

## Getting Started Making Cheese

I am a home cheese maker - I started by taking a basic cheese making class and using store bought cow's milk about 15 years ago. I found that I loved the process of making cheese and the results are yummy. We raise fiber goats so I figured - what is one more goat in the barn - I'll get a dairy goat! Jet Blue provided me with kids and milk for 7 years.

Along the way I have done tons of experimentation and I have learned that I am not good at making aged cheeses! I do great at fresh cheese and have worked at coming up with combinations of recipes and techniques from many different sources to create my own "fool-proof" versions and variations of simple, easy to make fresh cheeses from fresh off the farm and store bought ingredients.

Home cheese making is a combination of the process and the product, art and science. Yes, it tastes better when you make it yourself especially from local or home grown ingredients, usually it is cheaper, and taking the time to make it yourself you have connected to generations around the world providing good, wholesome food to share around the table with friends and family.

In this session you will learn 2 techniques: the first is to make ricotta, queso blanco, paneer /panir, and mascarpone from ingredients most likely in your refrigerator and a second, simple fresh lactic acid cheese using small amounts of rennet – fromage blanc, farmer's cheese/pot cheese, chevre, cream cheese, etc.

### Equipment

Stainless steel pot that holds at least 1 gallon

Thermometer that reads 75-200 degrees

Slotted ladle/spoon or whisk - preferably stainless steel

Measuring cups & spoons that can be sterilized in boiling water

Colander

"Cheese" cloth - cloth diapers offer the perfect weave for draining & pressing

### Ingredients:

Milk - raw or pasteurized milk – not ultra-pasteurized!

Buttermilk or direct set (DVI) mesophilic culture – MM100, MM11, MM101

Calcium chloride – best to use if using pasteurized milk or goats' milk

Rennet - liquid or tablet (I prefer liquid), animal or vegetable

The recipes use single strength, if you have double strength use ½ the amount

You can get vegetable rennet which is double strength

Apple cider vinegar or lemon juice (I prefer lemon juice)

These are made to be a standard 5% acid

Many printed recipes may call for citric acid or tartaric acid

Kosher, cheese, or non-iodized salt

## **Uncultured Fresh Cheese:**

This group of cheeses use high temperature and acid to separate the milk solids from the liquid. They are mild in flavor and primarily used in cooking and baking. A variety of acids can be used that will impart slightly different tastes – apple cider vinegar, lemon juice, citric acid, and tartaric acid. In most cases – my go to is lemon juice, it is readily available and gives a fresh taste to the cheese.

Milk does not need to be pasteurized nor equipment sterilized due to the high temperature used to make the cheese. You can use a double boiler set up to avoid any scorching at these higher temperatures.

### **Ricotta**

- 1 gallon whole milk
- ¼ cup apple cider vinegar or lemon juice
- ¼ - ½ teaspoon salt

In a stainless steel pot bring the milk to 185 degrees. Stir often to avoid scorching. Remove from heat and stir in the acid. Keep stirring until there are small flecks and the liquid is no longer milky looking (it will be a bit yellow).

Let set for 10 minutes. Pour into a cloth lined colander and drain for 20 minutes. As you put it into your storage container mix in salt to taste. If you want a creamier texture add a small amount of milk or cream. This will keep in the refrigerator up to one week.

### **Paneer - Panir – Queso Blanco**

This is the cheese often used in Indian and Mexican cooking. It does not melt when it is heated and takes on the flavors it is cooked in/with. It can be sliced or cubed and added to soups or fried with or without a light breading. It is a lightly pressed version of ricotta.

- 1 gallon whole milk
- ¼ cup apple cider vinegar or lemon juice
- Salt (optional)

In a stainless steel pot bring the milk to 185 degrees. Stir often to avoid scorching. Remove from heat and stir in the acid. Keep stirring until there are small flecks and the liquid is no longer milky looking (it will be a bit yellow).

Let set for 10 minutes. Pour into a cloth lined colander and drain for 20 minutes.

To make a firm, sliceable cheese you need to press it for 1 - 3 hours with an 8 pound weight as it drains. You can tie it and put between a cutting board or plate and a weight, (8 pounds is 1 gallon of water), like a large pot filled with water or you can create a simple draining form with a square storage container and a piece of wood.

Wrap in plastic wrap, this will keep in the refrigerator up to one week.

## **Mascarpone**

This Mascarpone is done with pasteurized milk (not ultra!) and Ultra Pasteurized cream because these are most available. If you do have the option to use raw milk and/or fresh cream, by all means do. There will be a difference, but you will be happy with either.

- 1 pint whole milk (2cups)
- 1 pint heavy cream
- 1/8 teaspoon calcium chloride diluted in 1/4 cup of water
- 2 tablespoons lemon juice

Set up a double boiler big enough to hold 1 quart. Pour the milk & cream into the bowl and add calcium chloride. Heat to 185 degrees, turn off heat and allow mixture to sit at this temperature about 5 minutes.

Add acid mixture and stir gently until you see the solids separate. Remove pot from double boiler and let cool 30 minutes. Pour into a cloth lined colander and begin draining. Tie a knot and place in the refrigerator to drain.

. The finished Mascarpone should be stored in a covered dish or plastic container and refrigerated. It should be used within 7-10 days due to its fresh nature and high moisture.

The mascarpone will become much thicker once chilled and will become more spreadable when brought back to room temperature. It can also be blended with confectioners' sugar or honey for a sweeter cheese. This makes about 8 ounces.

## **Fresh Cultured Cheeses:**

### **Cultures:**

Cultures are good bacteria, similar to those used to make yogurt and kefir, that you introduce to create flavor, acid and the transformation of milk solids into tasty curd. The good bacteria growth also inhibits the "bad" bacteria, especially since some cheeses are left out (not refrigerated for a period of time).

A word of caution - do not make bread the same day you are making/hanging cheese - yeast will migrate/contaminate and effect the taste and freshness of your hanging cheese.

### **Techniques/Process:**

Cheese making results are about ingredients and timing. If you like a thicker or creamier cheese add some cream or don't drain as long. It is dynamic, the variables can change with the season - spring, summer, fall and winter, what the animals are eating, the temperature and humidity in your kitchen will effect culturing and draining times, therefore consistency (though typically not flavor) can be effected. Every batch can be different. It's good to make notes so you can re-produce your really WOW batches.

## **Chevre and Formage Blanc**

The technique for making chevre (a soft goat milk fresh cheese) and formage blanc (a cow milk fresh cheese) are the same. You can create a softer, creamier texture by draining less time or a firmer cheese like Neufchatel or cream cheese by adding extra cream and draining longer.

Traditionally this is an evening milking cheese. The fresh warm milk is brought in, cultured, renneted, and left to sit out overnight. In the morning it is poured into cheese cloth and then left to drain between 8 and 24 hours.

### **Ingredients:**

1 gallon milk

Culture – 1/2 cup cultured buttermilk or 1/4 tsp. mesophilic DVI culture  
(MM 100 or MA 11)

Rennet – liquid 2-3 drops for goats' milk, 3-4 drops for cows' milk

Calcium Chloride – if using pasteurized milk or goat's milk 1/4 - 1/2 teaspoon

Kosher or cheese salt – 1 1/2 -2 teaspoons

### **Technique:**

Fill the pot 2/3 to 3/4 full of water. Put into the pot the measuring cups, measuring spoon, saucer/plate, spoon/ladle. Put on burner, set on high, and put lid on. When the pot comes to a boil set the timer for 5 minutes. I leave it a while after the timer goes off and finish gathering things.

While your pot is sterilizing – take a cup, add a drop or two of bleach, fill with water, and put the thermometer into the cup to sterilize.

When the timer goes off – remove the lid of the pot. Use the tongs to take out the saucer/plate, then take out the measuring cups and place them on the counter, put the measuring spoon and spoon/ladle/whisk on the plate.

Put a stopper into your sink. Pour the water from the pot into your sink and place the pot on the counter. Empty one gallon of milk into the pot and place it into the sink. Begin stirring to heat evenly. Rinse your thermometer and begin to check the temperature.

When the milk temperature has reached 75-80 degrees, put the pot on the counter. Sprinkle 1/4 teaspoon culture or 1/2 cup buttermilk on the top and let sit for 2-3 minutes.

While the culture is dissolving put 1/4 cup of water in each measuring cup. Add 1/4 teaspoon calcium chloride in the first cup. Add 2-4 drops of rennet to the second cup. More rennet will make a firmer cheese. Typically it is 2 drops for goats' milk and 4 drops for cows' milk. If my rennet is older (may be losing strength) I use 3-5 drops.

Begin top to bottom stirring, add the calcium chloride, continue stirring, then add the rennet. Stir top to bottom 20 times. Remove the ladle, put on the lid and move to a place it will not be disturbed. Let set 12-16 hours. (The warmer the temperature the faster it will set).

## **Draining:**

Place a pan or bowl in the sink to catch the whey, place a colander over the pan, place cheese cloth in the colander. Ladle and/or pour the cheese into the colander. Let it sit 15 to 20 minutes.

Take 2 corners in each hand and tie a square knot with the ends. Hang to begin draining, place a container below, and use a twist tie or two around the cloth just above the cheese mass. This tie will both help it drain faster and makes sure the top does not dry out. You can hang it on a hook under the cabinets or you can take a tall deep pot, find a spoon or dowel that fits across the top, slip the spoon under the knot and suspend it in the pot. You may want to empty the whey over the day: sometimes it will attract fruit flies in the summer. Feed the whey to the chickens/pigs, use it for cooking/baking or watering plants that like acid.

Let the cheese drain for 12 - 24 hours.

Remove cheese from the cloth into a bowl and salt – 1 teaspoon per pound.

One gallon of milk produces about 1½ - 2 pounds of cheese (depends on solids/fat)

The cheese will last in the refrigerator for 7-10 days.

It can also be frozen for about 3 months, freeze plain and add flavors after it is thawed.

Flavor with your favorites - garlic & dill, chives, Mrs. Dash, cranberries, etc. When you do your mix-ins you can adjust the texture to make it smoother by adding some cream or milk. For best flavor add mix-ins at least 4 to 6 hours before serving.

## **ENJOY!**

### **Cream Cheese**

1 gallon of whole milk

1 pint of heavy cream, it can be ultra-pasteurized

Calcium Chloride – if using pasteurized milk or goat's milk ¼ teaspoon

Culture – ¼ cup buttermilk or 1/8 tsp. of MM100 or Flora Danica

Rennet 4-8 drops

Kosher or cheese salt – ½ to 1 teaspoon

Heat milk to 86°, add culture, calcium chloride, rennet. Cover and let set for 12-16 hours at about 70°. Drain for 12-24 hours.

Use in 7-10 days

### **Quark**

A very common cheese from Europe, especially Germany. It is a cheese typically made to be a consistency similar to Greek yogurt. It can be eaten for breakfast (like yogurt), lunch, or dinner and used for desserts and in cooking.

1 gallon milk

1/2 cup cultured buttermilk or ¼ teaspoon mesophilic DVI culture

Rennet – 1 to 3 drops

Calcium Chloride - if using pasteurized milk or goat's milk ¼ teaspoon

Kosher or cheese salt – ½ to 1 teaspoon

Heat milk to 80°, add culture, calcium chloride, rennet. Cover and let set for 8-12 hours at about 70°. Drain in cloth lined colander, when well drained add salt and place into molds to drain for 6-12 hours in the refrigerator. Use in 7-10 days.  
This is a sweeter cheese so less salt is used but it will help shelf life.

### **Skyr**

This is often referred to as Icelandic yogurt but because it uses rennet it is really a cheese. There are two things that distinguish it from Quark, it is always made with skim milk, the cream was taken off and used for butter making, so it is non-fat and it uses a thermophilic culture, in this case yogurt (even better if you can use real Skyr culture from Siggis or Icelandic Provisions plain or vanilla).

The technique is a combination of acid set cheese and high temperature and rennet set cheese.

1 gallon non-fat/skim milk

Calcium Chloride – if using pasteurized milk or goat's milk ¼ teaspoon

¼ cup yogurt or Skyr

6-7 drops rennet

Slowly heat the milk to 185° stirring often to avoid scorching. After the milk reaches temperature remove from the burner and let cool to 110°. Mix the calcium chloride with ¼ cup water and add to the milk stirring to mix well. Add ¼ cup yogurt and stir well, add 6-7 drops of rennet to ¼ cup water, add to milk and stir well.

Wrap the pot in towels or blanket, put in an insulated cooler, or put in the oven with the light on and let set for 8-12 hours.

Drain into cloth lined colander, hang and drain in the refrigerator. Check consistency after 6 hours. Adjust the time for the consistency you want. This cheese can be lightly whipped.

You can check out traditional recipes for eating and using skyr at Icelandic Provision.com

### **Neufchatel**

It is reported in the Encyclopedia Britannica to be the same as Bondon, Malakoff, Petit Carre, and Petit Suisse, depending on the shape into which it is molded (square, rectangular, cylindrical and the special heart-shape variety called Coeur de Bray.) It is easy to make, and may be used like cream cheese with lower fat content.

1 gallon of whole milk

Calcium Chloride – if using pasteurized milk or goat's milk ¼ teaspoon

Culture – ¼ cup buttermilk or 1/8 tsp. of MM100 or Flora Danica

Rennet 4-8 drops

Kosher or cheese salt – ½ to 1 teaspoon

Heat milk to 70°, add culture, calcium chloride, and rennet. Cover and let set for 10-12 hours at about 70°. Drain in cloth lined colander, when well drained add salt and place into molds to drain for 12-24 hours in the refrigerator. Use in 7-10 days.

## **Farmers' Cheese**

This basic cheese is made world-wide and is known by many different names. Originally it was done by “clabbering” milk, letting the evening milking sit out overnight and the natural bacteria in the raw milk starting to work on making lactic acid and creating a curd. Today the biggest distinction of farmers' cheese is that it is drier than the other cheeses made with this process and cutting the curd – the draining time is longer and the curd more distinct. This cheese holds up well to use as you would ricotta in pasta dishes (lasagna & stuffed shells) and makes amazing blintzes.

1 gallon of whole milk

Calcium Chloride – if using pasteurized milk or goat's milk ¼ teaspoon

Culture – 1/2 cup buttermilk or 1/4 tsp. of MM100

Rennet 4-8 drops

Kosher or cheese salt – 1-2 teaspoon

Heat milk to 86°, add culture, calcium chloride, and rennet. Cover and let set for 16-24 hours at about 70°. Cut curd about ½ inch chunks, let settle into the pot 5 – 10 minutes. Ladle into your cheese cloth to keep the cut curd form. Drain for 16-36 hours.

## **Cheese Taste and Texture Variables**

Below are the variables that change the flavor, texture, and moisture content of the final product and to a certain extent determine what the cheese is called.

### **Flavor:**

Type of milk used (cow, goat, sheep, raw or pasteurized) and the amount of butter fat

Type and amount of culture used (buttermilk, MM100, MM101, Flora Danica, etc)

Temperature of milk when cultured – lower temperatures make sweeter cheese

The length of time the cheese cultures/sets – the shorter the time the more mild

Amount of salt used – lighter salt content makes sweeter cheese, salt content affects the shelf life – more salt longer shelf life

### **Texture:**

Type of milk used (cow, goat, sheep, raw or pasteurized) and the amount of butter fat

The amount of rennet used – more rennet will make a firmer cheese in less time

Draining temperature and time – cooler temperature and less time create creamier textures

### **Moisture Content:**

Higher temperatures in all steps (initial culturing, setting, and draining) create drier cheeses

Draining time – the longer the time (in any temperature) the drier the cheese

The amount of time may be largely dependent on the milk you use and how firm you want your final cheese.

### **You can tell when the curd is right by:**

Watching for a thin layer of whey to form on the surface and the curd pulling away from the sides.

Inserting the knife blade flat at a 45 degree angle into the curd and lifting up gently, watching for a nice clean break

Tasting the curd that has formed for the right amount of acid.

For a sweeter cheese: lower temperature and shorter time will be your control.

For a less firm cheese: use less rennet.

For a moister cheese: drain for less time and/or at a lower temperature

If you do have access to raw milk, you will find that you may need to use less culture and that your ripening times are less. Your curd may also be firmer and you may find that the cheese drains faster.

Remember that warmer draining temperatures will drain moisture more quickly. Also, the rate of draining will depend on different milk qualities and higher fat milks will drain more slowly.

If your curd is too soft at the end of the initial ripening time, wait a few more hours (up to another 4-6 hours). If this does not help, try keeping the milk 3-5° warmer on the next try. Also, you can increase the rennet up to double the recommendation.

If your final cheese is too acid, then use less time in the initial ripening phase OR use a bit less culture. If your final cheese is too dry, use less draining time in the cloth. If too moist use more.

#### Resources:

I check out the best prices and the overall shipping costs to decide where I am going to order

Many health food stores do carry rennet tablets, a few carry calcium chloride  
New England Cheese Making Supply – easiest, great website with lots of recipes and reasonable shipping [www.cheesemaking.com](http://www.cheesemaking.com)

#### Books:

200 Homemade Cheese Recipes – Debra Amrein-Boyes

Goats Produce Too! – Mary Jane Toth

Home Cheese making – Ricki Carroll

One Hour Cheese – Claudia Lucero

#### Using Rennet Tablets

One rennet tablet equals 1 teaspoon of liquid rennet.

The best approach for using rennet tablets to equal about 4 drops of liquid is to dissolve 1/4 tablet in 1/4 cup of cold water. Stir well and then use 1 tablespoon for your cheese. Discard the balance as it will de-stabilize in a brief period of time.