

# Scandinavian Cheeses Malcom Jarvis

QuesoDiego Cheese Club, 19 February 2013

**Scandinavia** is a historical region in Northern Europe characterized by a common ethno-cultural Germanic heritage and related languages. This region encompasses three kingdoms of Denmark, Norway, and Sweden. Modern Norway and Sweden proper are situated on the Scandinavian Peninsula, whereas modern Denmark is situated on the Danish islands and Jutland.

Sometimes the term Scandinavia is also taken to include Iceland, the Faroe Islands, and Finland, on account of their historical association with the Scandinavian countries. Such usage, however, may be considered inaccurate in the area itself, where the term Nordic countries instead refers to this broader group. The vast majority of the human population of Scandinavia are Scandinavians, descended from several (North) Germanic tribes who originally inhabited the southern part of Scandinavia and what is now northern Germany, who spoke a Germanic language

Pairing wines and cheeses from the same region is a good, "safe" place to start wine and cheese combinations. Unfortunately, the Scandinavian countries do not make any good wine that I am aware of.

## Cheeses Of Norway

**Gammelost** It is a traditional Norwegian ripened table cheese with irregular blue veins made principally in the counties of Hardanger and Sogn. It is rich in protein with low fat content, measuring 1% fat and 50% protein. Moisture, not more than 52 percent (usually 46 to 52 percent) ash, 2.5 percent; and salt (in the ash), 1 percent

Its name translates as "old cheese" because the rind grows a mould that makes it look old before its time. When young, the cheese itself is **brownish-yellow** with a **blue-green** tint and a texture that is quite soft but coarse and granular while the natural crust rind is hard, pitted, and brownish colored. As the cheese ages the color darkens and the cheese hardens but the granular texture remains.

Gammelost has a long standing time, does not require refrigeration and can be stored for long periods. Once a staple of the Norwegian diet, it was normally eaten with flat bread, dry meats and stockfish. It's taste is pungent, with a sharp aroma and a granular texture. It is usually made from skimmed cow's milk and formed into the shape of a drum.

This cheese is traditionally served after dinner as a dessert and goes well with alcoholic beverages like gin or aquavit.

If traditional production methods are used making Gamalost is very labor intensive, tedious and time-consuming. Everything depends on the proper fermentation and maturation. It is not made in sufficient quantity for mass export and as such, it is rare to find the cheese outside Norway.

To make Gamalost, lactic starter is added to skimmed cow's milk, causing it to sour. After several days of souring, the milk is slowly heated, before the curds are separated and pressed into forms. The cheese comes out round and flat, usually about 6 inches in diameter, and from 5 to 6 inches thick weighing between 6 and 9 pounds, although some cheeses may weigh more than 25 pounds.

After removal from the forms, mold is introduced onto the surface of the cheese, rubbed on by hand in the traditional method. The principal ripening molds are species of Mucor, Rhizopus, and Penicillium. The cheese is then allowed to cure for four to five weeks. The cheese is made by one method in Hardanger and by a slightly different method in Sogn.

In the Hardanger method, about 0.5 percent of lactic starter is added to skim milk and, after souring for a day or two at 66 degrees F., it is put into a vat and warmed slowly to 145 degrees. After about 30 minutes at that temperature, the curd is dipped into cloth bags and pressed heavily. After pressing, the curd is removed from the bags, broken up, and packed in cloth-lined forms which then are covered and placed in boiling whey for 3 1/2 hours. This practically sterilizes the cheese and changes its texture. The next day the cheese is removed from the forms and put in a warm place for a day or two to dry, after which it is pierced with metal needles that have been inoculated with a mold-Penicillium roqueforti, or a related species-that develops a greenish-blue mold throughout the cheese. It is then placed on shelves in a curing room which is maintained at a temperature of 50 to 55 degrees and a relative humidity of 90 percent.

A Mucor, which is propagated by hand rubbing the surface with mycelium from older cheeses, develops on the surface of the cheese. The cheese is inverted daily or at least every other day, and rubbed or cleaned if necessary. The curing period is about 4 weeks or somewhat longer.

In the Sogn method, 1 1/2 to 2 percent (Not the .5% of the other method) of lactic starter is added to the skim milk, and it is soured at a temperature of 72 to 75 degrees F.; on the second day, the milk may be transferred to the cheese vat where souring is completed at a temperature of 77 degrees. When the milk has reached the desired stage of souring (a later stage than in the Hardanger method), it is heated slowly to the boiling point. The whey is removed, and the curd is heated to about 195 degrees, then placed in forms to drain. The forms are covered with cloths and kept in a warm place. After the whey has drained off, the curd is removed from the forms, crumbled fine, inoculated with mold, and repressed. The next day the cheeses are removed from the forms, dried in a warm place for 4 or 5 days, and then taken to the curing room. The curing process is the same as in the Hardanger method.

In both methods, after the cheese is partly cured, it may be put in chests lined with straw that has been treated with heated juniper extract. The yield of cured cheese is between 4 and 5 1/2 pounds per 100 pounds of skim milk

Most people say both its taste and smell resembles something that has spent a few months inside a sweaty old sock. As you know, nothing pleases a true tyrophile more than a slice of stinky old sock. Maybe that's why this cheese is hard to find commercially and is available only in Norway. Admittedly, perhaps due to the taste, younger Norwegians are falling out of love with it, even if it does have the nickname of ??????????????

Norwegian Viagra because back in the days of Vikings it was used to enhance sexual prowess.

Here is one person's experience and reaction to this cheese.

"...This cheese is an assault on the senses in pretty much every way. In appearance it looks like someone took brown sugar and pressed it into a mold, it is devoid of any identifiable paste and, upon peeling back the plastic wrap, step two of the assault begins. It smells like cheese that's gone bad, that Camembert you tossed out last week or the Roquefort that is warm and liquid enough to make into a smoothie. Step three is eating it. It is granular and chewy, lingering in your mouth and asking the question "why?". The flavor is pretty much like the smell, only lacking that life-saving distance from your tastebuds. It is sharp, very sour, devoid of any creaminess or sweetness, or any of the charm of the more potent blue cheeses. The flavor lingers making the very air in your mouth sickly warm and sour, probably as a reminder to safeguard against a second bite. Chase it with something strong, maybe a single malt."

**JOKE What type of cheese is made backwards . . . . . Edam**

## Gjetost

**Gjetost** (pronounced "yay-toast") It is another Norwegian whey cheese (the liquid by-product of cheesemaking.) although it is made in many countries besides Norway.

**Brunost** or **mysost** (Norwegian), or **mesost** (Swedish), **mysuostur** (Icelandic), **myseost** (Danish) or **Braunkäse** (German) is a caramelized brown Scandinavian whey cheese. The Norwegian and German names mean brown cheese, and the others mean simply whey cheese.

The Norwegian origin is a sweet red-orange gourmet cheese and is served in a traditional Norwegian breakfast. Gjetost is as sweet as caramel, with the texture of a dense, buttery fudge. Gjetost is delicious on its own, don't get me wrong. It is toothsome and rich, and lingers on the palate for miles, which must appeal to those Norwegian skiers, who pack it as a hearty snack on the slopes. (You may also hear it referred to as "ski cheese.") You'll be left smacking your lips, just trying to de-stick it from the roof of your mouth: it's like the peanut butter of cheese. There's the slightest hint of acidity at the finish, serving as reminder of its to the cheese family. This is seriously sweet stuff, due primarily to its make process.

Gjetost is usually made from a combination of goat's milk and cow's milk. Occasionally, it is made from only goat's milk or only cow's milk. In either case, when making the cheese, the whey is slowly cooked until the milk sugars are caramelized. This results in a deep caramel-colored cheese with a soft, spreadable texture, a sweet flavor and a distinctive aroma. The texture of the cheese ranges from semi-firm to the consistency of stiff cream cheese. When Gjetost is produced with only goat's milk, it is referred to as Ekta Gjetost. The cheese produced with only cow's milk is known as Mysost or Primost and has been termed the ultimate Nacho Cheese sauce. Most forms of Gjetost cheese are produced in small blocks. These cheeses are often served with dark bread or Norwegian flatbread. They also serve as dessert cheeses and can be used in numerous cooked dishes.

If you want to try something unusual, make fondue of this cheese. The process couldn't be easier. Throw some sugar, cinnamon, and heavy cream into a fondue pot along with the gjetost and some cognac or vanilla stir away until smooth. And smooth, it gets. Just be careful not to overheat, and if you need additional thinning while eating, add heavy cream, a teaspoon at a time. You'll have the closest thing to dolce de leche in cheese form.

The recipe suggests serving the fondue with bananas and pecans, but I could imagine it going nicely with apples, pears, dried apricots, and figs, or even with shortbread, biscotti, and a dessert wine or sherry, if you're serving it after dinner.

## Jarlsberg

Jarlsberg is a cheese that is very much like a type of baby Swiss cheese and is known for its distinctive sweet and nutty taste, and of course, those large, round holes. The numerous holes are much like those of Swiss Emmental cheese and is often called the Norwegian Emmental Cheese.

The texture is also quite similar, but the flavor is a bit sweeter with a more pronounced nutty taste. Jarlsberg is excellent when grated, sliced and served in sandwiches or when eaten plain as a snack. To accentuate *Jarlsberg Cheese's* sweet, nutty flavor and open texture, choose light, fresh white wines rather than reds. Dry or semi-dry whites made from Chardonnay or Riesling grapes are your best bets. Think Chablis, White Burgundy, or a light, spicy Gewürztraminer. *Jarlsberg Cheese* also combines pleasantly with most beers.

For those with a taste for stronger drink, *Jarlsberg Cheese* combines perfectly with Aquavit, a traditional Scandinavian liquor distilled with aromatic flavorings like caraway, cumin, cardamom, orange peel, aniseed and fennel.

## Nokkelost

Produced in factories throughout Norway and the United States, Nokkelost cheese is a traditional creamery cheese made from partially skimmed cow's milk. Similar in appearance and flavor to the Dutch cheese, Leiden, Nokkelost Cheese is slightly milder in flavor and softer

in texture. It is also typically seasoned with caraway, cumin, and cloves, which add a distinctive taste to the otherwise mildly flavored cheese. Also referred to as Kuminost cheese, Nokkelost is allowed to mature for two to three months, at which time it becomes a semi-hard textured cheese. A thin natural rind also develops around the cheese. When Nokkelost cheese is ready for market, the cheese is formed into wheels or blocks, and then it is usually covered with a bright red paraffin coating.

The Norwegian term, *nokkel*, means *crossed keys*, which is part of the symbol used by the Dutch city of Leiden to denote products produced within, and adjacent to, the city; therefore, the packaging and name of Nokkelost cheese may display a crossed-keys emblem to symbolize its association with the Leiden heritage that dates back to the seventeenth century. Nokkelost cheese is a good choice for snacking, for serving as an appetizer, or for use as a topping melted over potatoes and meats.

## **Pultost**

Made from cow's milk, Pultost is a traditional Norwegian cheese that is produced as a soft cooked-curd cheese. The cheese is made from skimmed milk that is heated and allowed to curdle naturally, which is the reason why Pultost is often referred to as a sour-milk cheese. As it is processed, the cheese is flavored with caraway seeds. It is then produced as either a spreadable cheese or as curds. The spreadable form has a more intense flavor and aroma than the curds. Pultost cheese is also referred to as Knaost or Ramost cheese.

## **Ridder**

Ridder is another semi-soft cheese of Norwegian origin. It is made from cow's milk. It is a type of cheese that is often duplicated in other countries throughout the world. Ridder cheese has a creamy, pliable texture and a buttery, sweet, and somewhat nutty flavor. Produced in flat wheel shapes that feature a washed orange rind, Ridder cheese is aged for several months before it is marketed.

Ridder cheese is most often served with fruits and vegetables used as a cold sandwich ingredient, and/or melted in grilled sandwiches. Other cheeses that are similar to Ridder are Père Joseph, Port Salut, Oka, Saint-Paulin, and Trappist.

## **Ridderost**

Produced from pasteurized cow's milk, Ridderost is a Norwegian cheese made with an outer coating of annatto, which is a rust-colored paste commonly used to provide a distinctive orange color to a number of cheeses. Semi-firm in texture, Ridderost cheese has a smooth, buttery flavor that is also somewhat mildly sharp. Ridderost can be served as a snacking cheese, a cheese to accompany appetizers, or as a cheese that can be added to salads.

# **Cheeses Of Sweden**

## **Adelost Blue**

Adelost Blue is a Swedish cheese that is made from cow's milk and is characterized by streaks of dull blue mold that run throughout the cheese. Adelost Blue is also characterized by its moistness and creaminess. When the cheese is processed, it is formed into drum-shaped cylinders that weigh approximately five or six pounds (two or three kilos). Encased in a natural rind dusted with molds, this cheese has a sharp, tangy flavor that makes it an excellent choice as an ingredient in salads, for use as an appetizer, or for serving as a dessert cheese. Swedes tend to love blue cheese on ginger biscuits and I say don't argue with anyone who invented Billy bookcases, Volvos and the zipper.

It is a variety of blue cheese that is produced much like the well known Bleu d'Augverne cheese. [**Bleu d'Auvergne** is a French blue cheese made from cow's milk,, named for its place of origin in the Auvergne region of south-central France. It is one of the cheeses granted the Appellation d'Origine Contrôlée from the French government.]

A sweet wine such as port, sauternes, sweet riesling etc go well with the salty taste of most blues. The sweetness of the wine clings to the fat in the cheese and creates an amazing taste sensation. Blue Cheese is a very deeply flavored cheese. It is salty, pungent, spicy and moldy. The texture is also very rich. One of the best ways to match this depth of flavor is with a sweet wine from Sauternes. The wine and food both need to have the same flavor "weight". Not only does the Sauternes match the depth of flavor with its powerful sweetness, but its unctuous texture and viscosity harmonize with the creamy mouthfeel of the blue. The salty/sweet interplay is very fun.

## **Bondost**

Bondost is a cow's milk cheese that originated in Sweden. It is made into small wheel shapes that are five to eight inches in diameter and about three to five inches thick.

Bondost cheese is produced from either raw cow's milk or pasteurized cow's milk, and it is often flavored with ingredients such as caraway seed or cumin. It has a texture that is firm and a flavor that is mild. When the cheese is produced, it is cured in brine and then allowed to dry. It is ready to be eaten in approximately two months. There are several varieties that are cured for only one or two days, but the most flavorful varieties are those that are cured from several weeks to two months.

Although Sweden is where the cheese originated, a version of Bondost cheese is also produced in the United States. Bondost can be served as an appetizer or simply as a snack.

## **Graddost**

Graddost cheese is a Swedish cow's milk cheese that has a firm texture and mild flavor. It is comparable to the Danish cheese, Havarti, with its distribution of small holes throughout the cheese. Graddost is an excellent choice to serve as a snack or appetizer and it makes a tasty addition to sandwiches.

## **Greve**

Greve is a semi-hard cheese made from cow's milk. Large, walnut-sized eyes/holes and a clover green wax distinguish this cheese's appearance. This cream-colored cheese has a sweet, nutty flavor that opens on the palate with a world of fruit flavors, from nectarine to white grape and becomes more intense as it ages. The finish is just slightly sharp, leaving your mouth feeling clean with a certain acidic dryness.

Guldgreve, like traditional swiss cheeses, melts wonderfully without much separation. It is another cheese that is similar in appearance and taste to a Swiss cheese, such as Emmental, but it is native to Sweden. The cheese ripens in about ten months.

Greve cheese is commonly served as a table cheese, snack, or appetizer. Its semi-hard properties also make it a good grating and melting cheese. Greve may also be referred to as Gréveost.

## **Herrgardost**

Herrgardost is a very popular Swedish cheese made from cow's milk. It has a pale yellow color and a soft supple texture. The cheese contains many small holes throughout.

The flavor of the cheese is very similar to cheddar: nutty and somewhat tangy, which intensifies with age. Herrgardost cheese is typically aged for six months or more if it is made with whole milk or approximately four months if made with skimmed milk.

It is a good choice for snacking, for use in sandwiches, or for adding to salads. It also had good melting properties, which makes it useful for a wide variety of recipes. Herrgardost cheese may also be referred to as Herrgard cheese.

## **Kryddost**

Kryddost is a Swedish cheese that is notable because it is seasoned with caraway and cloves, which give the cheese a distinctive flavor. In order for the cheese to reach its optimum flavor and texture, it needs to ripen for several months before it can be eaten.

## Cheeses Of Denmark

### Danablu (Danish Blue)

The term, *Danish Blue*, refers to a variety of blue cheeses that are produced in Denmark using traditional methods that were formulated to make French blue cheeses, such as the pasteurized variety known as Bleu d'Auvergne and the unpasteurized variety known as Bleu des Causses. The blue cheese varieties grouped as Danish Blue are all made with cow's milk.

The flavor of many Danish Blue cheeses is one of a natural grass, clover, and wildflower combination with a nutty overtone that is also somewhat salty and smoky at times and is excellent served on just about any kind of bread. Mash it with a bit of syrup to change its character and use it to spread on crisp bread, topped with some sunflower seeds - it really works.

The moistness of Danish Blue cheeses allow the cheeses to be cut and sliced quite easily using a wire cheese cutter. Danish Blue cheeses go well with a robust red wine, such as a Cabernet. The greatest pioneer in the history of Danish cheese is undisputedly the farmer's daughter Hanne Nielsen (1829-1903). In the 1850s she established an ambitious Danish cheese production plant based on milk that she bought from her husband's farm.

In 1874 she also made the first Danish blue cheese inspired by the French cheese Roquefort, which she had encountered on one of her many study trips abroad. Around 40 years after Hanne Nielsen made her blue cheese, the dairyman Marius Boel created Danablu, "Danish Blue Cheese", which is now recognized by the EU as being uniquely Danish and has the designation PGI, **protected geographical indication**. Tradition has it that, as a child, Marius Boel had noticed that mouldy bread had a distinctive, piquant taste and that, when he was an adult dairyman, he transformed this memory into innovation.

From 1914 he experimented with adding a little dried, pulverised mouldy bread to fresh curd. And when, in the 1920s, he also found out how to homogenize milk, he had created an original, unique Danish blue cheese.

The consistency was creamy, fat and cuttable and the taste was round, piquant and full of nuances. Visually, the cheese was characterized by a beautiful, almost regular blue-green marbling that tended to decrease towards the outer edge of the cheese. This was Danablu, "Danish Blue Cheese", as we know it today.

Danablu has since conquered the world and gained a lot of international recognition. For example, it has almost become a tradition for Danablu to win gold in its category and become the overall world champion at the cheese world championship in Wisconsin, USA.

Danablu is made from full fat cow's milk and homogenized cream, to which mould culture and natural rennet are added. When the milk is hardening, the curd is pricked with needles because the mould culture needs a lot of oxygen to develop.

The storage of Danablu is a craft that requires knowledge and love. The cheeses mature for 5-6 weeks and are turned carefully roughly every 3 days so that the mould gets enough oxygen to spread evenly from the interior of the cheese to the entire cheese. The storage contributes to creating the character of Danablu.

## Castello Blue

Castello Blue is a soft blue-veined Danish cheese made from cow's milk. It has a mild, buttery flavor with a hint of spiciness; and the aroma of the cheese is that of mushrooms.

Castello Blue cheese is quite popular in Denmark because of its spreadable quality, which makes it an excellent choice for appetizers or to serve as a snacking cheese. It goes quite well with fruits and nuts.

## Danbo

Danbo cheese is a semi-soft cow's milk cheese from Denmark. It has a yellow colored wax rind and is pale yellow and dotted with holes on the inside. The cheese is available in rectangular shaped blocks weighing anywhere between 6 to 9 kilos and these blocks are often coated with wax. Some producers also make it in wheel shaped form. The blocks have a cover of bacteria culture, which is washed away at the end of the aging cycle, before the cheese is packaged for sale. The aging period for the cheese is 12 to 52 weeks.

The cheese is elastic in texture and has small holes across it. The taste is sweet and nutty. The mild taste of the cheese turns sharper with aging. One variant of this cheese has caraway seeds added during the production process. Popular brand names under which the cheese is sold include Lillebror, Riberhus and Gamle-Ole. Danbo cheese is most often used for sandwiches, snacks, hors d'oeuvres, and grilling.

The regular form of the cheese has 45% fat, while the low fat variant has 20% fat content. Danbo is thus rich in fat content, which makes it good for gaining weight. The calcium content of the cheese makes it beneficial in bone and dental care, and in conditions of osteoporosis and hypertension. It is also a good source of vitamin B which is useful in efficient functioning of various body parts.

## Esrom

Esrom is a Danish cow's milk cheese, but it is made from partially skimmed milk rather than whole milk. Light yellow in color, Esrom has a mild, sweet flavor and a somewhat intense aroma. The texture of the cheese is semisoft with an elastic quality. Scattered throughout the cheese are small random holes.

Esrom is suitable when served as a table cheese, when used as a flavorful addition to sandwiches, or when used as a good melting cheese. Depending on the age of the cheese, Esrom can also have a very soft consistency, which allows it to be quite spreadable, making it an ideal choice to spread on crackers or fruit. Esrom is also known by the name, *Danish Port-Salut*.

## Fontina

Fontina cheese originated in Italy, but a similar version is also produced in Denmark. The color of both the Italian and Danish versions is a pale straw yellow and the texture of both is firm but creamy. The flavor is buttery with a slightly nutty taste. The traditional Italian version is made from unpasteurized cow's milk.

The best Fontina cheese is thought to be that of the Val d'Aosta region of northwestern Italy where the cheese originated; however, Danish Fontina is also quite good. Fontina cheese is also produced in other regions and countries besides Italy and Denmark.

Fontina cheese is often used as a dessert cheese, especially in Italy. It is also used as an ingredient in a popular Italian version of fondue.

## Saga Blue

Saga Blue is a type of Brie cheese that is classified as blue cheese in Denmark. Made as a double cream cheese from cow's milk, Saga Blue cheese contains a delicate blue mold that may not appear similar to other varieties of blue cheese. With a very soft texture and a mild

but somewhat tangy flavor, Saga Blue cheese is made in much the same fashion as a soft and creamy Brie-type cheese. Like other Brie-type cheeses, Saga Blue has an edible white mold rind. Saga Blue cheese pairs nicely with hearty red wines, as well as sweeter white wines, such as a Riesling.

## Havarti

Havarti cheese originated in Denmark where it is still quite popular. The cheese has a texture that is semisoft and creamy. Small holes are scattered throughout the cheese. The majority of Havarti cheese is sold after it has aged about three months, at which time the flavor is still quite mild. If left to age for longer periods, the flavor of the cheese becomes much sharper. Havarti is popular as a dessert cheese served with fruit and wine.

**Havarti** or Cream Havarti (*Fløde Havarti* in Danish) is a semi-soft Danish cow's milk cheese. It is a table cheese that can be sliced, grilled, or melted.

In 1952 Havarti cheese was named after the *Havarthigaard* in Øverød, north of Copenhagen, where the owner Hanne Nielsen had developed modern cheesemaking in Danish agriculture during the last half of the 19th century. Havarti was, however, not introduced in Denmark until app. 1920.

Havarti is made like most cheeses, by introducing rennet to milk to cause curdling. The curds are pressed into cheese molds which are drained, and then the cheese is aged. Havarti is a washed curd cheese, which contributes to the subtle flavor of the cheese. Havarti is an interior-ripened cheese that is rindless, smooth and slightly bright-surfaced with a cream to yellow color depending on type. It has very small and irregular openings ("eyes") distributed in the mass.

Havarti has a buttery aroma and can be somewhat sharp in the stronger varieties, much like Swiss cheese. The taste is buttery, and from somewhat sweet to very sweet, and it is slightly acidic. It is typically aged about three months, though when the cheese is older it becomes more salty and tastes like hazelnut. When left at room temperature the cheese tends to soften quickly.

The original Havarti is different from *flødehavarti* ("cream havarti"), which is made from high-pasteurized milk, so that the whey proteins that would otherwise be eliminated during production remain in the curd. This raises yields but alters the taste and texture. Cream havarti usually ripens very little, since the remaining whey proteins cause problems (off-taste, odd appearance) during prolonged ripening. Flavored variants of Havarti are also available, such as cranberry, garlic, caraway, dill, basil, coconut, sour cream & chives, red pepper and jalapeño.

## Making Havarti

To create a wonderful, matured product consistently is tricky business. Even when a home cheesemaker does everything right, they are lucky to succeed more than half the time. That said, here is a do-it-yourself challenge. This recipe for Havarti-style cheese is simple, but it spans the basic steps pertaining to nearly all aged cheeses: ripening, coagulating, cutting, cooking, draining, brining, and aging. Newcomers working through these stages will gain a true understanding of the cheesemaker's craft, and in three months when the Havarti has matured, you just might count yourself among the successful.

### Makes about 2 pounds of cheese

#### equipment:

- o 10-quart stainless steel or enamel pot, plus a larger second pot
- o Large stainless steel spoon, for stirring
- o Dairy thermometer
- o Long (at least 10-inch) knife or spatula
- o 4- to 5-inch-wide and 5-inch-deep bottomless cheese form
- o Sieve or fine-mesh strainer



- o 2 small cutting boards or bar boards
- o 2 wooden sushi mats
- o Cookie sheet or other surface for draining
- o Plastic wrap or vacuum-sealing system such as FoodSaver

### **Ingredients:**

2 gallons whole milk (not ultrapasteurized; use the freshest pasteurized or non-homogenized milk available)

1/2 teaspoon whole cumin, caraway, or fenugreek seeds (optional)

1/2 teaspoon Flora Danica mesophilic culture

1/2 teaspoon 30% calcium chloride solution

1/2 teaspoon animal or vegetable liquid rennet

1 1/4 pounds pickling salt (about 3 cups)

### **1: Clean everything**

All equipment that comes in contact with milk or cheese must be sanitized. After washing, immerse each piece in boiling water. If using spices, combine them with 2 tablespoons nonchlorinated water and cook or microwave the mixture until it boils. Set aside.

### **2: Ripen the milk**

Place the large pot on the stove and insert the smaller pot inside it. Pour the milk into the smaller pot. Pour hot tap water into the outside pot; this creates a water jacket that will heat the inner pot evenly. Add the spices and their cooking water to the milk. Heat the milk, stirring gently, until it reaches 86°F (30°C). Add the culture and stir thoroughly. Let the mixture ripen for 30 minutes, maintaining a temperature of 86°F (30°C). At this stage, the cultures will grow slowly and acidify the milk, preparing it for coagulation.

### **3: Coagulation**

Add the calcium chloride to the milk and stir. In a small container sanitized with boiling water, combine 1/4 cup water and exactly 1/2 teaspoon rennet. Stir the milk, add the diluted rennet, and continue stirring for 1 minute. Cover the pot and let it rest for 30 minutes. The enzymes in the rennet will cause the milk proteins to coagulate, turning the mixture into a semi-solid gel.

### **4: Cutting**

Check that coagulation is complete by inserting a clean finger just under the surface of the mixture and lifting gently. It is ready when the curd separates with smooth sides (this is called a clean break). If the curd is not firm enough, check it again in 10 minutes.

Insert a long knife or spatula to the bottom of the pot and cut the curd into 1/2 inch strips from one side of the pot to the other. Rotate the pot 90° and make a second series of slices perpendicular to the first set, creating a checkerboard pattern. Let it rest for 5 minutes.

Insert the spoon below the surface of the curd to slice the long columns into 1/2-inch cubes, as uniformly as possible. Then stir the curds gently for 10 minutes, cutting any large curds that appear. (Cutting the curds helps expel liquid whey and allows the curds to shrink into what will eventually become cheese.)

### **5: Cooking / Washing**

Using the sieve and cup, remove as much whey as possible, keeping track of the amount removed. Replace with an equal amount of 115°F (46°C) water. Adjust the heat to maintain 96°F (36°C). Continue cooking and stirring slowly for 40 minutes. This technique of replacing whey with water is known as "washing the curds," a process that helps extract lactic acid created by the culture, leading to milder flavor. Washing also changes protein chemistry to create a smooth cheese texture.

### **6: Draining and Molding**

On an appropriate draining surface (I use a cookie sheet tilted slightly to drain into a sink), place a small cutting board. Cover with a sushi mat, followed by the cheese form.

Let the curds settle to the bottom of the pot and remove as much whey as possible. Immediately scoop the curds into the cheese form. Pack tightly, avoiding large air pockets. Once the form is full, cover with the second sushi mat, followed by the second cutting board. Allow the curds to settle and drain in the form for 15 minutes. Now, holding one hand on the top cutting board and one hand on the bottom cutting board, carefully slide the boards, with the mats and the cheese in between, off the draining surface. Flip, and return to the draining surface. Repeat in 30 minutes, and again 1 hour later. Allow the cheese to drain overnight, flipping once every few hours, if possible. (Traditional Havarti presses only under its own weight.)

### **7: Brining**

Mix the pickling salt into    gallon cool water to make a brine solution. Not all of the salt will dissolve. Remove the cheese from the form and soak it in the brine for 1 1/2 hours, turning the cheese over after 45 minutes. Remove the cheese from the brine and dry at room temperature (63°F to 70°F, or 17°C to 21°C) for 1 to 4 hours, until the surface is dry. (Almost all cheeses are brined, which slows starter culture growth, aids in preservation, and improves flavor.)

### **8: Aging**

Wrap the cheese tightly with plastic wrap, or a FoodSaver. (Some cheesemakers use wax) Age the cheese in a 55°F (13°C) environment for 3 months, flipping the cheese every few days. A wine refrigerator or a modified mini-refrigerator can provide a good aging environment. Check the cheese regularly for mold growth. If any occurs, unwrap it and wipe off the mold with a paper towel dipped in a solution of 1/4 cup white vinegar and 1 tablespoon salt. Reseal with new plastic and continue aging. This process allows enzymes to break down proteins and fats slowly, creating new compounds that give aged cheese its flavor. Be patient. And good luck.