



Icelandic Sheep Breeders of North America

Volume 6 No.3 Summer 2002
Editor, Jennifer Vancalcar

Farmstead Cheesemaking Part Two: Why is everything so technical? Plus Surface Ripened Cheese 101

Liz Harker, Back Forty Sheep Camp

Art and science

The art adds the flourishes and the creation of subtle shifts that produce unique and memorable cheese. The science determines how everything meshes together and sets the limits on how far you can shift the process to achieve a specific result. In my mind, the technical aspect grounds the whole process. In Part One, I glorified raw ewe's milk and shared a bit of how I feel about cheesemaking. Hopefully a few brave souls enjoyed some feta cheese! Part Two is going to stretch the bounds of what is considered technical!! If a budding artisan is to advance beyond simple brine cheese, you need to have room to grow! When we first started making cheese at Back Forty, we had cheeses hidden all over the house in cool rooms, cupboards, you name it and it had cheese in it. If you plan to eventually make cheese in quantity, you will need a ripening room, an aging cave or similar, and accurate record keeping regarding process and temperature fluctuations in case you ever want to reproduce that little award winning cheese you come up with quite by chance! Once these aspects of cheese production are in place, the sky is the limit as far as cheese exploration goes! I love Brie and Camembert, and Soft Surface Ripened Cheese 101 offers some hints and a recipe for producing such delectable heavenly pies (of course, we can't call our own creations Brie or Camembert, or the cheese police will come after us...).

Ripening rooms, aging caves, temperature, and humidity

In an ideal cheesemaking world, we would all have an extra room to convert into a ripening room in which we could control humidity, temperature, and ventilation. We'd probably also have on our property a natural cave that was cool in the summer and moderate in the harshest winter storm; a safe place where our little gouda and romano cheeses could safely grow into mature cheese. Ahhhh. Most of us will have to settle for less or be creative in our interpretation of the word "room" or "cave"!

You need to control temperature and humidity in your ripening room. Some folks use a fridge quite successfully, with a pan of water in the bottom to encourage a humid environment, although I find new fridges are too cold. The exact humidity and temperature for ripening cheese depends on the cheese you are making, although many need a relative humidity around 75% and a temperature of about 55 F. Many basement rooms can fall into this range at certain times of the year. Some people ripen cheese in plastic boxes with lids that can be aerated (by swinging that lid around!) or closed up to encourage higher humidity. You have to find a system that works for you. When we first started making cheese, our kitchen cupboards were the right temperature and we used plastic boxes to keep the cheese moist. All my pots, pans, etc. were scattered around the rest of the house during this stage of the operation. We now have a wee ripening/aging room, so the pots are back in their regular spots...no one is stubbing toes on them anymore. Temperature helps determine what kind of cheese you produce and how quickly it becomes mature. Warmer aging temperatures speed up the ripening process, while keeping cheese very cool at, say 36 ° F, will prolong the aging process and the life of your cheese. Too humid or too dry environment will hinder desirable mold growth on the outside of your little round masterpiece. You will have a difficult time achieving blue veining, such as is found in Roquefort or Cambozola without a very specific humidity and temperature during the initial part of aging. I find it's tricky to get it right. Needless to say, the heat of summer isn't necessarily the best time to start making cheese...for us, cheese

production begins in the fall.

Record keeping

Not only is temperature key in your ripening process, it is absolutely a big factor in making your cheese. Every cheese requires the milk be at specific temperatures at different points in the make: when the rennet is added, when the culture is added, when the curd is washed, when the curd rests, yadda, yadda, yadda - the variations are practically endless! Being able to control temperature is simply a matter of getting to know how your pot of milk behaves in the bain marie. How hot is the water in the bain marie? Regulate temperature fluctuations by taking your curd/milk in and out of the bain marie to raise or lower the temperature in minor increments. The only time this is unacceptable to do is when your curd is setting. While the curds sets, you should disturb the milk as little as possible. Keep accurate records of how you make a batch of cheese so you can duplicate it if you come up with a real winner. Even a change in one degree in temperature will produce a different cheese (which is okay too, but record those temperatures so you can repeat the recipe if you choose to)!!!

Different milk reacts differently in cheesemaking.

No surprise. Naturally, we use ewe's milk. You can use slightly less rennet in ewe's milk than cow or goat milk to make your milk set. It can also take less time to make a curd. You'll get a greater volume of curd using an equivalent amount of milk. You may not need to take the temperature as high in some cheese recipes with ewe's milk. Milk stolen from the last few weeks of lactation produces a lovely creamy cheese high in butterfat. This milk is wonderful for your...ahem...Brie-esque cheese. Milk from earlier weeks of lactation is great for hard cheeses. The percentage of solids in the milk varies depending on the time of lactation, so you can produce a variety of cheeses all suited to the different stages of lactation. If you experiment, you will probably find that ewe's milk in any recipe will produce a delicious cheese though perhaps not exactly what you are accustomed to (better!).

Salt plus cleanliness equals a good cheese experience.

Yes, the dreaded "s" word. You really need to salt your cheese. Salt draws some moisture out and inhibits "bad" mould growth. Without salt your cheese would probably turn into a gooey mess. Be liberal. It is absolutely critical. We've undersalted cheeses before and believe me, the resulting cheese was the stuff of nightmares.

Airborne bacteria can land in your milk even in your very clean kitchen. Contamination could have happened in your milking parlor while you were milking (more about this in Part Three: Are We Ready to Milk?) Any of these things can wreck a perfectly fine cheesemaking experience. From the start to the make, the key word here is clean, clean, clean. We use small amounts of bleach/vinegar to sanitize our molds and other equipment that comes in contact with the milk, AND we boil it all to boot. Taste your milk before you start making cheese...we all know what good milk tastes like. And when you are aging your cheeses, be careful what cheeses you age together...molds such as *p. roqueforti* can hang around forever once cut loose, and the last thing you want on your beautiful white coated soft mold ripened cheese, is aggressive blue mold.

Storing raw milk

This is a topic for great debate. Pails or bags? Quick cooled or quick frozen? Here at Back Forty, we believe in quick cooling the milk, then it goes into the freezer. This prolongs the cheesemaking life of your milk. Ideally, the freezer maintains minus 22 degrees F and that way you may have a chance of keeping the milk for at least six months. If you are using a chest freezer, or a freezer that hovers around minus 20 on a good day, you need to use your milk up within three months. If you are using a freezing method that maintains a temperature higher than either of the above, immediate use is recommended. If your milk is too old, your curd won't set. When we thaw our milk, we do so at very cool temperatures, a degree or two above freezing over a few days...a slow thaw. Once thawed, we always taste the milk to make sure it is as delicious as when it went into storage. If the milk looks like it has separated or if it smells funny, you've got a pail of compost for your garden. Once all our conditions for tasty milk are satisfied, we make cheese.

Crème de Ciel 101

For this recipe you will need a couple of things you didn't need when making Feta. You can use the smaller molds used for the Feta or you can purchase a couple of larger ones. You will need a plastic ripening (basically a perforated sheet of soft plastic) mat for draining as well. Brie-esque cheese is deceptively simple to make. It doesn't require pressing. All cultures and moulds are added during the make. And after salting, you just store the little white fellows until the surface mold develops, then wrap and presto...ready to eat as soon as the cheese is ripe. The *P. candidum* is what causes the soft white fuzzy exterior mould to develop on the cheese. Surface ripened cheese, such as our Crème de Ciel ripens from the outside in! We use imported wraps from France to store our little cheeses and really, the ripening is the tricky part of this cheese. Many of us in North America, are accustomed to the white look of Brie, but in France and other places different strains of *P. candidum* are used that produce grey to brownish exteriors. So, although the make is fairly straightforward in this cheese, the ripening is a bit persnickety and challenging. Ammonia buildup is the biggest challenge. The cheese releases ammonia as it ripens. After these cheeses are wrapped, unless there is adequate air movement, the cheese can develop an ammonia smell and taste. Good air circulation is important to dissipate some of the ammonia your cheeses are expelling during ripening. Surface ripened cheese has a limited shelf life: when the Brie is ripe, it's amazing; if it is too ripe or too young, you may wish to rethink your cheesemaking career. If you haven't salted your cheese sufficiently, a fluorescent yellow mould can develop that won't hurt you, but it makes your cheese look weird and I secretly think the cheese tastes funny too. Now I've warned you about some of the pitfalls, try making some. You can use the same little molds you purchased for Feta (Part One) or try larger molds for a big wheel. You'll be hooked on making Brie the first time you experience your first perfectly ripened, delicious, buttery and creamy heavenly pie.

You will need: all the cheesemaking equipment used in Feta 101 plus

Molds: two round approximately 9 inches in diameter and about 6 inches high (or use the 6 soft cheese molds for Feta)

Starter: Mesophilic type II powder

Inoculation: Lacto-Labo Penecillium Candidum powder

Rennet: liquid calf rennet

Milk: 6 quarts of ewe's milk

Warm 6 quarts of ewe's milk to 86° F.

Add:

? tsp Meso II

¼ tsp *P. Candidum* dissolved in ? cup distilled water

? tsp of rennet diluted in ¼ cup distilled water

Work ingredients well into the milk.

Allow the milk to ripen until curds form (about 1 ½ hours) while maintaining start temperature of milk.

Test curd for a clean break. Cut curd into ½ inch cubes and stir gently with a ladle for about 3 minutes while cutting any largish curds with your ladle.

Allow curds to settle for 10 minutes.

Ladle into molds placed on ripening mats, sitting on a cake cooling rack over a pan to catch the whey drippings. The curds will settle to about half the height you ladle into the mold.

Allow cheeses to drain at room temperature overnight covered loosely with plastic wrap or cheesecloth. Flip the cheeses a couple of times when they are firm enough to be handled.

Once cheeses have completed their draining time, remove them from the molds. Place the cheese onto clean ripening mats in a plastic storage box with a lid. Sprinkle ½ tsp coarse salt on each of the top and bottom of cheese. Close the lid but not tightly (to allow some air circulation). Air out the cheese daily and wipe any excess moisture from the plastic box.

Transfer cheese to ripening room (temperature range of 52 – 56 ° F/we used one of our kitchen cupboards that

was cool before we built a ripening room!) Check your cheeses daily and wipe out any excessive condensation/moisture in the storage box. The characteristic white mold should begin to appear day 5 – 7. This is dependent on the humidity in your box. A relative humidity of about 70 – 75% is desirable. Once the white molds appear, the cheeses must be turned daily to ensure the white crust grows evenly on the surface.

Once the cheeses are completely crusted with *Penecillium* mold, wrap them loosely in cellophane paper (cellophane works best; you can use saran wrap though or you can get fancy and purchase imported cheese wraps). Store in the fridge or the ripening room/cupboard. The cheese will be ready to eat when the center of it feels soft under the thumb (about 6 weeks depending on ripening temperatures).

Note: If you want to make “Camembert”, warm your milk to 84° F in Step One.

Stay tuned for Part 3: Are you Ready to Milk? Plus, Gouda 101

Sources:

Carroll, Ricki and Robert. *Cheesemaking Made Easy*, Storey Communications Inc., 1996

Mills, Olivia. *Practical Sheep Dairying*, Thorsons Pulishers Limited, 1989.

Singer, Andrew and Street, Len. *Backyard Dairy Book*, Prism Press, 1978

Mont-Laurier Benedictine Nuns. *Goat Cheese: Small Scale Production*, Published by the Mont-Laurier Benedictine Nuns, Quebec, Canada, 1982.

Raw Milk, American Cheese Society, May, 2000

Aldridge, James. *The Artisan Cheesemaker*, <http://www.dairy01.co.uk/>

(I believe with the passing of James Aldridge, cheesemaking guru and master, this website is no longer available).