheese

Ripening papers

Wrapping your cheese requires specialist paper that allows your cheese to breathe. This is especially true of mold-ripened cheeses such as Brie. Avoid wrapping your cheese in plastic wrap from the supermarket as it will literally suffocate the poor thing, causing a slow ammonia death and accelerating growth of unwelcome surface molds. How could you live with yourself?

Brief, and we mean brief, use of cling film/plastic wrap for storage (but not aging) of harder cheeses is just about OK. But to control the humidity and ultimately flavor of your cheese, avoid it.

Your 'ripening cave'

If you have a separate fridge, store your cheese at around 50°F/10°C. Blue and surface mold cheeses can contaminate all around it, so make sure you store in an airtight container to control loss of moisture and to prevent stinking up the whole fridge. A good place is the vegetable drawers as they have less airflow. You can store in a cool area of your home, such as a basement, if you are confident it is a consistent temperature. A good old-fashioned pantry used to do the job so replicate this if you can.

Storing and aging cheeses is not just about temperature. Humidity is crucial too. A small amount of water in a bowl next to your aging cheese may be called for in some recipes. To get more professional and accurately monitor humidity, you will need a hygrometer. Put it on the list with the pH meter when you feel ready to go to the next level. You will need this level of control as you develop working with mold-ripened cheeses in particular.



Paul's Tip

INGREDIENTS

Starter Cultures

Before splitting milk into curds and whey, virtually all cheeses are 'cultured'. This basically acidifies the milk and begins the process of converting milk sugars (lactose) into lactic acid. Some simple cheeses like ricotta and the Indian style paneer do not, but they acidify using lemon juice or something similarly acidic. Pretty much all other cheeses will use a starter culture of some sort.



Some good news... they are cheap. Along with rennet, some salt and perhaps another additive (depending on the cheese), the total cost- apart from any milk you may need to buy- will be less than 50 cents per pound.

The cheapest starter cultures form a starter solution, which you can freeze. A scoop of this solution cultures each new batch of cheese. Cultures you pour right in to your milk, skipping the solution phase, are called DVI (direct vat inoculation). This culture may well need to be divided up as most cultures are produced at commercial scale (for 100-200 gallons).

How to divide up a culture

We cannot stress the importance of cleanliness when dividing up a sachet of culture. Once the air hits the open culture, the key is to quickly and cleanly divide up the powder and wrap it up and back into the fridge or freezer. Take a sterilized knife (you can use an alcohol spray or similar to sanitize the knife) and pour the sachet onto a sterilized sheet of tin foil (again spray or sterilize accordingly). Divide up the culture into half, then quarters, etc. etc. until you have a bundle of tin-foil wrapped cultures. Fold them up and quickly put them in an air-tight container in the fridge or freezer (depending on the culture). Note: If one culture is good for 100 gallons, you won't get 100 packets for 100 separate gallons. That's because at volume the growth of the bacteria in the milk is exponential, literally feeding itself at the vat level. Aim for about two thirds of that.

In professional cheese making there is an unbelievable amount of science to understand when it comes to the blends of bacteria used for hundreds of different cheese types. But starting out, there are effectively two types you need to know about and will cover the range of cheeses you could contemplate to make.

One is mesophilic. There are a few on the market and most cheeses, apart from the most hard, will be mesophilic because...

...the other type is thermophilic, and as the name suggests the bacteria likes heat. Heating milk hotter than you would for mesophilic cheeses is the process for making a hard cheese, especially Italian styles like Parmesan and Provolone. So, for any recipe where you heat milk up to around 100°F/38°C, you will almost certainly be directed to use a mesophilic culture. (For the record a mesophile is an organism that likes moderate heat.) Cheddar, blue cheese, Brie, Colby, Feta, Gouda, Chèvre- all mesophilic. Curds cooked to higher temperatures- Gruyère, Emmental, Romano- thermophilic.

Just so your forehead doesn't break out into a sweat, don't panic. There are only a handful of bacteria families, such as Lactococci and Lactobacilli, that do a specific job and the range of cultures on sale have varying amounts of these depending on the style and flavor you are targeting. One produces a buttery taste, one produces carbon dioxide, and so on.

You may be familiar with what is called a 'mother culture'. This is where you can transfer some left-over culture, or cultured milk, to be used to inoculate the next batch of cheese. Unless you make cheese every few days, managing and monitoring the quality of these mother cultures is really an unnecessary task with today's current low costs for freeze-dried cultures. For a few cents and for more consistent results, use fresh culture and look into re-culturing when you have got more skillful at making your first few cheeses. Yogurt is easier to re-culture and we will discuss this in our yogurt recipes later.



Keeping it simple, some cultures create molds (like the white fuzz found on Brie), some help create holes (forming carbon dioxide that create the ‘eyes’ found in Swiss cheeses like Emmental), others flavor (such as nutty or buttery) and others get to physically alter the paste (like the veins found on blue cheeses). If you want to REALLY understand the science of cheese, cancel the next three years of your life and ‘unfriend’ everyone on Facebook.

Below are some basic culture types that will help you get started with most cheeses. There are literally thousands of permutations at the commercial level, giving you the subtle flavor changes on display in the massive amount of cheeses on the market today. However, there are some basic principles at play here and the rest- at the professional end- is really just fine-tuning. As a beginner, terms such as ‘diacetyl- chemical formula $(CH_3CO)_2$ and ‘proteolysis’ really can strip the joy out of buying a gallon of milk, cracking open a bottle of wine and having a light-hearted evening in the kitchen. So instead we’ve stripped it down to show you some of the typical basic cultures available in the table below.

Name	Type	Uses & Examples
Standard Starter	Mesophilic	Basic soft/semi-hard cheeses- perfect beginner’s culture
TA61	Thermophilic	Hard Swiss/Italian- Parmesan, Gruyère
MM100/101	Mesophilic	Wide range to add buttery flavor- Feta, Bries, Gouda, Blue
MA4001/4002	Mesophilic	Open texture, used in Feta, Sour Cream, Caerphilly, Roquefort
MA11/MA16	Mesophilic	Closed texture, semi-hard cheeses- Colby, Jack, Cheddar
Kazu	Mesophilic	Nutty sweet flavor in aged cheeses- Asiago, Cheddar, Gouda
Flora Danica	Mesophilic	Similar to Aroma B- Fresh cheeses, Cultured Butter, Havarti
CHN19	Mesophilic	Aromatic, flavorful semi-hard cheeses-Jack, Gouda, Cheddar
Geotrichum 17	Secondary	Use with P. Candidum- Brie, Camembert
P.Candidum	Secondary	White mold- Camembert, Brie, Coulommier
Propionic	Secondary	Creates eyes (holes) in cheese- Swiss style e.g. Emmental
B. Linens	Secondary	Red mold & washed rind- Limburger, Brick, Muenster
P. Roqueforti	Secondary	Blue mold veins & surfaces- Stilton, Gorgonzola, Roquefort

Rennet

There are only a handful of steps to making cheese. Typically the second step, AFTER acidifying the cheese with a starter culture, is splitting the milk- a process called coagulation- into curds and whey. Rennet curdles the milk and as discussed in the history section, rennet comes from the stomach of young ruminant animals such as cows, goats and sheep.

Most cheeses are made from the solid part called curd, but the odd one is made from the liquid called whey (such as ricotta). Rennet is big business for the commercial players and new scientific methods, from genetically modifying enzymes to more recently exploring the use of camels for more efficient coagulation of cows' milk!!!, the cost has come way, way down. And the quality has gone up. Which is great news for you and me.

If we ignore butchering your own animals, or for the vegetarians among us grinding up various non-animal alternative pastes from obscure plants, using modern rennet is simple, quick and reliable. We are going to NOT recommend using junket rennet. Despite being readily available thanks to its uses in making various desserts, the quality is lower and the new kids on the block blow it away.

Liquid Rennet: Available in animal or vegetable, liquid rennet is the choice of professionals and the quality and potency (especially vegetable) has considerably improved over the last decade. Vegetarian microbial rennet is created through the use of particular molds that act similarly to the natural clotting enzyme occurring in animal rennet. For just four drops per gallon for soft cheeses, a small bottle of double-strength rennet will last in your fridge for over a year and give you change out of a \$5 bill. We have worked with hundreds of professionals across Europe for the last thirty years and this is the best rennet process we can recommend. Rennet strength is measured in International Milk Clotting Units and requires getting your calculator out when working out dosages at the dairy level. Stick to a recipe's requirements but remember old rennet can weaken and may need a few more drops to get the desired result. Use caution when adding more and more rennet though- too much will leave a bitter taste and can ruin the texture of the cheese you are aiming for. Instead, leave the lid on the milk pan and come back to it- rennet can take a little while to do its work.



Secondary Cultures

Secondary cultures do a different job than a starter culture. Their role is to convert the milk into the texture and flavor you are seeking. These cultures may contain species of yeasts, molds and bacteria. There are five main types of secondary culture:

Penicillium roqueforti

Chocolate off the tree for those of you that spotted the word 'Roquefort' in the title. This is, as you would expect, used in blue cheeses (like Roquefort) and creates the blue and green veins in blue cheeses, including Stilton and Gorgonzola.

Penicillium candidum

This culture is responsible for creating the white furry mold on the surface of what we call 'bloomy-rind' cheeses. The best examples include Brie and Camembert.

Geotrichum candidum

Usually added alongside *Penicillium candidum*, *Geotrichum* is used for soft cheeses aiming for a specific texture and flavor. For red-smear cheeses this culture helps stimulate *Brevibacterium linens* to do its business.

Propionic

Added to create the holes made famous in many Swiss mountain cheeses (and some Tom and Jerry cartoons as bait).

Brevibacterium linens

This culture is used for ripening. *Brevibacterium linens* is added to smear-rind cheeses and creates an orange-red appearance, seen in Muenster, Limburger and Brick.



Water

Why add water? Surely if milk is 85-90% water, and cheese is all about flushing OUT the liquid leaving you the solid bit behind, why would you add water? Milk is wet enough, right? Kinda. You do need to add a small amount of water to rennet and some additives to help it mix consistently throughout the milk. Failure to do so can mean the product you are adding not getting diffused sufficiently.



But this is the important bit.... Avoid chlorinated water- often found in tap water. Many local water departments will contain chlorine, so if you can use boiled (but cooled) or bottled water, this is the best way to avoid it.

Salt

Salt is vital to cheesemaking and a must for all beginners. Its myriad effects on cheese-making make it a staple for your starter kit. The best salt for cheese is coarse and must be NON-iodized as the iodine knobles starter bacteria. Cheese salt should also avoid free-flowing agents (often called anti-caking agent).

Cheese salt is added to curds before they are pressed. As you get better you can adjust to taste but remember salt does more than hang around, being salty. You don't have to apply salt directly. Some cheeses instead are put into a brine wash (salt dissolved in water). These brine-soaked cheeses tend to be short-aged cheeses such as feta. It acts to preserve cheese too, which is why this is such a great hobby as you can store, share and enjoy cheese at your leisure. And that's not all. Salt prevents aging cheeses from producing unwanted lactic bacteria. Salt also helps expel whey from the curd.

Finally, if heated, salt turns curds into a Mediterranean pancake called a 'sal-pastel'. Ok, sorry, we made that last one up, that isn't true. But we cheese-heads think salt IS amazing. Really.



Annatto

If you've given up smoking and really miss those haggard nicotine-stained fingers, then this bottle of orangey coloring is just the job. If instead you're really just interested in coloring cheese, read on.

Not all milk is just 'white'. Goats' milk lacks the carotene of cows' milk and therefore produces a whiter cheese. Cheesemakers back in the day added food colorings to make their cheese look richer, inferring a higher quality milk and higher butterfat content. Today, annatto (a seed from the achiote tree) is used to give cheeses an orange color. This vegetable dye has no affect on flavor.

So goats' milk sucks, right? Wrong. Goats are actually ruthlessly efficient at converting carotene into Vitamin A. Its milk might be white but it's packed full of goodies. Goats- 1, Cows - Nil.



Lipase

While annatto is flavorless, lipase is all about flavor. This enzyme comes in a powder and is added to milk to give it a tangy flavor. A calf enzyme produces a milder flavor and a goat enzyme gives a sharper flavor.

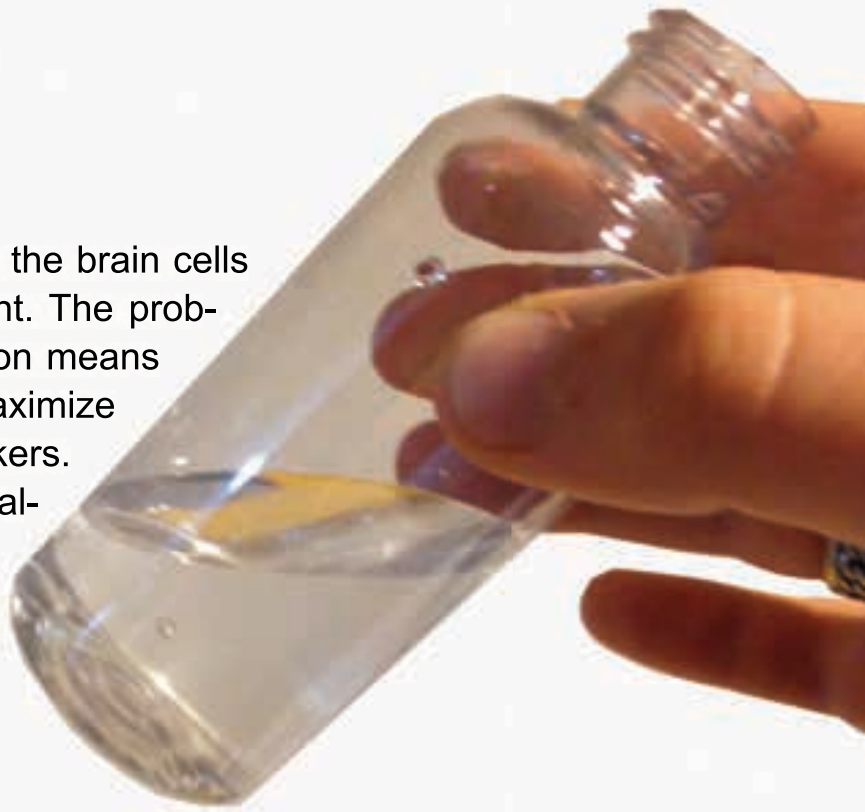


Lipase (Honestly, Officer!)

Lipase gives that sharpness found in provolone or Parmesan. For extra smug-points at parties, that roof-of-the-mouth tartness is called 'piquant'. Lipase is also sometimes used in mozzarella, Cheddar and some blues.

Calcium Chloride

The word 'calcium' should probably get the brain cells thinking about milk... and you'd be right. The problem with modern milk is mass-production means various forms of heat-treatment to maximize its longevity. NOT good for cheesemakers. If you are buying store milk (that will almost certainly be homogenized), try calcium chloride for a firmer curd. Adding this to milk helps rebalance the calcium damaged during heat-treatment.



Goats' milk is another kettle of fish. It can't help but form a softer curd (one of the reasons it's so good for you and doesn't cause the digestion problems that cows' milk often does). A drop of calcium chloride can help this naturally homogenized milk produce a better curd.

Citric Acid

Citric acid is used as a 'fast-acidifier' for quick style mozzarella recipes. Traditional recipes typically do not use it. Worth getting if starting out with mozzarella and it's very cheap.

Tartaric Acid

Not the first thing on your shopping list, tartaric acid is only really used in Mascarpone, the Italian soft cheese. Love Tiramisu? Pop this in your shopping basket and make fresh mascarpone to add to your ladyfingers and eggs for this legendary dessert.

Ash

Yes. Ash. Also called activated charcoal, this not only makes pretty lines running through the middle of some cheeses, it also acts to prevent stray mold growth during the ripening stage. Typically used with goat cheeses, ash should be mixed with some salt first and then shaken lightly over the surface. Cheap, messy to use- and therefore a lot of fun. Look out for the famous Humboldt Fog in America and Morbier in Europe to see the ash line in cheese in its full glory.

Apart from giving the cheese a superb visual appearance, coating the outside with ash also has significant benefits. For example, many cheeses become quite acidic during their maturing process and this can prevent the cheese ripening properly and fulfilling its potential, both in terms of texture and flavor. Ash is alkaline and so neutralizes the excess acidity, helping the cheese mature completely. In addition, the ash can soak up any whey on the surface, allowing the cheese to dry more rapidly. The ash also helps the surface of the cheese to become more hospitable to the growth of surface-ripening molds such as the white *P. candidum*, allowing the final product to have a subtle, complex flavour that is complemented with a delicate pale grey rind.



4 MILK

Great milk makes great cheese. Period.



There is a secondary protein in milk called albumin and this is released at higher temperatures. This secondary release of curd from whey is what makes ricotta. Hence ricotta literally means “recooked”. And thus you just gained one more smarty-pants point.

This next sentence is kinda obvious yet worth stressing. Great milk makes great cheese. Period. Great cheese NEEDS great milk. Making a basic soft cheese using regular store milk, a dash of salt...sure, that gets you on the road. But to develop your skills and your range of cheeses, we need to start at the source. While as babies we lived on the stuff, understanding milk is a little more than child's play.

Milk is mainly water. Roughly 86-88% of milk is water and our job is to heat it, press it, drain it, salt it and age it to flush it out. What you leave behind in cheese, the goodies, are called milk solids.

These solids comprise of minerals, fats (butterfats), sugars (lactose), proteins (casein) and vitamins.

The fat contributes to the richness and final flavor the cheese. Understanding the fat content of milk is therefore worth knowing, yet it varies considerably from animal to animal. To keep this realistic, we're presuming our dear reader is not a yak-herder or buffalo farmer. Apologies to any camel breeders too- yes you can make cheese from these three animals but we will focus on the main three available to the mainstream.



Cows' Milk



This milk tends to be creamy and sweet, with a fat content of around 3.5%. Most milk on the market comes from our bovine friends and while fairly low in fat content, is cheap to buy and available all year round. Most milk in North America comes from Holstein cows, however other breeds, especially Jersey, produce what many believe is superior milk for cheeses. Cows' milk does not freeze well as the cream separates.

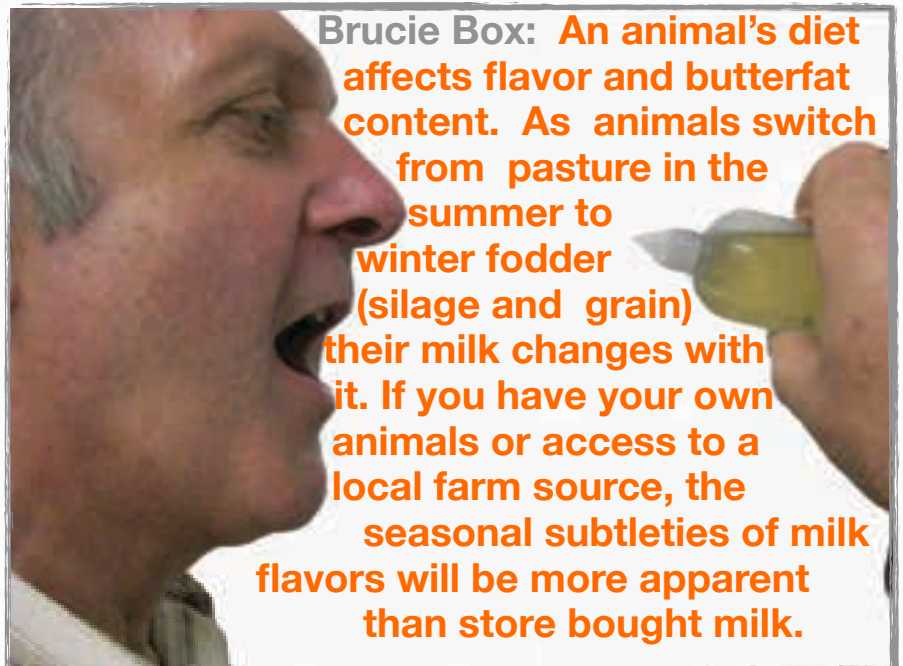
Goats' Milk



This milk tastes- as you will know if you've tried it- different. It has a more tangy flavor and a shade more butterfat, around 4% or so. Goats' milk has small fat globules (compared to cows), meaning it is effectively naturally homogenized, forming a softer curd. This means you may need to add calcium chloride or stick to soft cheeses. The upside is it is easier to digest. Goat cheese is also known as chèvre and produces a lighter colored cheese than other animals. This milk freezes well. Many lactose intolerant people find they can stomach milk and cheese from goats.

Sheep Milk

A rich golden color and offering up a whopping 7-8% butterfat, sheep milk is high in protein but produces much lower volumes. Getting hold of it in many states can prove difficult. The upside is you get a higher yield per gallon and need less rennet too. Famous sheep cheeses include Manchego from Spain, Roquefort from France and the Italian Pecorino Romano ('pecora' is Italian for sheep). Beware- this milk IS high in lactose. This milk freezes well.



Brucie Box: An animal's diet affects flavor and butterfat content. As animals switch from pasture in the summer to winter fodder (silage and grain) their milk changes with it. If you have your own animals or access to a local farm source, the seasonal subtleties of milk flavors will be more apparent than store bought milk.

Raw Milk

Raw milk is a BIG issue right now. It literally is milk from the udder and.... that's it. The crucial thing is this milk is NOT pasteurized, and that is the crux of the argument fought in legal battles here in the United States. Raw milk could make you ill, and is to be avoided by the elderly, the young and the pregnant. Cheese made from raw milk must be aged for 60 days to be legal to eat as this aging kills the dangerous bacteria (pathogens) potentially present in raw milk.

So why not just pasteurize milk and avoid the risk? Because the artisans out there, the purists, want the flavor. And they feel you only get that with raw milk. Heating and homogenizing affects the milk and ultimately their final work of art- and they ain't having it!!! We advise, starting out, that you pasteurize your milk (see below).

Pasteurized

This milk has been heated to a set temperature for a fixed period, then allowed to cool. We can thank Mr Pasteur for this through his microbiology work in the 19th century. This milk, unhomogenized, is still great (and safe) for making cheese and will form great curds without the need for calcium chloride. The flavor will still be great too if you get great tasting milk, but undoubtedly some will be lost due to some damage to the enzymes and vitamins in the raw milk. This is still worth doing, however, starting out. Managing raw milk responsibly requires experience and skill and as this is a beginner guide to cheese making, caution comes first. Sorry to lecture, but E. coli and Salmonella are no joke.



This is our local unhomogenized milk from the super market. It is well worth trying to take the extra time to find a store that carries local unhomogenized milk for the best and most tasty results!

PAUL'S TIPS

Lactose has got a bad press lately. But it's nothing really new. For centuries the Chinese have recoiled at the very thought of it. Only those crazy Barbarian Europeans would eat rotting milk! But now new milk brands on our shelves promote lactose-free milk. However, lactose is THE vital sugar that starts the fermentation process so DO NOT buy lactose-free when choosing your milk.



Ultra-pasteurized (Ultra-heat Treated)

Now this milk sucks. For mozzarella it's unusable. A lot of milk today has received this extra heat treatment so it lasts longer on store shelves. More money for Walmart et al., not so good for lowly cheesemakers like you and I. Check the label in the store if that is where you have to go, and make sure you buy only pasteurized. Buy the ultra mango lip balm, or that ultra nose-trimmer you've been eying up. But keep 'ultra' out of your milk.

Skim (Non-fat) Milk

This type of milk is obviously popular for the health conscious, but for cheese making it has a specific benefit. It is great for grating cheeses (I hope twice in a sentence doesn't grate), especially hard Italian cheeses like Parmesan and Romano. Yes, you 'can' use this for making a healthier soft cheese too... but your yield will be less than whole milk and you won't get the richness and creaminess either compared to its full-fat cousin.

Homogenized

Unfortunately again, most milk is also homogenized and tracking down non-homogenized milk in most stores can be tricky. Persist if you can. This fairly recent process breaks down the fat globules in milk (not goats remember, they manage that themselves!). The reason for this is so lumps of butterfat don't form at the top of the milk (remember that back in the day?) and so the big store chains get consistency in their milk. It's what the consumer wants right? Well, like ultra-pasteurized milk, homogenization sucks for cheese makers as it forms a weaker curd. Add a drop of calcium chloride to this milk to firm up your curd, just as we recommend for some goats' cheeses.

How to Pasteurize Milk

If you get raw milk from a local supply, here's what to do. Heat your milk to 145°F (65°C) and maintain it there for 30 minutes. Use a double boiler or large pan for this and stir to prevent a film forming on top. Cool the milk down quickly- a simple way is to fill your sink with ice cold water and place the pan into it to bring down the temperature quickly. Store it at around 40°F in your fridge if you are not using right away. This will now be safe to produce fresh cheese and the 60 day rule for aging cheeses no longer applies.



5 BASIC PROCESS

If at first you don't succeed, try, try again.
And keep notes!





The process for nearly all cheeses is fairly similar, but the tweaks and variations have created thousands of cheeses now available to us today. We advise you master the basic process first and then develop onto harder cheeses as you get the experience under your belt.

For round figures we have kept it to ten steps, but other extra processes (including waxing, air drying and bandaging) may well be in your individual recipes.

Of course cheeses that are aged, colored and flavored (beyond just adding salt) have extra stages, but this ten-step process may include stages not needed in your specific recipe e.g. don't go putting mozzarella in a cheese press!

KEEPING RECORDSzzzzz

We know cheese making should be fun and the thought of making copious notes when you should be enjoying yourself seems contradictory. However, in these ten simple stages are thousands of variables that you WILL forget. If you nail a cracking Cheddar, you want to know how to replicate it. Note temperatures, time left standing and quantities as you fine-tune your culinary skills. The pros do it meticulously and without it they'd screw up. Tinkering with recipes is encouraged AS LONG as you monitor and record your changes. Expect some failures. Persevere and master the basics.

1) Begin warming your milk

Bacteria need heat to do its business so milk needs heating. Quick tip: Leave your milk to warm to room temperature before starting out. To avoid scorching, use a double boiler or heat your milk in a sink, with water 10-15°F hotter than you are setting out to achieve with the milk. Keep a close eye on this with your temperature. If the recipe says 88°F, it means 88°F. Not 86°F. Not 90°F. 88°F. Okay, you get it.

2) Add additives

We've described the additives earlier but basically you can stir in the following at this stage.

- 1) Calcium chloride- to help firm up the curd;
- 2) Lipase- to add flavor, dilute in water before stirring through;
- 3) Annatto- to color your cheese. Again, dilute before stirring through milk. Note: It's important you add this before you add rennet as it can impact negatively on coagulation.

3) Add your culture

This process is called ripening. Starter culture is made up of lactic bacteria and speeds up the growth of acid. The warmth of the milk will help multiply the bacteria and develop the cheese's flavor. If your starter is mesophilic, you will be heating up to around the 90°F/32°C region. If thermophilic, you will heat higher, up to around 110°F/43°C or so.

Add culture to surface of milk and leave briefly to rehydrate. Then whisk in using an up and down motion for 30 seconds or so.



Some secondary cultures might be added here too, yet some are smeared or sprayed on further down the line.

4) Add your rennet

Now the lactose is turning into lactic acid, it's time to feel like Moses and part the Red Sea. Rennet contains chymosin and this helps clot the casein in the milk. The science behind this is basically you are denaturing protein, rennet firms up curd just as heat makes a liquid egg go solid.

Make sure you dilute the rennet first in boiled or bottled water before stirring throughout the milk. Use a top-to-bottom motion to make sure the rennet permeates throughout the whole pan. Be sure you put in the correct amount as per your recipe, too much can add a bitterness to your cheese and too little will not get the firmness you are after.



This tip for beginners is gold dust. Please listen up. Please, please, please, please, please. And please again. When the rennet is doing its magic, LEAVE THE POT ALONE. A firm curd is vital and over stirring once you've mixed in the rennet does no good whatsoever. Put a lid on it, walk away, resist the temptation to play with it. Now is the time to delete those junk emails from Nigerian princes, finish that argument with your spouse about their mother smoking in your car or complete that level of Angry Birds on your iPhone.

Top stirring

If using cows' milk especially, top stirring is a technique you need to try out. This involves taking your slotted spoon and stirring gently the top inch of the milk to break up the fatty layer of butter-fat that rises to the top through heating.



Clean break

The holy grail of successful cheese making is the clean break. Use your finger or knife to split the curd and it should split cleanly, leaving the split to fill with whey. You can also pull the curd away from the side of the pan and it should come away cleanly. The whey should be yellowish, not milky.



5) Cut your curds

Now your curd is ready and removed from the heat, you can cut the curd. Take a curd knife (or palette knife or, at a push, a long knife) cube the curd in one direction, then at right angles, then angle the knife to slice the curd as best you can to complete the 'cubing'. It won't be perfect but be as uniform as you can. The size of the cubes matters depending on the hardness of the cheese you are aiming for, so follow the instructions. Smaller

cubes (down to perhaps $\frac{1}{4}$ "") will expel more water and make a harder cheese. This process will squeeze out more whey and contract the curd (an action called syneresis). Leave for 5-10 minutes then gently stir the curd to see any areas still needing cubing.

Always be gentle with stirring, heating and ladling. The gentler you are, the more butterfat remains and the creamier finish to your cheese.

6) Heat and stir curds

Now the cubed curd is put back on the heat and like the cubing process, the more heat causes more whey to be forced out, meaning a harder cheese. Slowly raise the heat to your recipe's recommended temperature. Don't rush it. The curds will sink into a mass at the bottom of the pan.

Some recipes will instead, at this stage, call for 'washing the curd'. This is a technique used to reduce the lactic acid level. It produces a milder cheese like Gouda and Colby. Simply remove some of the whey and replace it with warm water. This will help you achieve a sweeter cheese. These cheeses will cure quicker. Thank our Dutch friends of yesteryear for this crafty trick.

7) Drain curds

Take a small amount of curd and squeeze the pieces together. They should stick. If they do, you are ready to drain the curd. If not, come back after a cup of coffee.

For harder cheeses:

Line a colander with the cheesecloth (as for the soft cheese) and ladle in the curd. The whey will drain off. Now most hard cheeses are milled, where you can now break up the curd into pieces. This milling must be done gently and don't squeeze the curd as you do it. Break it up with your fingertips to keep the fat in the cheese.



For soft cheese:

Line a colander with a cheesecloth and pour, as gently as possible, the pot of curds and whey into the cloth. Then pull up the four corners together and tie into a knot. Hang over your sink or above a big pot to catch the draining whey. Leave for 8-10 hours.

Save the whey. Once you have collected all the whey you can use it within 3-4 hours to make a whey cheese like ricotta or the Scandinavian Brunost.

8) Add salt or brine-wash

For soft cheese, sprinkle some salt and mix gently into the cheese. You're done. Try a nibble, add more if you feel it needs it.

Some cheeses that are aged get a good old salt rub-down. This will also contribute to rind development. This rind is crucial as it helps create the natural barrier needed to develop the paste (what cheese people call the bit in the middle, the bit we eat). Aged cheeses produce their own salt, so more salt, perversely, can make the cheese less salty in the long run as it slows down the aging process. (As wonderful as this anti-aging sounds, we DON'T recommend sneaking salt into your mud-pack and cucumber facial you have booked for Tuesday.)

Too much salt though and you have a problem, with certain cheeses. Too much salt can inhibit cheeses with mold on the outside, like the white mold on Brie. But too little salt and you won't restrict the wrong bacteria from appearing. That is why you must, must, must follow experts and recipes precisely- AND record everything you do when moving beyond making basic soft cheeses.

Brining

Some cheeses, like Gouda and feta, are brine-washed. Rather than add salt directly, the curds are placed into a salt bath and will absorb the salt. Making a brine bath is fairly easy. Stir in a couple of pounds of salt into about a gallon of water, add three teaspoons of calcium chloride and chill it down to about 50°F/10°C, ready for use. The calcium chloride is needed at the beginning as the salt will leach calcium out of the cheese. To reuse it, bring it up to around 180-185°F/84°C and then add salt until it is saturated again (the salt can't dissolve anymore). You won't need calcium chloride again. Store in your fridge.



Tip with brining

If starting out and your curds are not firm, be VERY careful putting your curds in a brine wash. It may not make it out the other side! Just make sure you get your curds nice and compact beforehand and be gentle when brining them.

9) Press curds

If you move beyond soft cheeses you will look to shape and press your cheese. Welcome to the world of molds and presses. There are literally hundreds of different shapes and sizes of mold, but for pressing a cheese look out for one that has a base and follower (a lid, basically). The follower is compressed by a cheese press to force out further whey and help shape the cheese to the mold.

Here is what you do. Line your mold with your cheese cloth. Add the curd and fold the cloth over the top, and add the follower. Make sure the cloth is pulled tight so you don't end up with creases in your cheese. Press the cheese according to your recipe, typically for a short period before stopping. Make sure your cheese is on a surface that allows the whey to drain away- if you don't, one end of the cheese will sit in its own liquid. Take out the curd and take off the cheesecloth, flip the cheese and redress it with the same cloth, and continue to press according to your recipe. Flipping the cheese means you do not end up with whey building up on one end of the cheese. Follow the recipe's pressure guidelines. Accurate pressing affects flavor and texture so this can make or break your final product.

Typically you press cheese lightly first, removing some whey. The next pressing will be at higher pressure (more weight), and so on, increasing pressure to remove more whey over time.

10) Age cheese

This step is only necessary for some cheeses and this process of maturing really brings out the incredible flavors. Time really is the daddy. This allows the starter cultures to flavor your cheese, blue veins to permeate through blue cheeses and outside molds to grow on the outside. The two things that need to be managed here are temperature and humidity.

There is some fine-tuning needed at the professional end but for beginners there are some basic things you can do to make your own 'cave'. Firstly, temperature. You need to be a touch warmer than your fridge so there's two things you can do. Firstly, turn your fridge up a fraction, to around 50°F/10°C. A cool basement or pantry will also work for you.

Next, depending on the cheese, you need a humidity of roughly between 70-85% (with some wriggle room for specific cheeses). You can use a hygrometer when you get good, but starting out a saucer of water placed next to your cheese will give a basic level of humidity you are looking for. Place your cheese in a box (bottom of your fridge, large ice cream tub with the lid placed on loosely) and place in the cool spot you've allocated. Anywhere you see moisture gathering, get rid of it. Immediately. Look out for cracking. If the cheese dries a little and you see cracks, you can smear over the crack with butter or use the cheese itself. Keep an eye on it.

Note: Making a Brie and a blue cheese? Keep them separate. You don't want one cheese affecting another- keep your styles of cheese apart.

When you start aging your cheese, turn it daily. After a month, turn it every other day. Make sure the cheese is raised on a cheese mat and does not sit in its own liquid. If you see unwelcome mold growth on your cheese, wipe it off with a cloth dipped in salt water.

The professionals are real smart. They try the cheese now and then to see if it's ready. And this 'trying' tool is called...wait for it....a trier. I know, I know. How do

they do it? You've probably seen these long metal tools on TV and if you have a trier, great. If not, remember that rich kid with the gold shoes earlier in the book? Again, don't be that kid. You can check the cheese with a knife. Come back to us in a year when you get good.

Other Techniques In The Cheesemaking Process

Washing a rind

This is NOT like a brine wash, where you bathe the cheese in a salt solution. Take a cup of water with a tablespoon of salt dissolved in it. Take a cloth and soak it in this solution and wipe down the exterior of the cheese. This will help develop and protect the natural rind of the cheese. Some instructions will also include adding a drop of vinegar.

Waxing

Soft cheeses can't be waxed and they are ready to eat anyway, so this is really just for those harder cheeses you want to protect. Before starting out, make sure your cheese is at room temperature.

Then grab yourself a double boiler and melt your wax. BE CAREFUL.

At this point there are two things you can do. One is to brush a couple of layers onto the cheese and let it set on a rack, finishing the odd spots you miss. Second is to dip most of the cheese, rotate, and finish waxing the cheese. Simple.

You can re-melt proper cheese wax, strain it and reuse it.



Misting

An atomizer is a bottle that sprays a fine mist. This is used to spray a culture (with water added) onto the cheese surface. This is instead of adding directly to milk at the beginning of your recipe.

Air drying

Yep, not tough to figure this one out. This process helps finish the maturing of the rind and drying out the cheese ready for consumption. The cheese is removed from the mold and the cloth, and placed on a mat. The cheese is left at room temperature, turned occasionally, for several days until the surface is dry. If those pesky molds appear (ones you don't want) a vinegar/salt rub down with a cloth will take care of it.

Bandaging

This is not something we expect you to do on 'Day One' of your cheese adventure but it's a great skill nonetheless. Waxing is done typically for cheeses that are aged for a just a few months. Bandaging is typically used for cheeses aged for longer. By slowing evaporation bandaging will produce a moister aged cheese (as opposed to most aged cheeses that become drier over time). Historically this was an English technique used to wrap Cheddars to help produce the natural rind. The cheese still breathes but the bandages help produce a flakier texture.

Bandaging does something else smart. Mold grows on the bandage, not the cheese.

- 1) First coat the surface of the cheese with vegetable shortening or butter.
- 2) Cut four circles from cheesecloth that matches the circumference of your cheese. Take two of the cloth circles and put them on top and bottom of the cheese.
- 3) Cut two strips of cloth (matching the height of cheese) and wrap it around the side of the cheese and get rid of any creases.
- 4) Rub more butter or vegetable shortening into the cloth.
- 5) Repeat the bandaging with a second layer and butter it up!
- 6) Make sure the whole cheese is 'sealed' and place it in your chosen place for aging.

Smoking.

Smoking is bad for you. Smoking cheese is good for you. So good.

Certain cheeses taste great smoked, including Cheddar, mozzarella and Gouda. You need a cold-smoking process as you do not want to cook or melt the cheese. As an absolute beginner just focus on consistently aging cheeses successfully. If you and your friends and family like the smoked flavor and you feel ready, break out that grill.

Make sure the surface of your cheese is dry. Light a small amount of charcoal over some apple, oak or other mild wood chips. Place the cheese above the smoke. An hour to an hour and half should impart enough smokey flavor in your cheese. Be careful to keep your cheese cool and prevent melting. This may take some adjustment between the cheese and the heat source.



Brucie Box:



You know those white crystals that crunch in your mouth found typically on Cheddar? Surely just the salt that was added, right? Wrong. Technically it's known as calcium lactate and many people think it's mold and kick up a fuss. Don't. It tastes great. But it doesn't stop there. The main protein in cheese, our friend casein, also produces an amino acid called tyrosine, which appears similar to calcium lactate and can be found throughout the cheese, not just the rind. This all adds to the flavor so look out for it in older Gouda cheeses, Parmesan and Colby. Science lesson over, what did we learn? Don't panic when you see white mold, especially on well-aged cheeses.



6 TYPES OF CHEESE

You can eat a different cheese every day for a year. That said, it might be wise somewhere between March and April to give it a break (before you turn 250lb or become the inspiration for a Morgan Spurlock documentary!).



Note on definitions

Starting out making cheese should be fun. At some point as you develop you will probably go to your local deli or cheese-monger and have a nose. Learning your way around the thousands of cheeses from around the world needs a basic understanding. Like wine, cheese has some basic terms to know and understand.

- To get going, give a few seconds to know a couple of things. One is about flavor. There is goaty, grassy, sharp, buttery and so on. You can ONLY really learn this by stopping reading this and stuffing some in your pie-hole. So that's the good news- it's fun to learn this bit!

Second is to know the type of cheese you are eating and there are only really a handful of basic types to know. Learn this and Aunt Agatha's wine and cheese evenings won't see a repeat of last year's 'Brie-gate' that left you curled up in the fetal position, weeping gently and scrabbling for the Listerine.

One thing to know is there is a lot of leeway when it comes to defining the firmness of a cheese. Soft merges into semi-soft into semi-hard into hard. We've stripped out some of the intermediate terms and gone with three- soft, semi-hard and hard. With draining, pressing and aging all affecting texture, some cheeses not only sit on the cusp, but have different aged cheeses of the same type in different categories. So in summary just kick back, relax and ask professionals with



confidence. They probably don't know for sure sometimes either.

IMPORTANT NOTE:

Some recipes recommend using calcium chloride, some don't. If using goats' milk you may very well need it to get a firmer curd for harder cheeses. If using store milk, you may well need it to get a decent coagulation at the renneting stage. If you are concerned about the quality of your milk and have calcium chloride, add a drop and keep a record of the addition in your notebook.

Soft Cheese

Soft cheeses are the best place to start. Many can be eaten right away and that is great for your confidence and keeping you motivated! These cheeses have the most moisture and will need to be consumed in just a few weeks before they go off. As cheeses are aged they lose their moisture and harden up, becoming semi-hard or hard cheeses.

Basic soft cheese

There are two types of mesophilic starter culture now commonly used. One is the DVI-added direct to the milk- that we touched on earlier. You will see this in a recipe usually in fractions of a teaspoon e.g. $\frac{1}{4}$ tspn per gallon. The other is taking some solution from a pre-made bowl, typically a tablespoon's worth or two. Both methods culture your milk to give your soft cheese flavor. Can you make a soft cheese by just adding some rennet to milk? Yes, you can. Sprinkle of salt, job done. But it will lack flavor.

How to cultivate your mesophilic starter solution:

Glass bowl

Saucepan

Foodwrap

Thermometer

- 1) Heat 1 liter (2 US pints) of fresh milk to approximately 195°F (90°C) and hold at this temperature for ten minutes.
- 2) Remove from the heat and cool rapidly by standing the saucepan in cold, running water until a temperature of 68°F (20°C) is reached.
- 3) Sprinkle the freeze-dried culture into the milk whilst whisking vigorously. It is important to ensure that the powder is thoroughly mixed.
- 4) Sterilize the glass bowl with a suitable sterilizer to prevent the introduction of any undesirable airborne organisms that could interfere with the inoculation process.
- 5) Pour the mixture into the sterilized container and cover with food wrap immediately.
- 6) Incubate at around 70°F (20°C) for around 24 hours.
- 7) The cheese starter is ready when it smells sharp and clean. Store in a cool place, your fridge is ideal. Store in your freezer (an ice cube tray is ideal) to extend the shelf-life of the solution.

It is possible to maintain a supply of starter culture by reserving a small quantity of the finished product and using it in place of the starter culture on the next batch.

Soft Cheese Recipe

Ingredients:

1 US Gallon (4 liters) of Milk

4-5 drops of double-strength Rennet (animal or vegetable)

2 tbsp / 2 cubes Cheese Starter Solution

Cheese salt

Sanitize all equipment

- 1) If using a starter solution make sure it is prepared and ready to use.
- 2) Heat milk slowly to approximately 195°F (90°C) and then cool rapidly to 68°F (20°C).
- 3) Add two tablespoons or 2 ice cubes of starter culture, or if using a DVI culture- the amount indicated in its directions. Dilute 4-5 drops of rennet in a ¼ cup of cool boiled/ bottled water and gently stir through the milk for 20 seconds.
- 4) Cover the container and stand in a warm area at around 70°F (20°C) for 24 hours, when a good curd should have formed.
- 5) Pour off the bulk of the whey, pour into a cheesecloth and tie up the four corners allowing the remaining whey to drain through. Leave suspended to drain for a further 24 hours.
- 6) Remove from the cheese cloth and roll out. Sprinkle with cheese salt to taste and add any other flavorings (chives, nuts etc.) and mix well until fully incorporated.
- 7) Pack into a suitable container and refrigerate. Your soft cheese is now ready to eat although it will become more strongly flavored if allowed to mature.

Expect at least 1lb (450g) of cheese per gallon.

Cream Cheese

When choosing your milk finding a rich creamy style will help with the final texture and flavor you are looking for- in this case high in fat is good!



Ingredients:

1 US Gallon (4 liters) of milk (creamy milk- or even half and half)

¼ tspn Direct-set Mesophilic Culture/ 2 tbsp Starter Solution

5 drops Rennet

Cheese Salt

Sanitize all equipment

- 1) Heat milk (or half and half) in a pan to 165°F (75°C).
- 2) Stir in the starter and leave off the heat for 1 hour.
- 3) Dilute the rennet in a ¼ cup of cool boiled/bottled water and add to the milk, making sure to stir through gently and cover pot with lid and leave in a warm place for 12 hours.
- 4) Now the curds should be set. Gently ladle the curds into a cheese cloth and leave to drain for a further 12 hours.
- 5) Place curds in a bowl and mix in a sprinkle of cheese salt to taste. This will also draw more whey from the curd. Hang again in the cheese cloth for a couple more hours.
- 6) Place the curd into small molds and place in fridge. This will firm up the texture of the cream cheese and it is now ready to enjoy.

Chèvre

This delicious goat cheese spread is a popular and easy cheese to make at home. If you haven't dipped your toe into the goats' cheese range yet, this is the best and easiest way to start. Goats' milk has its own distinct flavor that will come out in the cheese. Don't hold back on adding your favorite herbs either, this is just the cheese to do it. If you start to look into making harder goat cheeses, remember this milk makes for a softer curd and you may need to add a drop of calcium chloride.



Ingredients:

1 Gallon Goats' Milk

4-5 drops of double-strength Rennet (animal or vegetable)

¼ tspn Flora Danica Culture

Cheese Salt

Sanitize all equipment

- 1) Heat the milk to 80°F (27°C). Stir in the starter culture and leave for 20 minutes to acidify the milk.
- 2) Dilute the rennet in a ¼ cup of cool boiled/bottled water and add to the milk, making sure to stir through gently and cover pot with lid and leave until the curd has set. This may take longer than cows' milk so be patient. When you get a clean break you are ready to drain the curd.
- 3) Gently ladle the curd into small molds and leave to drain for a few hours.
- 4) Once no more whey is draining from the molds, remove each cheese and lightly sprinkle with salt and place in the fridge to finish setting.

Feta



Feta is traditionally made from sheep or goats' milk. We have used goats' milk in this recipe on the assumption that most readers will struggle to get sheep milk.

An important step in making feta, or any cheese, is to make sure everything you are using is sterilized. Everything. Use soapy water, boiling water, or a sterilized wipe. If you don't there is a good chance you'll end up with spoiled feta in the end. Very depressing.

This recipe is courtesy of cheese enthusiast Dave McGrath...

Ingredients:

1 Gallon Goats' Milk

4-5 drops of double-strength Rennet (animal or vegetable)

¼ tspn MA4001 Culture

1 tspn Calcium Chloride

¼ tspn Lipase

Cheese Salt

Sanitize all equipment

- 1) Slowly heat up a gallon of milk to about 88°F (31°C).

- 2) When it gets to temperature add the starter culture. Turn off the heat, cover the pot, and leave it for about 45 minutes.

- 3) About 25 minutes into waiting combine about ¼ tspn of lipase powder for cheese making into a quarter cup of bottled water. After 20 minutes add ¾ tspn of calcium chloride and ¼ tspn of liquid rennet.

- 4) Slowly reheat the milk while adding the mixture you've just made. Stir for about 60 seconds. When the milk gets to about 96°F (35°C) degrees turn off the heat and cover the pot again.

- 5) When the milk gives a "clean break" (between 1-2 hours), cut the curd in a criss-cross pattern. Slowly reheat up to 96 degrees again. When it reaches temperature cover the pot and GENTLY stir the curds every 15 minutes for about an hour.

- 6) After an hour place a cheese cloth in a colander and drain the curds for about 30 minutes. If you want you can save about a quarter of the whey for later use. When drained tie the cheese off and let it drain for another 12-24 hours.

- 7) When the curd is solid and not dripping anymore gently take the curd out of the cheese-cloth. You should have one solid chunk of curd. Cut it in half, the cut each half into a inch square cubes and place them into a large enough container where they aren't on top of each other (make sure this container is sterilized!!!).

- 8) Sprinkle 2-3 tbsp of cheese making salt onto the cubes, then gently mix. Place a top on the container and put it somewhere safe and cool for about 3 days.

- 9) Every day gently pour off the whey that collects on the bottom. After 3 days add more salt, then again on the 4th and 5th day.

- 10) If you want you can take the feta and place it in the fridge. (Store using some of the whey you kept back earlier) You are all done now and the feta will get stronger as it ages.

Neufchâtel

At the beginning of this book we promised no flash French words but this cheese is French- and we promise this is simple and delicious to make. This is similar to what in America is known as a farmer's cheese. Neufchâtel is creamy and often comes in a heart shape. So if that dishy Parisian working in accounts is still single and Valentine's Day is coming up, remember the way to the French's hearts is their cheese-tempered stomachs...



Note: You can also age Neufchâtel but perfect the soft cheese recipe first.

1 Gallon Whole Milk

4-5 drops of double-strength Rennet (animal or vegetable)

1 Pint Heavy Cream

Cheese Salt

¼ tspn Direct-set Mesophilic Culture/ 2 tbsp Starter Solution

Sanitize all equipment

- 1) Mix cream and milk in a pan and heat gently to around 80°F (35°C).
- 2) Add culture and mix through.
- 3) Dilute 4-5 drops of rennet in a ¼ cup of cool boiled/bottled water and gently stir through the milk for 20 seconds.
- 4) Cover and let stand around 70°F (21°C) overnight or until curd has well formed.
- 5) Drain loose whey and strain curd in a cheese cloth (hang over bowl or sink). Drain for 12 hours or so until it stops dripping.
- 6) This curd is now ready to be gently pressed. Take the curd wrapped in the cloth and place in a colander so it can continue to drain. Take a plate or flat board and place a light weight (1-3lb) on top and leave to drain to for a further half a day in a fridge.
- 7) Add 1 - 2 tspns. of salt and store in molds (heart shaped is traditional but not compulsory of course) back in the fridge for around 10 days and enjoy.



Cottage Cheese

This is a very popular cheese you can find on many supermarket shelves today. Often slightly sour, cottage cheese can also be enriched with cream. This is also a great cheese to experiment with herbs and fruits such as apricots.

1 Gallon Whole Milk

4-5 drops of double-strength Rennet (animal or vegetable)

Cheese Salt

¼ tspn Direct-set Mesophilic Culture/ 2 tbsp Starter Solution

Sanitize all equipment

- 1) Pour milk into a large pan and warm to 82°F (28°C), then add the starter. Let the milk then cool slowly to room temperature.
- 2) Dilute 4-5 drops of rennet in a ¼ cup of cool boiled/bottled water and gently stir through the milk for 20 seconds.
- 3) Cover and set aside overnight, keeping it around 70°F (21°C). Wrap it in a towel to keep the temperature constant.
- 4) Cut the curd into ½” cubes and heat to 105°F (40°C). Cook at this temperature for 45 minutes, stirring every five minutes. Watch the curds shrivel and begin to take a ‘cottage cheese’ shape.
- 5) Line a colander with a cheese cloth and drain curds for 15 minutes, then pull up the sides and drain further until the curd stops dripping.
- 6) Take curd and add salt to taste. Eat while it’s fresh, up to week.

Havarti

This is a great washed curd cheese, often full of holes (eyes) due to it not being pressed. There are more steps than basic cheeses but the results are worth it.



1 Gallon Whole Milk

7 drops of double-strength Rennet (animal or vegetable)

Cheese Salt

¼ tspn MM100 or MM101

¼ tspn Calcium Chloride

Sanitize all equipment

- 1) Heat the milk gently to 72°F (21°C) and remove from the heat.
- 2) Sprinkle the culture into the milk and stir through gently.
- 3) Dilute calcium chloride in ¼ cup of water and stir gently throughout milk.
- 4) Cover the milk and maintain the heat for 30 minutes (to ripen the milk).
- 5) Slowly raise temperature of milk to 80°F (27°C).
- 6) Dilute rennet in ¼ cup of water and whisk gently through ripened milk for 30 seconds.
- 7) Cover and let coagulate for 30-45 minutes- until you get a clean break.
- 8) Maintaining low heat, cut the curds into ½” cubes and let sit for a further 7-8 minutes.
- 9) Stir gently for 3 minutes and let sit again for a further 5 minutes. This stirring helps flush out more whey.
- 10) Remove around half the whey using a ladle and replace the same amount with hot (120°F/49°C) water.

11) Add salt, stir through until dissolved.

12) Slowly raise the temperature of the pan to 97°F (36°C), stirring throughout.

13) Measure the temperature of the curd. You are looking to build up the temperature to 97°F (36°C).

14) Squeeze a piece of curd in your hand. If it sticks, it's ready. Remove the pan from the heat.

15) Drain off surplus whey and then ladle curds into a cheese cloth-lined 2lb (1kg) mold. This mold will need a lid (follower) as this cheese will be pressed. Cover the curds with the four corners of the cloth and allow to drain for half an hour.

16) Remove the cheese from the press, unwrap and flip the curd, rewrap and place back in the mold. Make sure you remove creases as these will show up in the final cheese.

17) Press using a 6lb weight for 40 minutes. Undress, flip and redress the cheese and repress the cheese with the same weight for a further 1 hour. Repeat this step 2-3 more times until the whey stops dripping from the mold.

18) Allow to drain further overnight in the mold. Make a saturated brine solution in a pot and place cheese in the brine. Cover brine pot with cheese submerged and place in a fridge for 8 hours.

19) Remove cheese from brine and pat dry. Place on a draining mat and allow to air dry for 6 hours, flipping every couple of hours.

20) This cheese can be aged, the longer the stronger the flavor. Havarti can be aged from 1-4 months at a cool temperature (around 52°F/11°C). Keep an eye out for unwanted surface mold and remove. Eat when the desired strength is achieved.



Mascarpone

This simple cream cheese is famous for appearing in tiramisu and cheesecakes.

1 Quart Double Cream/Half and Half

¼ tspn Tartaric Acid

Sanitize all equipment

- 1) In a pan, slowly warm cream to 175°F (80°C). This is best done using the double-boiler method or bains-marie.
- 2) Add the tartaric acid and stir gently for 10 minutes. You should notice very small curds being formed.
- 3) Double up a cheese cloth and lay over a colander. Pour in the whey and strain for 90 minutes.
- 4) Place colander in fridge overnight (over a bowl to catch drips). Ready to serve, keep refrigerated and eat within 10 days.



Queso Blanco

'White Cheese', this simple recipe from South America remains popular today.

Great in the hot weather.

1 Gallon Whole Milk

¼ cup vinegar/cider vinegar

Cheese Salt

Sanitize all equipment

1) Heat milk slowly to 190°F (88°C).

2) Slowly add the vinegar, whisking in gently. The curds will begin to form in the whey. Add a drop more vinegar if the curds do not form fully. **DO NOT OVER DO IT!** Too much vinegar will produce a sour taste you want to avoid.

3) Line a colander with a cheese cloth, ladle in curd and cover with the 4 corners. Drain the curd for a few hours (until the curd stops dripping).

4) Remove curd and add a sprinkle of salt to taste and gentle work into cheese, careful not to break up curds.

5) Store in a covered bowl ready to eat. As a fresh cheese queso blanco is best eaten right away but can be stored for up to 2 weeks.



Quark

This German-named cheese not only tastes great, but scores you excellent points when playing scrabble. Traditionally this was an acid-set cheese but many modern recipes use rennet. There are different types of quark based on how creamy you like it- so you can adjust this recipe with cream to suit. This recipe uses standard milk but you can use low-fat milk or, at the opposite end of the spectrum, use light cream.

1 Gallon Whole Milk

¼ tspn Flora Danica mesophilic culture

4-5 drops of double-strength Rennet (animal or vegetable)

1 tspn Calcium Chloride

Cheese Salt

Sanitize all equipment

- 1) Gently heat milk to 80°F (27°C) and remove from heat.
- 2) Sprinkle culture onto surface of milk and stir through gently with a whisk for 5 minutes. Cover and allow milk to ripen for 40 minutes.
- 3) Dilute calcium chloride in ¼ cup of water and stir gently throughout milk.
- 4) Dilute rennet in ¼ cup of water and also add to milk and leave covered for 12 hours/overnight.
- 5) Heat curds slowly back up to around 80°F (27°C), remove from heat and cut curds into ½” cubes.
- 6) Line a colander with a cheese cloth, ladle in curd and cover with the 4 corners. Drain the curd for a few hours (until the curd stops dripping).
- 7) If too dry for your liking, add a drop of cream to the curd and mix through.
- 8) Salt to taste (1-1½tspn). Store for 10-14 days.

Halloumi

Halloumi originates from Cyprus and, being such a baking hot (and beautiful) island, this style of cheese perfectly complements this environment. Salty and with a high melting point, this cheese is popular throughout the Mediterranean region for cooking- this is a cheese you can actually grill like meat! While traditionally made with goats' or sheep milk, cows' milk is now also used. This cheese is also not made with any starter culture so the rennet will be doing all the work.



Tip: Try this cheese with a drop of mint-works great.

Note: Some recipes will include either a pressing or brining stage. We are recommending this slightly simpler version using the whey instead to firm up the curd.

1 Gallon Whole Milk

9-10 drops of double-strength Rennet (animal or vegetable)

Cheese Salt

Sanitize all equipment

- 1) Heat milk in a pan to 80°F (27°C)
- 2) Dilute rennet in ¼ cup of water and stir throughout milk for 30 seconds.
- 3) Leave for 1 hour (or until you get a clean break). Line a colander with a cheese cloth and ladle in the curds.
- 4) Cut the curd into ½” cubes and mix in a level teaspoon of salt.
- 5) Reserve the whey as it drains. Once drained, leave the curds to rest on a cheese mat.
- 6) Bring the whey to the boil and add the curds. Reduce heat to a simmer until the cheese floats to the surface. Remove cheese and allow to cool.
- 7) Store in jars with a little whey added. Store in a cool place for up to 6 weeks.



Ricotta

This cheese is great because basically you are using leftovers- whey flushed out of milk used for another cheese. Two cheeses from one gallon of milk- that's how to be prudent! Technically a 'whey cheese', Ricotta is interesting in that it is made from two types of protein. The first is from acidifying the cheese- casein- the protein found in virtually all cheeses. However (and here's the crafty bit) another protein is released at a higher temperature, called albumin. And this is why Ricotta is called as such, literally "recooked" in Italian, as you take the heated whey and heat it some more.

Tip: Make sure you use whey that is not more than three hours old. Avoid whey made from a mozzarella recipe that uses citric acid- while you will get 'some' yield this whey will be a little too acidic to get great results.

Note: Ricotta molds have wide slits, unlike smaller holes in other molds. This is to allow for faster drainage.

There are two recipes here- one using FRESH leftover whey, another from scratch:

A) FRESH LEFTOVER WHEY:

1 pint of Milk per gallon of Whey

1/3 cup Lemon Juice

Cheese Salt

Sanitize all equipment



- 1) Heat whey to 185 degrees°F (85°C), stirring occasionally to prevent burning on bottom of pan.
- 2) Add 1 pint of milk (per gallon of whey) to increase final ricotta yield.
- 3) When whey returns to 185 degrees°F (85°C), add 1/3 cup of lemon juice and stir until curd mat rises to surface.
- 4) Remove from heat and scoop curds into ricotta mold lined with cheese cloth.
- 5) Add teaspoon of cheese salt per pound, stir in and leave to drain in fridge.
- 6) Ricotta has a short shelf life, but may be frozen for future use.

B) FROM SCRATCH:

1 Gallon of Milk

1/3 cup Lemon Juice

8 drops Liquid Rennet

Sanitize all equipment

Special Equipment:

Ricotta Mold

- 1) Stir rennet into milk then heat to 90 degrees°F (32°C) Remove from heat and leave for 10 minutes, the milk should split into curds and whey.
- 2) Add lemon juice, stir gently and continue to heat slowly to 185 degrees°F (85°C). The curds will rise to the surface at this temperature. Hold at this temperature for 15 minutes then remove from heat.
- 3) Ladle curds into a cheesecloth lined ricotta mold. Add teaspoon of cheese salt per pound, stir and allow to drain in fridge.
- 4) Ricotta has a short shelf life, but may be frozen for future use.



Semi-hard Cheese

It won't be earth-shattering news to hear this type is harder than soft and not as hard as hard cheese. There is also 'semi-soft' but we've skipped that and lumped these cheeses into one category for laziness/ease. These cheeses still have a lot of moisture but may have been pressed and will certainly have been aged for a while. You will be familiar with many of the huge range available as they make great sandwich cheeses. These have tended to be a little bland and most won't pack the punch of a fully matured hard cheese or stinky blue. Good cultures and additives, along with great milk, will make sure these cheeses make up in flavor what is lost with shorter aging times.

Cheddar



This old British favorite should become a staple cheese in your repertoire in no time. At a commercial volume you can adopt the 'cheddaring' technique made famous in the southwest of England, using the weight of one block of curd to press out whey of the one below. At the smaller cheese maker level, getting the right culture and milk will make sure that- aged properly- this cheese can come out creamy and flavorsome.

Tip: When pressing cheeses it is easier to make a bigger batch. We recommend using a minimum two gallons of milk for hard cheeses but feel free to increase the amount.

2 Gallons Whole Milk

½ tspn CH19 mesophilic culture

12 drops of double-strength Rennet (animal or vegetable)

1 tspn Calcium Chloride

Cheese Salt

Cheese Wax

Sanitize all equipment

Special Equipment:

Mold with follower

Cheese Press

- 1) Slowly heat milk to 90°F (32°C). Add CH19 culture and stir gently through milk for one minute. Dilute calcium chloride in ¼ cup of water and stir gently throughout milk. Remove from heat, cover and let sit for 1 hour.
- 2) Dilute rennet in ¼ cup of water and stir throughout milk for 30 seconds. Cover and leave until the milk gives a clean break (between 30-60 minutes).
- 3) Cut the curd into ½ inch cubes and leave for further 15 minutes.
- 4) Fill up your sink with water at about 110°F (43°C). Place pot of curds into the sink of water (the water will slowly heat the curds).
- 5) Stir gently every couple of minutes to keep the curds from matting. Once your curds reach 100°F (38°C) hold at this temperature for further 30 minutes, stirring gently every five minutes. Let sit covered for a further five minutes.
- 6) Line a colander with a cheese cloth and ladle in the curds and drain. Place into a bowl and mix in 1½ tablespoons of cheese salt.
- 7) Replace the pot of curds back into the sink of hot water (105°F/40°C) and keep at this temperature for an hour, stirring every 5 minutes to keep the curds from matting.
- 8) After an hour drain off surplus whey, gently pour the curds into a mold lined with cheese cloth and press at 20 pounds of pressure for about 15 minutes.
- 9) Undress cheese, flip over and redress, press again at 30 pounds of pressure for a further 15 minutes. Repeat process with 40 pounds of pressure for 2 hours, and finally at 50 pounds of pressure for 20-24 hours.
- 10) Remove from press and cheese cloth and place on a cheese mat. Let air dry for two days until dry to the touch. DO NOT let it dry in a room that is too hot or dry.
- 11) Once dry, wax cheese and place in a cool (50°F/10°C approx) place away from drafts. A small wine fridge or drawer in your main fridge is perfect. Age for three to six months- remember the longer the aging the stronger the final flavor.

Colby

Colby cheese, like Cheddar, derives its name from its birthplace. Colby is in Wisconsin, USA- the heartland of cheese in America. It differs from its Old World cousin in one special way- the curds are 'washed'. This produces a much milder flavor, making Colby massively successful commercially as a cheese for all the family. One similarity with Cheddar, however, is the use of the coloring Annatto. We've included it in our recipe below, but it is purely an optional extra for aesthetic purposes.



Note: Colby has a more 'open' texture than Cheddar, Cheddar being more 'closed'. What does this mean? Simply that Colby has more moisture and will contain more holes, producing a softer cheese overall. Open and closed textures are terms that will tell you a lot about the moisture and firmness of a cheese.

2 Gallons Whole Milk

½ tspn MA11/MA16 mesophilic culture

10 drops of double-strength Rennet (animal or vegetable)

1 tspn Calcium Chloride

3-4 drops Annatto coloring

Cheese Salt (for brining)

Cheese Wax

Sanitize all equipment

Special Equipment:

Mold with follower

Cheese Press

- 1) Heat milk gently to 85°F/30°C. Dissolve culture on surface of milk for a few seconds then stir through milk gently. Dilute calcium chloride in ¼ cup of water and stir gently throughout milk. Remove from heat and allow to ripen for 45 minutes.
- 2) If you want to color your Colby, now is the time to dilute your annatto in ¼ cup of water and stir through milk.
- 3) Gently warm ripened milk back up to 85°F/30°C. Dilute rennet in ¼ cup of water and add to milk, stir from top to bottom for 1 minute. Cover and let set for a further 45 minutes or until you achieve a clean break.
- 4) Cut the curd into ½ inch cubes and leave for further 15 minutes.
- 5) Fill sink with water to temperature of 110°F (43°C) and place pan into water. Gently heat the curds slowly up to 102°F (39°C), stirring gently every five minutes until you get to temperature (30-45 minutes).
- 6) Leave curds to settle around 102°F (39°C) for a further 20 minutes.
- 7) Drain off the whey until the top of the curd is revealed and replace with the same amount of water. Stir the curd gently and cover for further 10 minutes.
- 8) Line a colander with a cheese cloth and ladle in the curds and drain. Line a 2lb approx. mold with cheesecloth. Break up curds into small pieces and place into mold.
- 9) Cover the curd with the loose cloth and press with around 5lb of pressure for 20 minutes. Undress cheese, turn over, redress and press again at 10lb of pressure for 1 hour. Undress, turn cheese again, redress and press again at 25lb of pressure overnight or for 8-10 hours.
- 10) Make a 1 gallon brine solution and chill solution to (55°F/13°C approx). Remove cheese from press and cloth and soak in brine for 6-8 hours, turning once.
- 11) Remove cheese from brine, gently dry surface and leave on a draining mat to air for a further 12 hours, turning once halfway.
- 12) Wax the cheese and age in a cool (50°F/10°C approx) place away from drafts. A small wine fridge or drawer in your main fridge is perfect. Age for 8 weeks, turning the cheese daily in the first week and once a week beyond that.



Monterey Jack

Another American favorite named after the town it was invented in, on the west coast. Harder versions have also become popular but this recipe is for the standard semi-hard cheese now massively popular today.

2 Gallons Whole Milk

½ tspn MA4001/4002 mesophilic culture

10 drops of double-strength Rennet (animal or vegetable)

1 tspn Calcium Chloride

Cheese Salt

Cheese Wax

Sanitize all equipment

Special Equipment:

Mold with follower

Cheese Press

- 1) Heat milk slowly to 85°F/30°C. Add culture to surface, allowing to rehydrate for 1 minute then stir gently through milk. Dilute calcium chloride in ¼ cup of water and stir gently through milk.
- 2) Maintain temperature of 85°F/30°C for 30 minutes, cover pan and leave milk to ripen.
- 3) Dilute rennet in ¼ cup of water and add to milk, stir from top to bottom for 1 minute.
- 4) Re-cover, maintain temperature and let curds set for further 30-40 minutes (until you achieve a clean break).
- 5) Cut the curd into ½ inch cubes and leave for further 20 minutes.
- 6) Very slowly heat the curds back up to 102°F/39°C, stirring gently every 2 minutes to prevent matting.
- 7) Keeping curd at 102°F/39°C, drain off whey to the top level of the curd. Leave curd covered and unstirred for a further 30 minutes.
- 8) Line a colander with a cheese cloth and ladle in the curds and drain.
- 9) Add 1½ tablespoons salt and mix through curd. Cover curd with cheese cloth edges and place in cheese press.
- 10) Press lightly using 5lb pressure for 10 minutes. Undress cheese, turn over, redress and press again at 10lb of pressure overnight or for 10 hours.
- 11) Remove cheese from cheese cloth, gently pat dry and allow to air dry on a draining mat for 24 hours (turning once after 12 hours). Wax the cheese and age in a cool (50°F/10°C approx) place away from drafts. A small wine fridge or drawer in your main fridge is perfect. Store for 2-4 months. Leave longer if you prefer a stronger, sharper flavor.

Caerphilly

Slightly drier and more crumbly than Jack and Colby cheeses, this salty Welsh favorite was a miners' staple back in the day.



2 Gallons Whole Milk

½ tspn Flora Danica mesophilic culture

10 drops of double-strength Rennet (animal or vegetable)

1 tspn Calcium Chloride

Cheese Salt

Sanitize all equipment

Special Equipment:

Mold with follower

Cheese Press

- 1) Heat milk slowly to 85°F/30°C. Dissolve culture on surface of milk for a few seconds then stir through milk gently. Dilute calcium chloride in ¼ cup of water and stir gently throughout milk.
- 2) Maintain temperature of 85°F/30°C for 30 minutes, cover pan and leave milk to ripen.
- 3) Dilute rennet in ¼ cup of water and add to milk, stir from top to bottom for 1 minute.
- 4) Re-cover, maintain temperature and let curds set for further 30-40 minutes (until you achieve a clean break).
- 5) Cut the curd into ½ inch cubes and leave for further 10 minutes.
- 6) Slowly heat the curds up to 95°F (35°C), stirring gently. Leave at this heat, stirring every few minutes to prevent sticking, for a further 30 minutes.
- 7) Line a colander with a cheese cloth and ladle in the curds and drain for 10 minutes.
- 8) Cover the curds with the corners of the cheese cloth and press at 5lb pressure for 10 minutes. Undress cheese, turn over, redress and press again at 10lb of pressure overnight or for 10 hours.
- 9) Make a 1 gallon brine solution and chill solution to (55°F/13°C approx). Remove cheese from press and cloth and soak in brine for 6-8 hours, turning once.
- 10) Air-dry cheese on a cheese mat for 48 hours, turning every few hours.
- 11) The cheese should now be dry on the surface. Age in a cool (50°F/10°C approx) place away from drafts. A small wine fridge or drawer in your main fridge is perfect. Turn daily for the first week, then once a week. A hard crust will form. Store for 2-4 months. Leave longer if you prefer a stronger flavor.

Note: Wipe off any mold that appears with a white vinegar-soaked cloth. Make sure any whey drainage is removed and cheese does not sit in excess whey.



Creamy Lancashire

This traditional Northern English cheese is different to Cheddar (which is pressed much more heavily) or saltier, less creamy cheeses (like Caerphilly). So this is certainly worth adding to your range of cheeses as a welcome addition to your cheese board. This recipe uses cultured milk, rather than a separate culture, to inoculate the milk.

2 Gallons Whole Milk

1½ Pints Cultured Buttermilk

1½ Pints Cream

10 drops of double-strength Rennet (animal or vegetable)

1 level tspn Cheese Salt

Sanitize all equipment

Special Equipment:

Mold with follower

Cheese Press

- 1) Add cream, milk and buttermilk to a pan and heat gently to 85°F/30°C.
- 2) Dilute rennet in ¼ cup of water and add to milk, stir from top to bottom for 1 minute.
- 3) Re-cover, maintain temperature and let curds set for further 30-40 minutes (until you achieve a clean break).
- 4) Cut the curd into ½ inch cubes and stir gently for a further 10 minutes, then allow the curds to settle for 30 minutes.
- 5) Pour the curds into a cheese cloth-lined mold and let drain. Mix salt into curds and let drain further as salt draws out more whey.
- 6) Place cheese- still in cheese cloth- into a cheese press and press with 20lb of pressure for 48 hours.
- 7) Wax or bandage cheese and age in a cool (50°F/10°C approx) place away from drafts. A small wine fridge or drawer in your main fridge is perfect. Turn daily for the first week, then once a week. Cheese will be ready after 1 month.



Tomme

Tomme (or Tome/Toma) cheese is an Alpine cheese that is easy to make at home. The traditional style is made from skimmed milk (the cream removed for other things) and is therefore low in fat- worth looking out for if watching the waistline! There isn't one 'definitive' Tomme style, with a huge range of flavors, from nutty and citrusy, to textures that are crumbly or firm. This basic recipe is brine washed to make a firm, textured rind.

2 Gallons Whole Milk

10 drops of double-strength Rennet (animal or vegetable)

¼ tspn MM100

Cheese Salt

Sanitize all equipment

Special Equipment:

Mold with follower

Cheese Press

1) Heat the milk slowly to 85°F/30°C and sprinkle culture onto surface. Allow to rehydrate for a couple of minutes then stir through milk and leave to ripen for 20 minutes, maintaining heat at 85°F/30°C.

2) Re-cover and raise heat slowly to 92°F/33°C. Dilute rennet in ¼ cup of water and add to milk, stir from top to bottom for 1 minute.

3) Maintain temperature and let curds set for further 30-40 minutes (until you achieve a clean break).

4) Cut curds to ½” cubes and stir gently, raising the temperature very slowly to 100°F/38°C over 20-25 minutes. If this proves hard using a direct heat, try using a hot water bath and place curds and whey in a bowl and into the bath to help control the slow heating process.

5) Continue stirring curds at this temperature for 10 minutes to allow more whey to be expelled.

6) Line a colander with a cheese cloth and ladle in the curds and drain for 10 minutes.

7) Press lightly using 5lb pressure for 10 minutes. Undress cheese, turn over, redress and press again at 10lb of pressure overnight or for 10 hours.

8) Make a 1 gallon brine solution and chill solution to (55°F/13°C approx). Remove cheese from press and cloth and soak in brine for 6 hours, turning once.

9) Age in a cool (50°F/10°C approx) place away from drafts. A small wine fridge or drawer in your main fridge is perfect. Turn daily for the first week, then once a week. Cheese will be ready after 2 months. A hard crust should have formed.

Note: Wipe off any mold that appears with a white vinegar-soaked cloth. Make sure any whey drainage is removed and cheese does not sit in excess whey.



Edam

This Dutch classic is perhaps as famous for its red wax as for its bright, elastic paste and mild flavor. A washed-rind cheese dating back many centuries, mastering this cheese will fine-tune your pressing, washing and brining skills. Edam differs from Gouda by the use of low-fat milk, making it less moist and longer lasting.

2 Gallons Low Fat Milk

8 drops of double-strength Rennet (animal or vegetable)

½ tspn MM100

½ tspn Annatto

1 tspn Calcium Chloride

Cheese Salt

Cheese Wax

Sanitize all equipment

Special Equipment:

Mold with follower

Cheese Press

- 1) Heat milk slowly to 90°F/32°C. Dilute calcium chloride in ¼ cup of water and stir gently throughout milk.
- 2) Sprinkle starter onto surface to rehydrate for a couple of minutes. Then whisk through, cover and leave to ripen for 20 minutes.
- 3) Dilute annatto in ¼ cup of water and stir through milk for 30 seconds. Dilute rennet, also with ¼ cup of water, and stir through. Cover pot.
- 4) Maintain heat at 90°F/32°C for 40 minutes and check curds give clean break (allow a few more minutes if still not properly coagulated).
- 5) Cut curds into ½ inch cubes and stir gently for a further 10 minutes.
- 6) Heat slowly to 95°F/35°C, stirring gently to prevent curds clumping.
- 7) Once heat is achieved removed from heat, cover and leave undisturbed for 15 minutes.
- 8) Ladle out 4 cups of whey to expose the top of the curd and put it to one side. Replace the whey with the same amount of 120°F/49°C water, bringing the curds up to 100°F/38°C, stirring gently. Once curds have reached this temperature, maintain for 15 minutes, stirring occasionally.
- 9) Drain curds in a cheese cloth-lined mold (but don't press) until no more whey is dripping. Keep drained whey add it to rest of whey in pot and heat to 120°F/49°C.
- 10) Remove curd from cloth and place in heated whey for 15 minutes, turning once.
- 11) Redress curd in cheese cloth and replace back into mold. Press under 20lb pressure for 5 hours.
- 12) Make a 1 gallon brine solution and chill solution to (55°F/13°C approx). Remove cheese from press and cloth and soak in brine for 6 hours, turning once. Easiest way to keep chilled is brine cheese in fridge. Remove cheese and pat dry. Leave to air dry fully on a cheese mat for 24 hours.
- 13) Wax cheese (red is the authentic Edam color) and age in a cool (50°F/10°C approx) place away from drafts. A small wine fridge or drawer in your main fridge is perfect. Turn daily for the first week, then once a week. Cheese will be ready after 3-4 months.

Hard Cheese

These cheeses will have much less moisture and will have almost certainly have been pressed and aged for a long time (often years, not months). They are often made with thermophilic cultures as hotter temperatures are used to make a firmer curd. These harder cheeses grate beautifully and can often have a slight crunch. The maturing process means these harder cheeses can pack some incredible flavor.

Emmental



This is a Swiss favorite and famous for the holes (eyes) produced by the use of the propionic culture. Using warmer temperatures, Emmental also requires a thermophilic (rather than mesophilic) starter culture. Professional Emmental producers make huge wheels and the more milk you can use the bigger the holes you will see in the final cheese. The thick rind and sweet, nutty flavor make this cheese a stronger flavored alternative to Edam.

Note: If possible double or even treble this recipe for a larger wheel of cheese to mature.

2 Gallons Whole Milk

10 drops of double-strength Rennet (animal or vegetable)

¼ tspn TA61 Thermophilic culture

1 tspn Propionic culture

Cheese Salt

Sanitize all equipment

Special Equipment:

Mold with follower

Cheese Press

- 1) Heat milk to 90°F/32°C and stir in TA61 culture gently.
- 2) Take ½ cup of milk and stir in propionic culture. Stir this milk into milk in pan and maintain at this temperature for 30 minutes.
- 3) Dilute rennet in ¼ cup of water, and stir through. Cover pot and maintain temperature for a further 45 minutes, until you achieve a clean break.
- 4) Cut curds into ¼ inch cubes and stir gently for a further 10 minutes.
- 5) Slowly increase the temperature of the curd to 100°F/38°C, then raise temperature (again slowly) to 115°F/46°C, cooking the curds gently. Hold at this temperature for a further 30 minutes.
- 6) Remove curds gently with a ladle and place into a bowl. Drain off excess whey.
- 7) This next process 'scalds' the curd. Boil some water and allow it to cool to 130°F/55°C. Pour water over curds until covered and leave for 15 minutes, raising the temperature of the curd.
- 8) Line a colander with a cheese cloth and ladle in curds and allow to drain for 15 minutes.
- 9) Wrap cheese in cheese cloth and press in mold with 10lb pressure for 20 minutes. Undress cheese, flip, redress and press again at 15lb pressure for 1 hour. Repeat one more time at 25lb pressure for 8 hours or overnight.
- 10) Make up a chilled saturated brine solution (55°F/13°C approx) and soak cheese for 24 hours, turning once. Easiest way to keep chilled is brine cheese in fridge. Remove from brine, pat dry and allow to air dry on a cheese mat for a further 12 hours.
- 11) Age at 50°F/10°C approx, away from drafts for one week, turning daily. Place cheese in a sealed container and age at room temperature for 3 weeks, turning weekly. This is different to aging other cheeses but this increase in warmth is necessary to make the cheese produce carbon dioxide. You will see the cheese actually expand during this time as eyes are formed throughout the cheese. Any mold growth during this time can be wiped off with a cloth dipped in salt water (this will also make sure the crust hardens).
- 12) Place cheese back in a 50°F/10°C draft-free place and continue to age for a further 4 months, turning weekly.



Gruyère

Another Swiss favorite, this cheese surged in popularity when the fondue parties were all the rage in the 1960s and 70s. The 'meatiness' and sweet flavor, coupled with being a great melting cheese, Gruyère can take many months to mature to your perfect taste- so be patient!

2 Gallons Whole Milk

10 drops of double-strength Rennet (animal or vegetable)

¼ tspn TA61 Thermophilic culture

Cheese Salt

Sanitize all equipment

Special Equipment:

Mold with follower

Cheese Press

1) Heat milk to 90°F/32°C and stir in TA61 culture gently. Cover and leave milk to ripen for 30 minutes.

2) Dilute rennet in ¼ cup of water, and stir through. Cover pot and maintain temperature for a further 45 minutes, until you achieve a clean break.

3) Cut curds into ¼ inch cubes and stir gently for a further 10 minutes.

4) Slowly increase the temperature (over 30-45 minutes) of the curd to 120°F/49°C. Hold at this temperature for a further 30 minutes. Leave curds to settle.

5) Line a colander with a cheese cloth and ladle in curds and allow to drain for 15 minutes.

6) Place curd into cheese cloth-lined mold and press with 10lb pressure for 20 minutes. Undress cheese, flip, redress and press again at 15lb pressure for 1 hour. Repeat one more time at 25lb pressure for 8 hours or overnight.

7) Make up a chilled saturated brine solution (55°F/13°C approx) and soak cheese for 8 hours, turning once. Easiest way to keep chilled is brine cheese in fridge. Remove from brine, pat dry and allow to air dry on a cheese mat for 24 hours.

8) Age at 50°F/10°C approx, away from drafts for one week, turning daily. Continue to age for a further 6 months, turning weekly. Leave longer if you prefer a stronger, nuttier flavor. Any mold growth during this time can be wiped off with a cloth dipped in salt water (this will also make sure the crust hardens).

Parmesan

Originating from the Parma region of Italy, Parmesan is traditionally made from low-fat cows' milk. Popular today as a grating cheese, blocks of Parmesan are produced with a flourish at restaurant tables around the world. One of the famous 'grana' or hard Italian cheeses, its sharpness comes from extensive aging and the addition of the additive lipase. In keeping with its Italian roots, olive oil is used to protect the rind during aging. The sharpness, or 'piquant' flavor, is the secret to Parmesan's global success today.



2 Gallons Low-fat Milk

12 drops of double-strength Rennet (animal or vegetable)

1/4 tspn TA61 Thermophilic culture

1/4 tspn Lipase Powder

Cheese Salt

Olive Oil

Sanitize all equipment

Special Equipment:

Mold with follower

Cheese Press

- 1) Heat milk to 90°F/32°C and stir in TA61 culture gently. Cover and leave milk to ripen for 30 minutes

- 2) Dilute rennet and lipase in ¼ cup of water, and stir through. Cover pot and maintain temperature for a further 45 minutes, until you achieve a clean break.

- 3) Cut curds into ¼ inch cubes and stir gently for a further 10 minutes.

- 4) Slowly increase the temperature (over 30-45 minutes) of the curd to 125°F/52°C. Hold at this temperature for a further 20 minutes. Leave curds to settle.

- 5) Line a colander with a cheese cloth and ladle in curds and allow to drain for 15 minutes.

- 6) Place curd into cheese cloth-lined mold and press with 10lb pressure for 20 minutes. Undress cheese, flip, redress and press again at 15lb pressure for 1 hour. Repeat one more time at 30lb pressure for 12 hours or overnight.

- 7) Make up a chilled saturated brine solution (55°F/13°C approx) and soak cheese for 8 hours, turning once. The easiest way to keep it chilled is to brine cheese in fridge. Remove from brine, pat dry and allow to air dry on a cheese mat for 48 hours.

- 8) Age at 50°F/10°C approx, away from drafts for 1 week, turning daily. After 1 week, turn weekly for up to 9 months. Wipe off mold with a salt and vinegar-soaked cloth. After 3 months smear olive oil over the surface to maintain moisture and continue to rub in oil into any dry spots throughout the drying process. Age longer for a stronger flavor.

Stretched Curds (pasta filata)

Meaning 'spun paste', pasta filata is a lot of fun to make and something to refine as you start out. The stretching creates a smooth elastic texture and while it requires some skill to perfect, it's hugely enjoyable to make. Your first fresh, warm mozzarella ball served up with oil and basil is a great confidence booster.



This is buffalo mozzarella.

Note how creamy and soft this is compared to the cows' milk variety.

Traditional Mozzarella

This method takes longer than the citric acid version later on in this book, but should give you greater yield. The culture does the acidifying work in this instance but takes a lot longer. In our view patience pays off if you have the time. As you perhaps know, the best mozzarella comes from buffalo milk found in the south of Italy, although most mozzarella today is now made using cows' milk.

Note: The trick with mozzarella is all about the pH level- wrong pH, no stretch. This recipe requires you to use pH test strips. As the acid does its work on the lactose, converting it to lactic acid, the pH level starts to drop. Your job is to catch it at the right point and without a test kit that's impossible.

2 Gallons Whole Milk (if you can source unhomogenized you will get better results)

15 drops of double-strength Rennet (animal or vegetable)

1/4 tspn TA61 Thermophilic culture

1/4 tspn Lipase Powder

Cheese Salt

Ice

Sanitize all equipment

1) Heat milk slowly to 90°F/32°C. The best and easiest method for this recipe is to fill a sink with water and place a bowl with milk into the sink. This will create a stable heating source, allowing you to maintain and incrementally adjust the milk temperature by adjusting the water temperature on the outside.

2) Add the starter culture and mix through gently. Dilute lipase in ¼ cup of water and stir through as well. Cover and ripen for 1 hour.

3) Dilute rennet in ¼ cup of water and stir gently through milk, re-cover and let coagulate for 1-1.5 hours, maintaining the heat of 90°F/32°C

4) Cut curds into ½” cubes and leave for further 10 minutes.

5) Slowly heat the curd to 102°F/39°C, stirring throughout. This should take around 20-25 minutes, raising the temperature just a couple of degrees or so every 5 minutes. Leave to sit for a further 5 minutes.

6) Drain off the whey (this can be kept and used within 3 hours to make a whey cheese).

7) Keeping the temperature at 102°F/39°C, leave curd to acidify for a further 2 hours. Every 30 minutes drain off whey and turn curd over each time.

8) After 2 hours, take your pH test paper and test acidity of curd. If the pH level has not reached 5-5.2, leave for a further 15 minutes and test again, repeating until the acidity has reached 5-5.2.



9) Fill a bowl with 175°F/80°C water. Cut curd into ½” cubes and place into bowl, making sure all curd is covered.

10) Wearing rubber gloves, begin to squeeze the curd together and stretch it. The curd should stretch easily and begin to look glossy when ready. Shape curd into small balls. Take each ball and stretch out again, squeezing out excess whey as you go.

11) Shape each ball again and place into a bowl of ice water. This will cause the mozzarella ball to shrink slightly and become firm. Leave for 15 minutes.

12) Prepare a brine solution and submerge mozzarella for 30 minutes, turning each ball once during brining. Enjoy immediately or store in a sealed container with brine for up to a further 5 days.





Quick Mozzarella

This recipe is for those in a hurry. You can turn a gallon of milk in your fridge into a delicious ball of stretchy mozzarella in under an hour. The trick is all about getting the acidity right, get it wrong and you can end up with something approaching ricotta. Take care and be gentle with your curds until you get it stretching. On the subject of ricotta, this whey cannot be used for ricotta as it's too acidic due to the addition of citric acid.

1 Gallon Whole Milk

8 drops of double-strength Rennet (animal or vegetable)

1½ tspn. Citric Acid

Cheese Salt

Ice

Sanitize all equipment

Note: If using store milk, you may need to add 1 teaspoon of calcium chloride to achieve a firmer curd. If buying milk from a store, check your milk. Do NOT use ultra-pasteurized milk so carefully read the label- it will not give you the strong curd you need for stretching. Better still, if you can source non-homogenized milk, so much the better. As this recipe is not adding a culture, the flavor will come from your milk, so remember good milk in = good cheese out.

1. Dissolve citric acid in $\frac{1}{4}$ cup of unchlorinated water, then add to 1 gallon of milk in a pan. Add 1 teaspoon of calcium chloride (diluted in $\frac{1}{4}$ cup of unchlorinated water) if needed at this stage.
2. Heat slowly on a low heat to $90^{\circ}\text{F}/32^{\circ}\text{C}$ and remove from heat.
3. Dilute rennet in $\frac{1}{4}$ cup of water, and stir through.
4. Cover and leave for 20/30 minutes or until you achieve a clean break.
5. Cut the curd with the knife into 1" cubes and leave for 5 minutes.
6. Put back on heat and bring up to $105^{\circ}\text{F}/41^{\circ}\text{C}$, stirring gently throughout (careful not to go over $110^{\circ}\text{F}/43^{\circ}\text{C}$ and beyond, it will start to cook it!). The whey will continue to be extracted from the curd.
7. Lift the curds into a strainer/colander using a slotted spoon, allowing as much whey as possible to drain back into the pot as you transfer the curd. Leave for 5 minutes.
8. Using your hand, hold the curd and drain off the rest of the whey (pressing gently) and transfer to a bowl.
9. Microwave for 1 minute, and remove. Drain the whey, again using your hand to press out the curd a little to help with removing the liquid. **NOTE: BE CAREFUL, USE CAUTION AS CURD CAN GET EXTREMELY HOT. IF IN DOUBT, USE RUBBER GLOVES.**
10. Knead gently, folding the curd into itself a few times. Drain off any surplus whey. Microwave again for 30 seconds.
11. Remove from microwave, drain whey, and repeat kneading of curd. If it begins to stretch, start to work the mozzarella by stretching it out. If it is breaking up, microwave again for 20 seconds until it is soft and pliable. Always drain off surplus whey as you work.



12. Add $\frac{1}{2}$ tspn of salt and work it into the ball of cheese by kneading and folding the cheese into itself again. Knead into a ball and it should become shiny and smooth to the eye. Do not over-knead the curd. If it breaks apart reheat again for 20 seconds, it must remain smooth and supple.

13. Place in a bowl of ice water for 15 minutes to rapidly cool it.

14. Eat and enjoy immediately, or store in leftover whey for two to three days in fridge.

Provolone

This Italian favorite is similar to Mozzarella, but differs in that it is aged (or often smoked). By adding lipase, Provolone is popular for its sharpness and can still be seen ripening from ropes in Northern Italy. This is a full-fat cow's milk cheese and fairly easy to make at home.

1 Gallon Whole Milk

8 drops of double-strength Rennet (animal or vegetable)

¼ tspn TA61 Thermophilic culture

¼ tspn. Lipase

Cheese Salt (for brining)

Sanitize all equipment



- 1) Heat milk to 95°F/35°C and stir in TA61 culture gently. Cover and leave milk to ripen for 30 minutes.
- 2) Maintaining temperature of 95°F/35°C, dilute lipase in ¼ cup of cold water and stir through milk. Leave for 15 minutes.
- 3) Dilute rennet in ¼ cup of water, and stir through. Cover pot and leave for further 30 minutes, still maintaining temperature. Leave longer if necessary to achieve clean break.
- 4) Cut curds into ½” cubes and leave for 10 minutes, before raising the heat slowly to 145°F/63°C, stirring gently. This will help expel further whey from the curd as it heats up.
- 5) Line a colander with a cheese cloth and ladle in curds and allow to drain for 5 minutes.
- 6) Place colander over warm whey and cover with lid to keep curds warm, leave for further 40 minutes.

7) As curd drains, heat 1 gallon of water to 180°F/82°C.

8) Now time to stretch the curd but you must first check it is ready. To do this take a small piece of curd and dip it into the water. If it doesn't start to stretch, leave the curd for ten minutes and try again. The surface will turn shiny when it starts to stretch and is ready.

As you become a more experienced cheesemaker, now is the perfect time to learn more about the importance of acidity in cheese. If you have pH test papers or meter you don't need to 'guess' the curd is ready using the method in section 8), instead test the curd is below 5.4. Once below this point you are ready for the next step.

9) Cut the curd into large cubes and place each piece in the hot water. Using either gloves (or a wooden spoon) stretch out the curd and work it into a ball. Lift the curd ball out of the water and stretch it like a piece of rope. Fold the rope in half into itself and repeat the process a few more times. When the curd is shiny and feels smooth to touch, make a small 'top-knot' on the ball- this allows you to tie and hang the cheese later. Make sure it doesn't get cold or it won't stretch, if this happens submerge the curd again in the hot water to keep it pliable. Once the curd is smooth and shiny, stop. Don't overwork the curd.

10) Place curd into a bowl of ice water and leave for 15 minutes. This will make it go hard.

11) Make up a chilled saturated brine solution (55°F/13°C approx) and soak cheese for a couple of hours, turning once.

12) Dry the cheese and hang it using some twine or rope around the top-knot. Leave hanging for around two months in a cool place (50°F/10°C approx). Leave for another 2-6 months for a sharper Provolone. Wipe away any mold growth appearing on the outside of the cheese using some salt solution on a piece of cloth.

Bloomy Rind

These whitish fluffy cheeses are cultured with *Penicillium candidum* (also known as *Penicillium camemberti*), forming a rind that has come to be known as 'bloomy'. It isn't just the rind that sees all the action. The culture also works on the inside, known as the paste, making it soft and, in some cases like a ripe Brie, runny.

Brie and Camembert

Brie is a famous style of cows' milk cheese and gets its name from the Brie region of France. Goat and sheep milk can also be used. Brie is typically made in flat wheels and one style or another is nearly always found on any decent cheese board.



Camembert differs in very subtle ways to Brie, but for beginner purposes Camembert is essentially just made in a smaller mold. The recipe here can make either basic cheese and you will need 4 small open cylinder molds. To make life easy, most supply houses refer to them as a Camembert mold.

2 Gallons Whole Milk

¼ tspn MM100/101

⅛ tspn *Penicillium candidum*

12 drops of double-strength Rennet (animal or vegetable)

Cheese Salt

Special Equipment:

4 Camembert Open Cylinder Molds

Cheese Wrap/Ripening Paper

Plastic storage box (for ripening)

Sanitize all equipment

- 1) Warm milk to 90°F/32°C and stir in MM100/101 culture and leave to rehydrate in milk for five minutes.
- 2) Sprinkle in *Penicillium candidum* and gently stir through and leave for further 3 minutes.
- 3) Dilute rennet in ¼ cup of water, and stir through. Cover pot and leave to form a firm curd (around 1 hour), maintaining a heat between 85-90°F/30-32°C. Check for a clean break.
- 4) Cut curd into small cubes and leave to settle for a further 5 minutes or so.
- 5) Ladle off some of the surface whey and then scoop the curds into the 4 molds as evenly as you can, allowing the whey to drain off underneath.
- 6) When the curd is firm and molds can be flipped, gently turn them over to continue draining. Make sure the curds are not sitting in their own whey and is draining away.
- 7) Continue to flip a further 2 times, leaving the curds to drain for a total of 4 hours. The curds will shrink slightly and pull away from the sides of the molds. Sprinkle both sides of each cheese with salt. Leave each cheese to ripen on a draining mat and let the salt absorb into the surface for a further hour.
- 8) Place each cheese onto draining mats and into a plastic box and close with a lid, aging at a temperature of approximately 55°F/12-13°C. Turn every day and remove any moisture in the box.
- 9) After around a week white mold will begin to appear on the surface. Once the cheese is covered in mold, wrap in a cheese ripening paper (buy it from a proper cheese supply store- plastic wrap from the supermarket will NOT do!).
- 10) Flip the cheese a further 3 times a week for a further month. The cheese interior will feel soft (and soften further when opened up and allowed to ripen and go runny, ready for your cheese board).

***P. candidum*: You'll need this culture for any white mold cheese**



Valençay

This ash-coated goat cheese has a unique shape and a fascinating 'story' behind it. Sounds to us like a bit of a whopper... Legend has it Napoleon returned from a jolly good pasting in Egypt and, on seeing the pyramid cheese and getting a nasty flashback, lopped off the top of one with his sword, hence its famous shape today. Hmmm....



1 Gallon Whole Goats' Milk

¼ tspn Flora Danica

¼ tspn Penicillium candidum

Pinch Geothrichum candidum

6 drops of double-strength Rennet (animal or vegetable)

Cheese Salt

¼ tspn Calcium Chloride Solution (diluted in ¼ cup of water)

Special Equipment:

4 Pyramid molds

Shaker (for salt/ash mix)

Plastic storage box (for ripening)

Cheese Wrap/Ripening Paper

Sanitize all equipment

1) Heat milk gently to 74°F/23°C. Gently stir in Flora Danica and leave for 5 minutes to re-hydrate. Then add both the Penicillium and Geotrichum candidum molds and mix through thoroughly but gently.

2) Stir calcium chloride gently through milk. Dilute rennet in ¼ cup of water, and stir through and cover pot. Leave, maintaining a warm temperature, overnight. If you do not get a clean break, leave longer and check again.

3) Cut the curd into ½” cubes and stir gently for 2 minutes and leave to settle for a further 10 minutes.

4) Place the 4 pyramid molds onto a surface that can drain and ladle curd into each. Top up each mold as the curd drops as the whey drains away.

5) Place the molds onto a draining mat inside a plastic ripening box and cover with a lid. Leave at room temperature for 48 hours and periodically check and clean out any drained whey from bottom of box. Flip cheeses after 24 hours (if cheeses firm enough to do so) for consistent drainage.

6) Remove cheeses from each mold and place on draining mat. Mix a small amount of salt with some ash in a shaker, and dust the surfaces of each cheese until fully covered.

7) Return cheeses to clean draining mat inside plastic ripening box and cover again with lid. Make sure cheeses are not touching. Store in a cool place (50-53°F/10-12°C). Flip cheeses every day and remove any excess whey. After around a week the cheeses will be covered in white fluffy mold. Leave for a total of 14 days and the cheeses should all be covered in a decent coat of white mold.

8) The Valençay are ready to eat but are taste better ripened in cheese ripening paper and aged for a further 4 weeks.

Blue Cheese

The major mold for blue cheeses (or in some cases a bit greeny) is the *Penicillium roqueforti*. The technique of needling is also used in this variety, piercing the cheese to allow oxygen to work on the culture to aid development of the veins and flavor development in the paste.

Stilton

Stilton, like Cheddar, is an actual place in England and the region is fiercely protective of this famous cheese. Whilst the blue is strong in taste, there is also the less popular white stilton that people with milder palates prefer.



1 Gallon Whole Milk

½ cup Cream (or half and half)

¼ tspn Direct-set Mesophilic Culture/ 2 tbsp Starter Solution

⅓ tspn *Penicillium roqueforti*

6 drops of double-strength Rennet (animal or vegetable)

Cheese Salt

Special Equipment:

Open cylinder mold

Needles

- 1) Combine the cream and milk into a pot and mix in the mesophilic and *Penicillium roqueforti* cultures. Warm pot slowly until it reaches 86°F/30°C. Stir regularly so that everything is mixed well. Remove from the heat and let it stand for 1 hour.

- 2) Dilute rennet in ¼ cup of water, and stir through. Leave for 45 minutes until you have a clean break.

- 3) Cut the curd into ½” cubes, then leave them to stand for 15 minutes.

- 4) Ladle the curds into a cheesecloth, tie up the corners and hang for 1 hour.

- 5) Sprinkle in 3 level teaspoons of salt into the curd, forming into a ball.

- 6) Place curds into a cheesecloth-lined cylinder mold. Press lightly (using 15lb of pressure) for 12 hours. Make sure you do this on a draining mat so whey can drain off.

- 7) Keeping the curd in the mold, turn the cheese every day for one week. Remove from mold, rub surface with vegetable oil and leave on mat for a further one week, turning daily. Wipe the surface with vinegar-soaked cloth to remove any unwanted mold.

- 8) Pierce the cheese all over with a sterilized needle. Leave at a temperature of around 55°F/13°C for a further 2-3 months (remember- the longer the stronger). You will see blue mold; development after 2-3 weeks. Remove any drained whey daily.

Danish Blue

This differs slightly from the Stilton and is a great simple cheese to start out with. This recipe does not have cream added like the Stilton recipe.



1 Gallon Really Creamy Full-fat Milk

¼ tspn Direct-set Mesophilic Culture/ 2 tbsp Starter Solution

⅓ tspn Penicillium roqueforti

6 drops of double-strength Rennet (animal or vegetable)

Cheese Salt

Special Equipment:

needle

Open cylinder mold

Plastic storage box (for ripening)

- 1) Mix the milk and starter together in a pan, then heat to 95°F/35°C. Remove from the heat and leave for 1 hour to ripen.
- 2) Add the Penicillium roqueforti and stir through gently. Dilute rennet in ¼ cup of water, and stir through also.
- 3) Allow curd to cool a little, then cut into 1” cubes and allow to rest for a further hour.
- 4) Pour off whey and carefully ladle curds into cheesecloth-lined colander. Drain for 20 minutes then sprinkle with 1tspn of salt.
- 5) Place the curds into a cheesecloth-lined mold and very lightly press them using your hand. Then place curds in the mold into a sealed plastic container and place in your fridge. After a week, sprinkle the surface with salt and pierce it all over with a needle.
- 6) Leave for a fortnight to mature, and check to see blue molds developing. This cheese will be ready much quicker than the Stilton recipe.

Roquefort

Making this cheese will really add to your range as this is made from sheep milk. Not the easiest milk to track down, but well worth it! This recipe has slightly reduced the temperatures to keep as much fat in the curd as possible. Although most blue cheeses are not pressed, this recipe involves pressing lightly.



2 Gallons Whole Sheep Milk

¼ tspn Direct-set Mesophilic Culture/ 2 tbsp Starter Solution

⅓ tspn Penicillium roqueforti

10 drops of double-strength Rennet (animal or vegetable)

Cheese Salt

Special Equipment:

Needle

Open cylinder mold

Plastic storage box (for ripening)

1) Heat milk in a pan slowly to 86°F/30°C.

2) Add the starter culture and stir through, followed by the *Penicillium roqueforti*. Cover the pan and keep warm for 45 minutes, off the heat.

3) Dilute rennet in ¼ cup of water, and stir through milk. Cover and keep pan warm (around 86°F/30°C) for a further 45 minutes (you can use a towel or similar cloth to wrap around pot to keep in heat).

4) Cut the curds into ½” cubes and leave for 10 minutes. Gently pour curds into cheesecloth-lined colander. Take the four corners of the cloth and hang curds until they stop dripping. Try to keep curds warm and avoid draughts.

5) Carefully pour the curds into a bowl and break up gently into smaller pieces using your fingertips. Add 3 tablespoons of salt and mix together.

6) Line a mold with the cheesecloth and place curds into it. Press at 25lb pressure for 6 hours. Turn cheese (redressing as necessary) and press again using just 20lb pressure for a further 6 hours.

7) Remove cheese from cloth and mold and allow to air dry on a mat for 3 days. Sprinkle some salt all over the surface of the cheese.

8) Place the cheese in a sealed plastic container and place in your fridge for one week. Then pierce all over with a sterile needle and return to container. Place back in fridge and allow to mature for a minimum of 6 weeks.

Washed Rind And Smear-Rind Cheeses

These cheeses can be real stinkers thanks to the washing they receive. Washed in a variety of solutions, including salt, wine and brandy, these cheeses allow your creative side to shine through. Smear-rind cheeses usually come out orangey/red, thanks to the use of the culture *Brevibacterium linens*. The use of *Geotrichum candidum* culture will create a creamy mottled surface and is usually used with another culture not alone. So as you branch out into surface ripened cheeses this culture is well worth adding to your repertoire.

Raclette

I know we promised no showing off with French words, but permit us just one more. Racler means 'to scrape' and should go a long way to informing those in the dark what sort of cheese this is. For those of you who have missed the wonderful skiing in the Alps, you may have also missed Raclette, a cheese that is melted 'right off the block' and scraped onto your plate, gooey and ready to eat, 'fondue style'. Perfect for warming you up after a day out in the snow. Because you need a decent block to melt from, we recommend a minimum 2 gallons of milk, but it's smart to go bigger if you can.

2 Gallons Whole Milk

¼ tspn Direct-set Mesophilic Culture/ 2 tbsp Starter Solution

⅓ tspn *Brevibacterium linens*

Pinch *Geotrichum candidum*

14 drops of double-strength Rennet (animal or vegetable)

Cheese Salt

Special Equipment:

Open cylinder mold

Plastic storage box (for ripening)

- 1) Warm milk gently to 86°F/30°C. Add starter culture and both secondary cultures and leave to rehydrate for a couple of minutes.
- 2) Cover and leave to ripen for 1 hour. Cover pan with a towel to keep heat at warm temperature.
- 3) Dilute rennet in ¼ cup of water, and stir through milk. Cover and let the curd form for 1 hour or until you get a clean break.
- 4) Cube curds into ½” cubes and leave to rest for further 10 minutes.
- 5) Warm curds gently to just 90°F/32°C, stirring very, very slowly throughout for 15 minutes.
- 6) Scoop out around ⅓ whey. Heat the equivalent amount of water to 140°F/60°C and add to the curd, replacing the removed whey. Stir the whole pot gently and measure the temperature of the curd as it rises to 100°F/38°C. Leave for a further 20 minutes with the pot covered.
- 7) Ladle the curds gently into cheesecloth-lined colander and leave to drain for 5 minutes. Place curds in a cheesecloth-lined mold and place on a mat to continue draining.
- 8) Press cheese lightly (15lb) for 30 minutes. Un-dress cheese, turn, rewrap and press again using 15lb pressure overnight.
- 9) Make a brine bath solution and place cheese in it for 8 hours, turning every 2 hours.
- 10) Remove cheese, dry it off and allow to dry on a mat at room temperature for another 24 hours, turning every 6 hours.
- 11) Place cheese in a plastic container and age in the fridge for 5 days, turning daily. Wipe the surface with a brine and vinegar solution every couple of days with a damp cloth. Then age for a further 6-8 weeks, turning every 3-4 days. Remove any whey from the container to prevent unwanted mold as the red linens mold appears after a few days.



Muenster

Remember we promised no more pretentious foreign translations? We lied, apologies. Muenster means 'monastery'. Sorry, we couldn't help it. While we're all apologizing, this cheese is a stinker, a proper stinker, so careful where you serve this or you might get some disgusted looks in the elevator at work. Muenster is a soft cheese (so no need for a press) but really packs a punch, but is really worth the effort if you like stronger flavors.



2 Gallons Whole Milk

¼ tspn Direct-set Mesophilic Culture/ 2 tbsp Starter Solution

⅛ tspn Brevibacterium linens

12 drops of double-strength Rennet (animal or vegetable)

Cheese Salt

Special Equipment:

Open cylinder mold

Cheese Wax

- 1) Heat milk in a pan slowly to 90°F/32°C.
- 2) Add the starter, stir through gently. Repeat with the *B. linens* culture and allow to rehydrate for 5 minutes.
- 3) Dilute rennet in ¼ cup of water, and stir through milk. Cover and let the curd form for 45-60 minutes or until you get a clean break.
- 4) Cube curds into ½” cubes and leave to rest for further 10 minutes.
- 5) Slowly heat the curds to 102°F/39°C, stirring gently. Leave to rest for further 10 minutes.
- 6) Drain curds in a colander for half an hour, then place curds into cheesecloth-lined mold and place on a mat to allow drainage. Cover mold with a board, and allow to drain for 1 hour.
- 7) Remove the board, place a cheese mat on top of the mold, and quickly flip the cheese and allow to drain for a further hour. Repeat a further 3 times, flipping the cheese, at 2 hour intervals.
- 8) Leave cheese, covered, at room temperature over night.
- 9) Place cheese in a brine bath solution for 8 hours, turning every couple of hours. Remove and pat surface dry.
- 10) Age cheese for 2 weeks in a warm place (60°F/15°C). Wash surface once every day with a brine solution, smearing the surface with a cloth. The cheese will develop an orangey smear on the surface after a few days of aging.
- 11) Wax cheese and age at a cool temperature (50°F/10°C) for 2 months. Age longer for a stronger flavor.



B. linens: You'll need this culture for smear rind cheeses. Professionals use a different range of these cultures to get different color finishes.



Brick

No translation required here- this is an American cheese and comes in a rectangular block, hence.... yep, you got it. This cheese heralds from the 'fromage Mecca' that is Wisconsin. This cheese is milder than Limburger.

2 Gallons Whole Milk

¼ tspn Direct-set Mesophilic Culture/ 2 tbsp Starter Solution

⅓ tspn Brevibacterium linens

Pinch Geotrichum candidum

15 drops of double-strength Rennet (animal or vegetable)

Cheese Salt

Special Equipment:

Mold with follower

Cheese Wax

Plastic storage box (for ripening)

- 1) Heat milk in a pan slowly to 90°F/32°C.
- 2) Add the starter, stir through gently. Repeat with the *B. linens* and *G. candidum* cultures and allow to rehydrate for 5 minutes.
- 3) Dilute rennet in ¼ cup of water, and stir through milk. Cover and let the curd form for 45-60 minutes or until you get a clean break.
- 4) Cube curds into ½” cubes and leave to rest for further 10 minutes.
- 5) Slowly heat the curds to 94°F/34.5°C (over half an hour- that slow!), stirring gently. Leave to rest for further 10 minutes.
- 6) Scoop out around ⅓ whey. Heat the equivalent amount of water to 110°F/43°C and add to the curd, replacing the removed whey. Stir the whole pot gently and measure the temperature of the curd as it rises to 97-99°F/36-37°C. Leave for a further 10 minutes with the pot covered, undisturbed.
- 7) Place the mold on a draining mat and line with a cheese cloth. Ladle the curds into the mold and leave to drain for 15 minutes. Remove the cheese, unwrap, flip, redress and place back in mold and allow to drain for a further 30 minutes.
- 8) Use the follower that comes with the mold and place on top of the cheese and lightly press at 10lb pressure for 3 hours, turning once.
- 9) Unwrap cheese and place in a brine bath solution for 6 hours, turning every couple of hours. Remove and pat surface dry.
- 10) Place on a mat in a plastic storage box and age in the fridge. Aim for 90% humidity (if using a hygrometer) or, to simply increase the humidity, place a saucer of water in with the cheese to create some moisture in the air. Turn every day for 4 days, washing surface once every day with a brine solution, smearing the surface with a cloth. The cheese will develop an orangey smear on the surface after a few days of aging. Then turn every three days until a total of 12 days has passed, wiping the surface again with a brine solution every time you turn the cheese.
- 11) Wax cheese and allow to age for a further two to three months (leaving longer will mean a more mature flavor).

Other Dairy

Here is a short list of other products you can make by fermenting, churning and souring. They are fairly simple and easy to attempt as a newbie.

Crème Fraîche

This might have a few regional variations depending on where you live, but effectively you whack a culture in some cream and Robert's your father's brother, as they say (at least in England). Definitely give this one a whirl, it's quicker to make than finding the 'î' on a keyboard. Honestly, it took us ages, we had to phone somebody under twenty to walk us through how to find foreign characters on the laptop but we persisted. Our French friends will hate us if we avoid using the 'î' circumflex, about as much as when we butcher their Brie recipes (-;



1 quart Heavy Cream

¼ tspn MM100/101

- 1) Warm cream slowly to 85°F/29.5°C.
- 2) Stir through culture and cover pot with towel.
- 3) Leave at room temperature to ripen overnight (12-16 hours) to thicken.
- 4) Store in fridge and eat within 5 days.

Sour Cream

Although similar to crème fraîche, sour cream is usually a touch more sour and tart. Both can also be made with cultured buttermilk, so look out for those recipes as you develop. Another key is choosing good cream- avoid ultra-pasteurization (as you should for cheese too). Also look out for all those stabilizers that get loaded in a lot of the popular ranges- avoid those too.

1 quart Whipping Cream

¼ tspn Flora Danica

- 1) Warm cream slowly to 85°F/29.5°C.
- 2) Stir through culture and cover pot with towel.
- 3) Leave at room temperature to ripen overnight (12-16 hours) to thicken.
- 4) Store in fridge and eat within 5 days.





MAKING YOUR OWN

Yogurt

You can make yogurt with most types of milk and the great thing is once you've made some, you can use a small amount to culture the next batch. Some yogurt cultures are added straight to the milk, others make a 'mother' culture solution, allowing you to take a scoop from the solution each time you want to make a fresh batch. What is important is hygiene; keep your cultures in the freezer, clean every utensil you use religiously and throw out anything that develops mold or a bad odor. Some people use milk powder to thicken their yogurt- it's a personal preference.

This recipe uses a starter solution made up in advance- substitute this with adding 1 portion of standard yogurt culture to the milk directly if this is the type that you have.

1) Heat 1 liter (2 US pints) of fresh milk to 194°F/90°C and hold at this temperature for ten minutes.

2) Remove from the heat and cool rapidly by standing the saucepan in cold running water until a temperature of 111°F/44°C is reached. Alternatively, sterilized milk may be used which does not require the above heat treatment.

3) Sterilize the flask of the yogurt incubator using a suitable product such as dairy hypochlorite - (do not use boiling water) - to prevent the introduction of any undesirable airborne organisms, since these could interfere with the incubation of the desired culture.

4) Pour the cooled milk into the flask.

5) Sterilize a tablespoon by scalding it in boiling water, remove the top from a previously prepared solution of freeze-dried yogurt starter - and quickly add two tablespoons of starter solution to the incubator flask and stir.

6) Immediately re-cover the starter solution and return to the refrigerator.

7) Place the lid on the flask, plug the incubator into the power socket and leave for 6-8 hours. The temperature should be maintained at 104-111°F (40-44°C) producing a natural yogurt that tastes fresh yet sour. Other ingredients such as fruit, nuts etc. can then be added and the finished product poured into pots and allowed to set.

It is possible to maintain a supply of starter culture by reserving a small quantity of the un-flavored yogurt and using it in place of the starter solution on the next batch. However, as soon as any unwanted bacterial growth appears such as irregular black spots or orange or yellow 'beads' forming on the surface, discard immediately. If the yogurt does not attain the correct viscosity or off-flavors are detected, again start afresh with a new starter culture.

Greek Yogurt

Greek-style yogurt is typically strained, making it slightly thicker than regular yogurt.

1 quart skimmed or 2% milk

(not ultra-pasteurized)

¼ teaspoon yogurt culture or

2 tablespoons yogurt starter solution

Pre-heat oven to 105°F

- 1) Bring 2" of water to boil in a saucepan. Place a large stainless steel bowl over the saucepan and add milk. Keep bowl above the boiling water.
- 2) Lower heat and then slowly heat the milk up to 180-5°F. Whisk the milk gently throughout. Maintain heat for about 30 minutes- DO NOT let heat build over 185°F.
- 3) Remove bowl from saucepan and let the milk cool down to 100-105°F, continuing to whisk gently. Sprinkle the powdered culture all over the warm milk (or stir in solution).
- 4) Whisk the cultured warm milk for 2 minutes. Sterilize jars and then pour in cultured milk, leaving space at the top of each jar. Seal jars then place in oven (or yogurt maker).
- 5) Begin checking yogurt after 4 hours. If not tangy and thickened leave for half hour increments before checking again. NOTE: All cultures vary- it may take longer so keep checking, when you can taste the tanginess it is ready.
- 6) Place in refrigerator overnight (or about 8 hours until chilled).
- 7) Moisten cheesecloth. Line colander/strainer and place over a large bowl. Scoop yogurt into cheesecloth Cover with plastic wrap and place back in fridge. Strain anywhere from 3-8 hours to suit- the longer yogurt is left the thicker the final texture.
- 8) Yogurt is now thick, tangy and ready to eat. Eat within 2 weeks.

Kefir

This Balkan favorite is not as sweet as regular yogurts, fermenting slightly as it sets.

To make Kefir: UHT (long-life) milk may be used without boiling; all other kinds of milk should be heated to near boiling point (95°C or 203°F approx) in order to eliminate extraneous bacteria.

- 1) Take one liter of milk, heat as above if appropriate, then cool to room temperature 20-22°C (68- 72°F). This temperature must not be exceeded.
- 2) Add the contents of the Kefir sachet and stir well until dissolved. Pour into a container and seal tightly with a lid or plastic wrap.
- 3) Incubate at room temperature 20-22°C, (68-72°F) for 24 hours and then place in a refrigerator for 12 hours. Kefir tastes best when served cooled. Retain 3-4 tablespoonsful from each batch to act as a starter for the next production run (this is used in place of the Kefir culture). This re-culturing process can be repeated 10-15 times.



Tips To Make Life Easy

Cleanliness

If you spend just ten minutes in a professional dairy or cheesemaking operation, you will see the extraordinary lengths they go to making their facilities totally spotless. It really will not hurt to bear this in mind when you scrub your surfaces, utensils and yourself before making any cheese. Keeping your work area as sterile as possible means keeping microbes out that can, potentially, really make you sick. So we are happy to labor the point here.

A VERY common reason for taints, bitterness and fully blown spoilage is contamination. Be patient, expect some problems, keep your standards high and keep practicing.

Wipe down surfaces with a diluted bleach solution and boil your utensils.

Getting a good curd

Handle the curd gently. Be patient while the rennet is doing its job and ladle curds out of the pan or bowl slowly. Remember to add a drop of calcium chloride if you having issues with a store brand milk and any goats' milk.

Cutting the curd

Most of our recipes call for cubing the curd. Remember, the smaller the cubing the more whey will be expelled, so don't underestimate the importance of this stage in creating the right texture for your cheese.

Aging Cheese

Sometimes your cheese may dry out and the crust may crack. Apart from waxing, or rubbing the surface with oil or butter, place a small saucer of water below or next to the cheese to increase the humidity in the area around it. As you progress, start to measure the humidity properly. Until then, the saucer of water can be a big help.

A cool basement or cellar is useful if you don't have a designated fridge for your cheese. If you are using a regular fridge make sure it is extremely clean and avoid other strong smelling foods coming into contact. If you are using a plastic container open it up regularly to remove excess whey and air the cheese.

Removing mold

You can often get unwanted mold growth as your cheese ages. Using a cloth soaked in a vinegar and brine solution will remove mold growth as it appears, as well as help dry out the surface of the cheese. The solution helps fight against future unwanted molds. Make sure your cheese is able to have whey drain away and remove regularly- simply sitting the cheese on a cheese mat is the easy way to do this. If a cheese sits in its own whey as it ages, you will be asking for trouble.

Storing Cheese

We've talked about waxing harder cheeses and using special breathable paper to wrap softer cheeses. However, for semi-hard and hard cheeses you can also vacuum wrap them for storage- ONCE they have aged.

If you find mold growing on your cheese once it is ready to consume, it is perfectly fine to cut away this section of the cheese. You do not have to throw away the whole piece. However, change the wrapping the cheese was in with something fresh. Plastic wrap is okay to use for brief periods of time to store cheese, but never use it for aging. Invest in some proper cheese wrapping paper for that job.

How to Serve Cheese

There are some common sense basics to serving cheese and some 'hoity-toity' ones which are just for showing off, like starting with the outside cutlery and working in.... yawn. We've skipped those and stuck to these three practical suggestions:

- 1) Cut soft cheese while it is cold, especially Brie.
- 2) Eat cheese at room temperature to get the best flavor.
- 3) Cut cheese only if you have to- it will keep longer.

As for pairing cheeses, if money's no issue feel free to lash out some cash on lessons, or for those of you who want to know just enough to not be ridiculed by your boss (on that one evening a year you positively must spend 'bonding' time at his dull department dinner), stick to this:

- 1) Light red wines go great with soft cheeses.
- 2) Stronger wines with stronger cheeses.
- 3) Sweet dessert wines can be offset by very salty cheeses, like Stilton.

Beer, on principle, goes with any cheese. Or any meat, any vegetable, in fact any plant, animal, mineral or known terrestrial matter. Also beer pairs beautifully with other beer. Beer can also be enjoyed alone or with friends. But we digress..... hic.

Problems and how to fix 'em

There are going to be problems starting out, it's part of the territory of any new hobby. There are so many variables and you are dealing with a lot of natural products, so pinning down one thing to blame can be tricky. Without using professional measuring equipment it can be even harder to know if it was the acidity, the milk, the heat, the humidity, the timing, cleanliness, the starter culture, the water, even the air itself, a combination of two or more of any of these to trip you up.

Cheesemaking, like anything, takes patience and practice and we don't know any cheesemaker that has got worse the more cheese they made, or never had one disaster starting out. But there are a few things that often crop up so here is some guidance on what might be the problem:

Starter does not work

Antibiotics in milk may have killed off starter- switch milk if you can. Starter may be dead- check batch and double check it was stored correctly.

Milk did not coagulate

This could be the fault of the milk, often modern milks have received too much heat-treatment, making it non-reactive to rennet. However, the rennet may have become inactive- test rennet on a small amount of milk. There is also the risk of the milk being too acidic from starter culture.

Not getting a strong curd

Make sure the starter culture has been added in the correct amount. Leave the curd to set for longer. If still failing to get a good curd, look to use more rennet as it may have weakened over time, especially if not stored correctly.

Small curds

Too much heat makes milk coagulate in flecks, but also milk is probably too acidic.

Making Mozzarella- not getting a stretch

pH level is wrong, buy a pH test kit and test curd to get correct acidity.

Cheese stuck in mold

Cheese may have released gas due to contamination, causing it to expand. If so, discard cheese.

Unexpected holes in cheese

Poor hygiene and cheese has become contaminated. Discard cheese.

Moisture appears on the cheese

Cheese may not have been drained sufficiently, pressed properly or turned enough. Not enough whey was expelled at the cubing and heating stage.

No development of blue cheese mold

Cheese may have been overpressed or not pierced sufficiently, causing lack of oxygen to mix with Roqueforti bacteria.

No development of white surface mold

Temperature and humidity too low.

Cheese appears greasy

Fat is rising to surface of cheese during air drying- temperature too warm.

Cheese is crumbly

Too much rennet, or more than likely too much heat was used. Too much whey may have been expelled through excessive pressing.

Cheese not creamy enough

Not enough starter added.

Cheese tastes acidic

Too much moisture was left in the cheese. Make sure curds were properly cubed, heated, strained and pressed.

Cheese tastes bitter

Cheese may be under salted, or too much rennet was used.

Cheese tastes bland

Cheese may not have been left to age long enough to develop flavors. Poor cultures may not have created enough acidity in the milk to develop flavor. Even more simply, not enough salt added.

Pink, orange, red or brown mold spots appearing while aging

Too much humidity, reduce immediately.

For 35 years we have enjoyed learning from people around the world, offering up ideas, recipes, goat stories and dairy gossip, often sharing successes and disasters in equal measure. We pooled together ideas from many friends and colleagues for this book, but for brevity's sake kept out some of our lengthier yarns for this beginner's guide. All we can say is making cheese is a lot of fun, whether you live in a pokey apartment or have a massive ranch- and the internet today can bring us all together to share our experiences. And we hope you do.

So if you have any questions, suggestions or comments, please do get in touch as we love to share this knowledge with fellow cheese lovers.

All the best, for now.

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