

Cheese Making for Beginners – Organic Growers School – Saturday, March 10, 2018

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Overview:

A Very, Very, Very Breif History of Cheese...

Seven Basic Styles of Cheese

Milk – Type, Source and Qualities

6 Basic Steps to All Cheese Making

30 minute Mozzarella

A Very, Very, Very, Brief History of Cheese...

“The actual time and place of the origin of cheese and cheesemaking is unknown. The practice is closely related to the domestication of milk producing animals; primarily sheep, which began 8-10,000 years ago. The art of cheesemaking is referred to in ancient Greek mythology and evidence of cheese and cheesemaking has been found on Egyptian tomb murals dating back over 4000 years. Cheese may have been discovered accidentally by the practice of storing milk in containers made from the stomachs of animals. Rennet, an enzyme found in a stomach of ruminant animals, would cause the milk to coagulate, separating into curds and whey. Another possible explanation for the discovery of cheese stemmed from the practice of salting curdled milk for preservation purposes. Still another scenario involved the addition of fruit juices to milk which would result in curdling the milk using the acid in the fruit juice.”

- Excerpt from “History of Cheese” on The National Historic Cheesmaking Center.

The Seven Basic Styles of Cheese

Fresh: These unaged cheeses are the ones without a rind. They are moist and soft with a creamy texture and mild taste.

Examples include many goat cheeses, mozzarella, ricotta and queso fresco. Feta, not pressed, though it is aged.

Semi Soft: These beauties are your best choice for grilled cheese sandwiches, fondues, and other recipes, as they tend to melt very well. They have thin rinds and springy pastes. They can range from mild to pungent because they can also belong to other categories as well such as Bloomy Rinds, Washed Rinds or Blues. Examples are young Goudas, and most blues.

Bloomy Rinds/Soft-Ripened/Surface-Ripened: You know these cheeses by their white, almost fuzzy rind and creamy (sometimes very creamy) insides. The rind is formed by exposing the cheese to mold spores, which breaks down the protein and fats in the cheese to make it soft and yummy. Examples include Brie, Camembert, Humboldt Fog, and Brillat-Savarin.

Semi Hard: These cheeses are made by pressing the curds into molds and aging them for several months. They can have natural, waxed or cloth rinds, and they can have a wide range of textures, from semi-firm to very firm. They have less moisture than semi-soft cheeses. Think Cheddars and aged sheep’s milk cheeses and Goudas.

Hard: These are the firmest cheeses and generally the most complex. They are aged anywhere from several months to several years. They generally have grainy textures and salty, nutty flavors. Some have an elastic texture when melted, such as Emmenthal or Gruyere. Other are hard cheeses suitable for grating, such as Asiago or Parmigiano-Reggiano.

Washed Rind: You know these when you smell them, but despite their strong aromas, many are mild tasting. These cheeses are washed repeatedly with a salty brine, or with wine, beer, brandy or other interesting liquid during ripening to encourage the growth of the *Brevibacterium linens* (*B. linens*) bacteria, which lends a pungent aroma, full, beefy flavor, and a reddish-orange rind. Cabre al Vino, Pont L’Eveque and Taleggio.

Blue: Their distinctive blue or green streaks make blues hard to miss. Those streaks are created by adding any number of different penicillium mold strains to the milk and then piercing the aging cheeses so oxygen is allowed in and the mold can thrive and give the cheese its unique flavor. Examples include Gorgonzola (Italy), Roquefort (France) and Stilton (Britan).

Types of Milk

Most cheeses are made from cow's milk, goat's milk or sheep's milk. The differences in these milks give particular cheeses very distinct flavor profiles:

Cow's milk tends to create sweet, creamy and buttery cheeses. Cow's milk has more fat than goat's milk, but less than sheep, and is more likely to showcase the cheesemaker's abilities instead of asserting its own inherent traits.

Goat's milk has less fat and tastes lighter. Goat's milk cheese tends to have a fresh, tangy taste and is easier to digest because it has a different/smaller fat molecule. It is also naturally homogenized, so you do not as much cream on top.

Sheep's milk has the most butterfat and it creates rich, fatty, nutty tasting cheeses, though is often less in volume.

Sources of milk

Cheese can be made from raw milk or pasteurized milk. Most cheese lovers believe that raw milk makes the most flavorful cheese, but there are also some really good pasteurized cheeses out there too. By U.S. Federal law, all raw milk cheeses have to be aged at least 90 days to raise acidity and ensure they are free of pathogens.

If sourcing raw milk, make sure you have healthy animals and very tight sanitation practices. Milk is a medium for growing bacteria, some bacteria are what we want, others are not. Be aware of health hazards like e-coli, listeria, brucellosis and tuberculosis, all potential contaminants in raw milk. Practice good sanitation of all equipment and surfaces. Use Boiling water or food grade Sanitizer approved for dairy use.

Milk Terroir & Seasonality

In addition to the type of milk used, a cheese's flavor is also affected by its "terroir". "Terroir" is a French word that literally means territory, but is used to mean all the other environmental factors that go into giving the cheese its specific taste.

These environmental factors include the region of the country the animals live in, the local climate, the altitude, the soil composition, the types of grass the animal eats, and more. All of these elements affect the flavor of the milk and therefore the ultimate flavor of the cheese. The same animal grazing in different locations will produce different a milk and a different cheese.

Cheeses have a season. It goes back to terroir. Cheese made from winter milk, when the animal is eating hay, is going to taste a lot different than one from an animal who has been grazing in alpine pastures during the summer. For that reason, a lot of cheeses are only available during certain times of the year, depending on how long it ages. Also, the animals are not able to give milk year-round, so there may be times when the milk is simply not available to make the cheese. Larger industrial cheeses do not suffer from this, because they are made from milks collected from many different herds, and each herd is at a different point in its lactation cycle.

Six Basic Steps to All Cheesemaking

- 1) While the milk is being very gently heated, starter cultures are added to milk to begin raising the lactic acid in the milk. These cultures along with temperature and humidity are the main elements in determining the final taste of the cheese.
- 2) Rennet is added, which curdles and coagulates the milk, and begins to release the whey, leaving behind the solids, or curds, which have the consistency of custard.
- 3) The curds are cut with special knives, or harps. This further releases the whey by exposing more surface area of the curd.
- 4) The curds are heated and whey is cooked off. How much is removed will affect the consistency of the cheese; the more whey removed, the harder the finished cheese.
- 5) Curds are drained. To make hard cheeses, the curds are pressed under weights to press as much whey out as possible. Semi-soft cheese are drained in molds and not pressed, while soft cheese is drained by hanging in cheese cloth.
- 6) Fresh cheese is salted ready for consumption or market. Aged or hard cheeses are brined, which further draws out the whey, prevents the formation of bad bacteria, and adds flavor.
- 7) Hard cheeses now begin aging, anywhere from a few days to several years. During this time they are continuously flipped and brushed or washed to encourage the formation of a rind and to ensure they ripen evenly. This process is called Affinage. Some cheeses are waxed for aging long periods like Sharp Cheddar and its 4-6 year minimums!

30 Minute Mozzarella: Ingredients, Equipment and How To!

Ingredients:

1 Gallon of Milk (Not Ultra Pasteurized)
1 1/2 tsp Citric Acid
1/4 Rennet Tablet **or** 1/4 tsp Single Strength Liquid Rennet
1 tsp Cheese Salt (adjust to taste)

Equipment:

Good Thermometer
Long Knife to Cut Curds
Spoon or Ladle to Stir Curds
Large Colander
Large Stainless Steel or Enamel Pot

Optional - Food grade, heat resistant gloves for stretching the curds

Recipe:

- 1) Prepare Work Area: Do not prepare any other food while you are making cheese. Put all food products away. Sanitize all equipment and surfaces with dairy approved sanitizer.

- 2) Prepare Rennet: Crush 1/4 tablet of rennet and dissolve in 1/4 cup of cool un-chlorinated water or add 1/4 tsp single strength liquid rennet to the water. Set your rennet mixture aside to use later.

- 3) Mix Citric Acid & Milk: Add 1 1/2 tsp. of citric acid, diluted in 1 cup cool water, pour this into your pot. Now, pour cold milk into your pot quickly to mix well with the citric acid. This will bring the milk to the proper acidity to stretch well later.

- 4) Heat Milk: Heat the milk slowly to 90°F. As you approach 90°F, you may notice your milk beginning to curdle slightly due to acidity and temp. Note: If you're having problems with milk forming a proper curd, you may need to increase this temp to 95°F or even 100F.

- 5) Add Rennet: At 90°F, remove the pot from the burner and slowly add your rennet (which you prepared in step one) to the milk. Stir in a top to bottom motion for approx. 30 seconds, then stop.
Cover the pot and leave undisturbed for 5 minutes.
Check the curd after 5 minutes, it should look like custard, with a clear separation between the curds and whey. If the curd is too soft or the whey is milky, let it set for a few more minutes.

- 6) Cut & Cook Curd: Cut the curds into a 1" checkerboard pattern.
Place the pot back on the stove and heat to 110°F while slowly stirring the curds with your ladle.
Take the pot off the burner and continue stirring slowly for 2-5 minutes. (More time will make a firmer cheese)

- 7) Transfer & Drain Curd: With a slotted spoon, scoop curds into a colander (if the curd is too soft at this point let it sit for another minute or so). Once transferred, press the curd gently with your hand, pouring off as much whey as possible. If desired, you can reserve the whey to use later in baking or as a soup stock.

- 8) Heat Curd & Remove Whey: Pour off some of the whey and re-heat to approx 185 degrees. Once the curd has knitted some, submerge it into the hot whey. Use the ladle to hold the curd until it reaches about 135 degrees and begins to stretch.

- 10) Knead & Stretch Curd: Remove curd from whey and continue kneading until it is smooth and shiny. Return it to the hot whey if needed (if it begins to cool before it's ready to stretch). Add salt near the finish. At this point, if hot enough, the cheese should be soft and pliable enough to stretch, and stretch, and stretch some more (like taffy). This is what makes it Mozzarella!