



The Art of Cheesemaking

What was Little Miss Muffett doing while she sat on her tuffet? She was eating cheese, of course: curds and whey! Ever wonder how natural cheese gets produced? Cheesemaking is a process at once infinitely complex and delightfully simple. Here are the steps.



- 1 Milk:** Quality cheese begins as quality milk. In fact, cheese is sometimes referred to as milk's leap toward immortality. Before the cheesemaking process can begin, fluid milk is tested for purity and quality. Fun fact: It takes nearly 10 pounds of milk to produce just one pound of cheese.
- 2 Standardization:** Many commercially-produced cheeses undergo a heat treatment known as pasteurization that eliminates the natural microflora of the fluid milk. Part of what makes artisan cheese so special is that the cheese is often made on the same farm where the animals are milked. This is known as farmstead cheesemaking. Artisan cheese is also sometimes produced with raw milk, which lends natural starter cultures and taste-enhancing microbes.
- 3 Acidification:** Before milk can be made into cheese it needs to sour. (No joke!) This step is essential because the main sugar found in milk (lactose) must be broken down into lactic acid. In the case of raw-milk cheese, the inherent bacteria of the milk catalyze this process, but pasteurized milk needs more of a kick start. In both cases, the cheesemaker carefully controls which bacteria are allowed to proliferate and also the temperature of the milk. This helps to ensure a safe and standardized final product.
- 4 Starter Culture:** For nearly all commercial cheesemaking, a starter culture of good bacteria is added to initiate the cheesemaking process. These microorganisms are essential for the development, flavor, and texture of the cheese. Different cultures will produce different cheeses! For example, the holes (known as eyes) that are inherent to Swiss cheese are made as a result of these bacteria (for the science geeks: they're known as *Propionibacterium shermanii*).
- 5 Coagulant:** Rennet is the next ingredient added. This enzyme, originally derived from the stomach of a ruminant animal, causes the milk to coagulate into curds (solids) and whey (liquid), with the curds binding firmly together. Today, many alternative rennets are used, but without rennet, cheese as we know it would not exist!
- 6 Cutting:** After the milk completes coagulation, the curds are uniformly cut into smaller pieces. This helps to expel any excess whey. The size of the cut depends on the type of cheese being produced. For harder cheeses, like Parmigiano-Reggiano, the curds are cut as small as grain size pieces (which is why they're also known as grana-style). To make softer cheeses, such as Mozzarella and Ricotta the curds are cut into larger pieces and then very gently maneuvered.
- 7 Heating & Hooping:** Gentle stirring and heating continues until the desired firmness of the curd is achieved. Afterwards, the whey is drained, leaving behind just the gelatinous solids. The curds are gently molded by being placed into appropriately sized "hoops." The shape of the hoop reflects the desired final shape of the cheese.
- 8 Pressing:** The pressing step helps to determine the final shape and texture of the cheese, as well as to continue to regulate its moisture. Depending on what style of cheese is being made, this step can take a few hours or even several days!
- 9 Salting:** Salt is an essential ingredient in cheese. While salt certainly adds flavor, it is also an important desiccant and critical for tempering bacterial growth. Cheese can either be dry or wet salted. In dry-salting, salt is added to the curds before pressing occurs or afterwards when it is rubbed on the exterior of the cheese. Wet-salting, also known as brining, means the cheese is immersed in salt brine for hours or up to several days.
- 10 Curing:** The formation phase is complete; our curds are now cheese, but they still have a ways to go to become the cheeses we know and love. This stage has high variability between cheeses. Curing is considered to be any treatment that sets the cheese up for a successful aging process. Certain cheese varieties are rubbed, brushed, or sprayed with oils and spices, while others are wrapped in cloth or even bark! Some are washed to increase the moisture of the cheeses' surface and create a more favorable environment for bacterial growth. These treatments are essential for developing the characteristic flavors of the cheese.
- 11 Affinage:** We've done all that we can up to this point to ensure the best product; the rest is up to the cheese. *Affinage* is a French term for ripening or aging. Aged cheeses are moved to an expertly-controlled room. High humidity, moderate temperatures, adequate ventilation, and protection from pests and pathogens are ideal for the aging process. This aging step helps the cheese fully develop its flavor and texture. Cheese may be aged 1 month, 1 year, or even 10 years or more!