Mozzarella Workbook

Learn How to make mozzarella and Troubleshoot Your Fails!





Mozzarella Deep Dive What We Will Cover In This Masterclass

- ✓ Why Mozzarella is a beginner cheese but can also be super frustrating!
- ✓ What makes cheese stretch?
- ✓ Why pH is a big deal (but don't worry, you don't have to test for it.)
- ✓ How to make mozzarella.
- Deep dive into troubleshooting common problems.





Introduction

Mozzarella is supposed to be a beginner cheese ...

It is the one that all the learn to make cheese kits advertise, and you may have even heard me talk about how I love Mozzarella as a beginner cheese.

Yet.. It can be a hard cheese to make. Many people struggle with common problems like not being able to get it to stretch, a rubbery texture or just bland taste. In this months content we are deep diving into

Milkmaid

mozzarella, and looking at how you can adapt and change so that you get consistent cheese every time! (Or almost every time!)

Mozzarella is the first cheese I ever made and still to this day it is a staple in our house. When I first learned to milk a cow, Zach's request was that I make string cheese. String cheese is a big deal in Wisconsin and all it really is is mozzarella.

When I first learned to make mozzarella, one thing I didn't really understand was the differences between different recipes and how you are actually able to achieve a stretch.

In this section we will be looking at the differences between different mozzarella recipes and taking some time to understand the mechanism behind how these cheeses stretch.

A Few Terms You Will Hear Me Talk About

pH - You remember this from high school science. As cheesemakers we deal with the acidic side of the pH line. You don't need pH strips or anything fancy to complete this masterclass, but I will talk about pH a little bit. This just gives me a quantitative way to describe what is going on with my milk.

Tea bag test or stretching test - This is a test I use to test if your mozzarella is ready to stretch. Simply fill a cup with boiling water and drop your curd into the cup. Let is sit for 10 seconds or so before lifting it up and down in the water with a fork. If it is in the right pH window for stretching, it will stretch nearly indefinitely.



02

What Makes Cheese Stretch?

- Cheese stretches at a pH of 5-5.4. On either side of this pH line to a few degrees, cheese will stretch, but it won't be that ideal melty, melty cheese stretch you are looking for. In fact that ideal melty, melty stretch happens at 5.2.
- Milk comes from the udder at a pH of about 6.8 and must travel down the pH line to the 5-5.4 area. If it doesn't travel far enough, or it travels too far, you will have either not reached your stretching window, or will have passed it.
- If you haven't reached it yet, you can still save your cheese.
- If you have reached it and gone past, your cheese will no longer be able to stretch and will need to be turned into something else. You can tell that you have gone past this stretching stage when your cheese breaks up, possibly becomes grainy, and won't come together.
- Other things that factor into stretching are the water, protein and calcium content. The key is to make mozzarella with a curd that you have been able to get a clean break from.



Science Lesson On What Makes Cheese Melt

Cheese is a structure built by proteins bound together by calcium. Within this structure fat and water are trapped. As cheese is heated, this fat melts and escapes, the water comes with it. Now there is extra space between your proteins, the proteins have a chance to relax. They are no longer uptight and squished and can now act in a more fluid way.

Cheese will melt best at a pH of 5-5.4. At this point, the calcium that b ends the proteins together is still present, but a lot of it has been replaced by hydrogen. This just means that there is more space for those proteins to move. The remaining calcium is strong enough to act as bridges for the now fluid like proteins. In this, these proteins are able to melt but not break apart or glom together with no glue. The age of the cheese is very dependent on how elastic this calcium bond is. For example, mozzarella is young and stretches well, aged asiago just melts but doesn't stretch.

It all comes down to a balance of the proteins being able to relax and move, yet still being able to stay together as a unit.

- The higher the fat content in a cheese, the more space left between the proteins when fat is released.
- The more moisture, the more space.

Milkmaid

• The different age of the cheese, the different melt.



Common Types of Mozzarella Recipes

VINEGAR MOZZARELLA

with No Rennet

This is basically ricotta that has actually landed in a much more acidic pH window. People often accidentally make this when they are trying to make sweet ricotta (milk with vinegar added) but are using older milk. They will find that instead of turning into ricotta with a sort of grainy texture, they end up making ricotta that is smooth, sleek and melts together nicely.

QUICK MOZZARELLA

Using Rennet and citric acid

This mozzarella is one of the most common types you will find. We will be looking at a tutorial of how to make quick citric acid mozzarella. This mozzarella uses an acid (citric acid) to acidify verses lactose fermentation and has become the go to recipe for most homesteaders.

MATURALLY ACIDIFIED MOZZARELLA

This mozzarella can take almost all day to make but in my opinion is totally worth it! Naturally acidified mozzarella harnesses the power of fermentation to ferment lactose into lactic acid and decrease the pH of your milk into a stretching window.

ACCIDENTIAL MOZZARELLA

This isn't actually a official type, but I thought I would put it in here because on more than one occasion I have had people come to me and say, "Why did this happen?" Any fresh cheese that is in the pH window of 5-5.4 will stretch when put under heat. Its a happy accident when this happens, so just embrace it! Sometimes I even do this on purpose, say I made to much brie that day and I suspect that it is in a stretching window, I might do a tea bag test to see if it will stretch. If it does, I crumble it up and toss it in a pot of hot water.

There Are Different Ways to Achieve the Acidification of Mozzarella



These different ways make up different recipes for mozzarella. In the next section we will look at two different recipes; One using a direct acid, and one using a lactic acid. A question I often get is, what is the difference in taste and texture. Personally I love lactic acid mozzarellas. I find them to have a very fresh taste and a texture reminiscent of soft pillows. The slow fermentation of the cheese allows it this texture without the sometimes aggressive taste of a direct acid. On the other hand, if I am just planning to shred it, freeze it, and plop it on a pizza, a citric acid version works really well for me.

Direct Acid Mozzarella

Citric acid mozzarella is probably the most talked about of all the mozzarellas these days. Also known as one hour mozzarella, or quick mozzarella, it is a great version for someone who doesn't have much time, is going to shred and freeze it anyway, or for the beginner who doesn't have any cultures yet. This is still the most common mozzarella recipe that I make, because it is just so quick!

Other acids like lemon juice and vinegar can be used for this recipe as well, but they impart flavours on the cheese. The nice thing about citric acid, is that it doesn't leave much of a taste behind.





Recipes

Citric Acid Mozzarella

I make a big batch of this recipe, using 6 gallons of milk, and shred and freeze the extras. 1 gallon of good quality whole raw milk, will yield approximately 1 lb. of cheese.

Milkmaid

Equipment

- Stainless Steal Pot with Lid
- Wooden spoon or Heat resistant rubber gloves
- Knife



Milkmaid

Ingredients

- 1 tsp citric acid powder
- 1 gallon Cow's Milk (Unfortunately goat's milk does not give the same stretch as cow's milk)
- 1/4 tsp Calcium Chloride (only if using pasteurized milk)
- 1/4 tsp Liquid Rennet (or if using a different form of rennet, use package directions for coagulating one gallon of milk)
- Salt (See salting options)

Step 1- Thoroughly clean and sterilize all equipment.

Step 2- Dissolve Citric Acid in a 1/4 cup Luke warm water. In a pot, combine milk and citric acid. Heat to 90F, stirring occasionally to prevent scorching. Turn off heat. You must add the citric acid before heating or you risk making ricotta instead!

Step 3- Dilute Calcium Chloride in 1/4 cup lukewarm water. Incorporate into milk. (Only if you are using pasteurized milk.)

Step 4- Dilute Rennet in 1/4 lukewarm water. Incorporate into milk with an up and down stirring motion. Cover pot and let ripen for 30 min - 1 hour.

Step 5- Check for a Clean break. If you notice that your curd mass has sunk below a layer of whey, your curd has acidified to the stretching stage already! Complete step 6 before moving directly to step Step 11.

Step 6- Using a knife, cut curds into 1 inch cubes. Let sit for 5 min between each layer of cuts. This whole cutting process will take 10-15 min.

Step 7- Turn heat to low, gently start to stir the curds. During this stage I keep a cup of boiling water beside me. Every 5 min or so, I drop a curd into the water, let it sit for a minute and then see if it will stretch. Once you are producing very melty curds from the cup of hot water, your cheese is ready to stretch.

Step 8- Let sit for 5 minutes, until curds have sunk to the bottom of the pot.

Step 9- Scoop out about half of the whey, leaving approximately 3 inches of whey above the curds.

Step 10- Add salt to the pot (or alternatively skip this step and use the easy shredding technique.)

Step 11- Turn the heat to medium. Using a wooden spoon, gently stir to prevent scorching, start to heat the whey. As the heat of the whey gets higher, pay attention to the curds. When they reach a point where they start to stretch without breaking and have clumped together into a mass, turn off the heat.

Step 12- Using a wooden spoon or heat resistant rubber gloves, slowly start to knead the cheese under the hot whey. As soon as it starts stretching you can do 1 of 3 things.

Pull and fold chunks of cheese into mozzarella balls. Be careful not to overwork these balls. I liken the technique of forming mozzarella balls to making buns. Submerge them in a cold water bath after stretching to keep them round. Make some of them into tiny Bocconcini balls!

as soon as your cheese begins to stretch, knead the mass of curd a few times before transferring the whole mass to a holed cheese form. Use my easy shredding technique to make this into shreddable mozzarella cheese. as soon as the cheese begins to stretch begin folding and pulling the cheese into a long rope.

This is string cheese!

Step 13- To salt your cheese you have 3 options.

- Add about 1/2 cup of salt to the whey while you stretch your cheese.
- Use the easy shredding technique!
- Surface salt your cheese. Sprinkle a small amount of salt onto the surface of your cheese and enjoy right away!





Lactic Acid Mozzarella

Lactic acid mozzarella are versions of mozzarella that have been acidified during fermentation. With this type of mozzarella your aim is to ferment the milk into the ideal stretching window of 5-5.4. This fermentation happens when lactic bacteria feed on the lactose and the by-product is lactic acid. You can see that this process of having to create your own acid, verses just adding an acid in, takes a lot longer. A recipe that uses a lactic acid tends to take most of the day to make. Anywhere between 3-4 hours.



Naturally Acidified Mozzarella

For a long time I have used naturally acidified mozzarella as a rescue recipe for pots of curds that have become forgotten on the stove. How many times have I started a morning making cheese, only to be pulled away from the pot for hours after already adding the culture and rennet?! The principles of this mozzarella recipe can be used as either a rescue recipe or a stand alone recipe.

Equipment

- Stainless Steal Pot with Lid
- Wooden spoon or Heat resistant rubber gloves
- Knife



Milkmaid

Ingredients

- 1 gallon Cow's Milk (Unfortunately goat's milk does not give the same stretch as cow's milk)
- 1/4 cup well cared for Clabber OR 1/4 tsp mesophilic culture.
- 1/4 tsp Calcium Chloride (only if using pasteurized milk)
- 1/4 tsp Liquid Rennet (or if using a different form of rennet, use package directions for coagulating one gallon of milk)
- Salt (See salting options)

Step 1- Thoroughly clean and sterilize all equipment and surfaces.

Step 2- Warm milk to 90F. Add in Clabber culture and stir to incorporate

-- OR --

If using freeze dried culture, sprinkle culture over the surface of the milk and let rehydrate for 5 min. Incorporate Culture into milk with an up and down stirring motion.

Step 3- Dilute Calcium Chloride in 1/4 cup lukewarm water. Incorporate into milk. (Only if you are using pasteurized milk.)

Step 4- Dilute Rennet in 1/4 lukewarm water. Incorporate into milk with an up and down stirring motion. Cover pot and let ripen for 30 min - 1 hour.

Step 5- Check for a clean break. Using a knife, cut curds into 1 inch cubes. Let sit for 5 min between each layer of cuts. This whole cutting process will take 10-15 min.

Step 6-Gently stir curds for a few minutes. Work to get all large chunks in the pot down to a similar size of 1 inch cubes. After a few minutes of stirring, take a curd from the pot, (whom's size represents the majority of the curds in the pot.) Hold it 30 cm above the counter and let it drop. If it splats into a bunch of pieces, stir the curds for a few more minutes. However if it bounces slightly, you are ready to move on to the next step.

Step 7- Put the lid on the pot and let rest for 3-5 hours. Depending on the warmth of your house, the quality of the starter culture and the milk, you will want to start checking your culture to see if it will stretch after about 3 hours.

To check if it will stretch boil a small amount of hot water. Submerge one of the curds into the hot water and let rest for 1 min. Using a fork to lift the curd out of the pot gently begin dipping the curd in and out of the hot water as you would dip a tea bag in and out of a cup of tea. Up, down, up, down. Do this until the curd breaks. If the curd does not break, but instead stretches indefinitely (I'm talking, you could stretch it to the roof), it is ready to move on to the next step.

You will most likely have to do this stretch test more than once throughout the course of the next few hours. You will notice that the cheese does begin to stretch more and more, but it is not ready until it no longer breaks off, but instead stretches almost indefinitely until the weight of the bottom curd inevitably pulls the stretch apart.

Imagine the ultimate cheese pull! That is what you are looking for. When you do finally achieve the ultimate stretch, you have a very short window to catch it. If it goes too far, it will no longerstretch, so plan to move onto the next step as soon as possible and for sure within the hour.

Step 8- To stretch your cheese boil a 8 quart pot of water. Dip the whey off of your curd mass, and pour off any remaining whey.

Pour approximately half of the boiling water onto your curd mass. Using a wooden spoon or heat resistant rubber gloves, slowly start to knead the cheese under the hot water. As soon as it starts stretching you can do 1 of 3 things.



Pull and fold chunks of cheese into mozzarella balls. Be careful not to overwork these balls. I liken the technique of forming mozzarella balls to making buns. Submerge them in a cold water bath after stretching to keep them round. Make some of them into tiny Bocconcini balls!

As soon as your cheese begins to stretch, knead the mass of curd a few times before transferring the whole mass to a holed cheese form. Use my easy shredding technique to make this into shreddable mozzarella cheese. As soon as the cheese begins to stretch begin folding and pulling the cheese into a long rope.

This is string cheese!

Step 9 - To salt your cheese you have 3 options:

- Make a light 2% brine using the reserved whey. Store your cheese in this brine in the fridge. This sometimes results in a slimy cheese, so I do prefer other methods of salting.
- Use the easy shredding technique! Listed below.

Milkmaid

• Surface salt your cheese. Sprinkle a small amount of salt onto the surface of your cheese and enjoy right away!



Easy Shredding Technique

Anyone who has ever tried to shred fresh mozzarella for pizza, knows that it is a nightmare to shred! It breaks off into large chunks and is cause for serious frustration if you are just looking for an easy shreddable cheese.

To complete the easy shredding technique skip the salting of mozzarella during making but instead after your curd is stretched, move onto these steps.

Step 1- My favourite way to complete the easy shredding technique, is to transfer my entire curd mass into a holed form. While the cheese is in the form, sprinkle a light dusting of salt onto the surface of the cheese, let it drain for about 10 minutes before flipping it over and doing the same on the other side. This light salting will aid in drainage.

Step 2- After an additional 10 minutes, transfer your cheese to your 18% brine. You can brine it at the ratio of 2 hours per pound of cheese. While your cheese is brining let it sit in the refrigerator or a cool area. If you have made multiple cheeses, weigh each cheese separately and calculate brine time for each cheese.

Step 3- After you remove your cheese from the brine, place it on a plate in the refrigerator for 12 hours to dry. Your cheese will now be easy to shred and freeze, or to cut up into strips and freeze. I like to cut my cheese into 1 inch by 3 inch strips and freeze them for mozzarella sticks, as well as for stretching into Bocconcini balls at a later date. I also like to freeze my shredded mozzarella flat so that you can pull it from the freezer frozen, and it doesn't take long at all before you are able to handle it for sprinkling on top of pizzas.

To make an 18% brine (also known as a saturated brine.) Mix 1 part fine ground salt to 5 parts water. When using fine ground salt this can be done by weight or by metric measurement as water and fine ground salt weigh the same. An example: 2 cups fine ground salt: 10 cups water.

Troubleshooting

Unless contaminated, cheese is rarely ruined. For some of the below scenarios, your cheese may have passed the point of no return in terms of stretching or fixing it, but not only can you use the experience as a learning tool, you can also usually use the cheese in a different way.

Coagulation

Problem: The Milk Didn't Coagulate

You added in the rennet, but it never coagulated. Staring back at you, even hours after adding the rennet in, is a puddle of milk. Coagulation problems can plague any cheese recipe, so you can use the things you learn in this lesson to help you in other areas of your cheesemaking.

Ask yourself these questions:

- Did I dilute the Rennet in Water?
- Did I add the Rennet? (Silly question but I have been there!)
- Did the Rennet come in contact with anything chlorinated? Bleach? Chlorinated Water?
- Did the Rennet get too hot? Rennet is heat sensitive and it will become inactive if heated too high.
- Did I mix up the rennet solution too soon? For best results, always mix up rennet and water, directly before you want to use it.
- Did you use the right concentration of rennet? Keep in mind that rennet comes in different concentrations, always refer to the package to see coagulation recommendations.
- If using pasteurized milk, did you add Calcium Chloride before adding in the rennet?
- Is your milk late lactation? Has your cow had significant diet changes recently? Try adding calcium chloride before the rennet and see if that makes a difference.
- Has this happened more than once and you have answered all of the above questions? Is your rennet the culprit? Rennet does have a pretty long shelf life, especially if it is in tablet form, but liquid rennet will become less and less effective as it gets older, especially if it has not been stored properly.







How to Fix it if You Got No Coagulation

If you are not able to pinpoint the error, and just want to turn it into something else, turn it into ricotta. Troubleshoot, and try again next time!

You may be able to add more rennet and continue on with your mozzarella, but without knowing exactly what the problem was or what the acidity of your milk is at this point, it is often less frustrating to scrap this batch and turn it into ricotta.

To do this, all I do is slowly heat the milk up to about 1207. If the milk is already quite acidic (you used citric acid), it will separate on its own. If you have not used citric acid, add a little more citric acid or vinegar diluted in water and watch the magic happen. The cheese will separate from the whey almost instantly. Turn off the heat and let it sit for 10 min or so, before scooping it off and straining it through a colander.

How to Fix it if You Got Some Coagulation But Not Much

If it has been an extended period of time, and you have pretty much given up on your milk coming out with a clean break, talk yourself through the coagulation points above, troubleshoot for next time, and proceed with one of the below options.

OPTION I

Very, very gently you can try stirring your curds and proceed with the mozzarella recipe, but if it is weak you risk loosing a lot of solids in the whey.

Milkmaid

OPTION 2

Try a rescue recipe. Some great rescue recipes for weak coagulation are Ricotta, Quark, or some sort of fresh cheese. My motto is, there is nothing a little bit of straining through a cheese cloth can't fix!



Tip - If you do try stirring, be sure to leave lots of time between cutting the curds to allow for firming up!

Problem: Over Coagulation or Coagulation Faster Than You Expected

Ask yourself these questions

• Did I add too much acid?

- Was my milk already acidic? Older milk? Contaminated milk? There is nothing wrong with using milk that is still good, but a little older for making mozzarella. This is defiantly something I don't recommend for making aged cheeses but I often use milk that is 4 or 5 days old to make mozzarella. The thing you have to remember is that that milk is no longer 6.8 on the pH line, and it will acidify much quicker. You can adjust by adding slightly less acid for acid mozzarella and paying close attention to your cheese pot to make sure you don't miss your stretching window.
- Did I add too much rennet? Raw milk needs less rennet than
 pasteurized milk. As well different rennets have different
 coagulation power, this is why I always recommend using your
 package directions verses the recipe directions. Adding too much
 rennet can contribute to a rubbery texture in your cheese.
- Was it a little bit warmer than usual? The warmer it is, the faster coagulation happens. You may see that in seasons such as summer, coagulation happens a lot quicker. This isn't a problem, you just want to be sure not to miss your acidity window.

How To Fix It

At this point you pretty much just need to work

with what you have. Because of the over

coagulation, your cheese may have a rubbery

texture. Also remember the motto, "if it's sunk

below the whey, you can probably stretch right

away."

Milkmaid society

Stretching

Problem: Won't Stretch or Doesn't Stretch Much

I recommend for all mozzarella recipes that you keep a little cup of boiling water beside you to check for stretching. The stretching window can be quite narrow and easily missed (about an hour for lactic acid cheese).

How To Fix It

Milkmaid

If your cheese hasn't stretched yet, but is starting to stretch, don't panic you are just not in the window of acidity yet.

If it goes through that window and ends up on the other side of the pH 4.9 or below it will start to crumble, have grainy bits in it and no longer feel as smooth as before, this is your indication that it has gone too far. At this point you won't be able to turn it into mozzarella, but you can eat it like cheese curds or fry it up in butter for a version of halloumi.



Once it is crumbling, you have most likely missed your stretching window. If you have accidentally missed the stretching window, troubleshoot why you missed it.

Ask yourself these questions:

- Was my milk already a bit acidic? Older milk, late lactation ect.
- Did I miss my stretching window because I didn't check for stretching enough?
- Did I add in too much acid?

How To Fix It

If it goes too far and ends up past a pH of 5. You really don't have a chance of turning it into mozzarella anymore. What I like to do in these cases is turn it into cheese curds or halloumi.



Texture Problems

Problem: Rubbery

Rubbery cheese can be caused by various things but common problems are overworking, or adding too much rennet.

Milkmaid societu

First ask yourself these questions:

- Did I overwork the mozzarella? When you get a good stretch, it can be tempting to play with it a little bit. For cheeses like string cheese, they are naturally a little more rubbery because you overwork them slightly to get those strings. Next time try only working as much as you need to.
- Did you add too much rennet? Remember raw milk can take a little less rennet, as well rennet should be used based on package directions not recipe directions. If you are finding that your milk coagulated faster than you expected, and your cheese is a little rubbery, the problem could be fixed by adding a little less rennet next time.
- Did I reach the perfect stretching point? Remember, you are looking for the meltiest cheese imaginable when you stretch, if you go too early or too late, you may still get a good stretch but the texture could be slightly rubbery.
- Did you make acid mozzarella? Personally, I find that acid mozzarella tends to be rubbery in more cases than lactic acid mozzarella. This is my personal opinion, but I much prefer the texture of lactic acid mozzarella and tend to make that more if I am planning on eating the mozzarella as balls verses just shredding it on pizza.

Milkmaid society

How To Fix It

Use the easy shredding technique and shred it up

for mozzarella. If you have already salted it in

the pot, just decrease the time in the brine. It will

freeze well and you will not notice the rubbery

texture isn't as much of an issue for pizza as it is

for trying to eat it alone.



Problem: Grainy or Scalded

The most common culprit for grainy mozzarella is large pots. It can't be helped, but large pots are very good at throwing uneven temperature. Just because your temperature at the top says 100F doesn't mean the bottom isn't a 120F. Slightly acidic cheese that hasn't reached a pH of 5.4-5, will turn to ricotta when the heat reaches 120F. This can leave you wondering why your cheese has grainy bits in it. The answer is, you made ricotta and mozzarella! Sounds like a good pizza to me!

Ask yourself these questions:

- Did I add the citric acid in when the milk was cold?
- Did it get too hot at the bottom of the pot?
- Did I scald the milk? If I noticeably scald the milk when I am making cheese, I always pull the scalded bits out and feed them to the kids. They like them, and then I don't have uneven textures in my cheese.







How To Fix It

Let it melt on a pizza and tell everyone that you

made two cheeses in one! Ricotta and

Mozzarella! They will be impressed and you will

have learned something!



Problem: Crumbly or Hard to Shred

Crumbly cheese that won't come together often means that you have missed your pH window, (see crumbling apart and not sticking together). On the other hand, if it has come together but is a nightmare to shred; Homemade mozzarella is naturally a little stringy when you try to shred it. Thats why I recommend using the easy shredding technique if you are planning on using your mozzarella for stretching.

How to Fix It

If you have salled your cheese during the cheesemaking process, you may notice that it really isn't that salty. This means that you can proceed with the easy shredding technique even after making. The key is to taste test it as you go so you don't end up overselling it. You will find that with the easy shredding technique, you are able to shred it easily without it breaking off into chunks.

Milkmaid Society

Taste

BLOWD OR FLOUVOURLESS

Because mozzarella is really a fresh cheese, a lot of the flavour profile comes down to the milk quality and the salting. If you are finding that your cheese is just too bland, consider brine salting it or surface salting it after making, verses salting while you stretch.

One trick I love to do is to add Italian seasoning and garlic powder in while stretching. It adds a really nice flavour.

BITTER

Bitter taste in cheesemaking can be caused by a lot of things but with a fresh cheese like mozzarella that isn't going through aging, the cause is narrowed down to only a few. Any time flavour is an issue, you always want to be looking at the quality of your milk. If your milk comes into cheesemaking with bad flavour, that won't be fixed by cheesemaking.

The most common cause of bitter fresh cheese however is too much calcium chloride. Next time try reducing the amount of calcium chloride and see if this helps. Remember, if you are using raw milk, you can omit it completely unless you have been struggling with late lactation coagulation problems.

OVER SOLLTED

If you over salted your mozzarella, it can be a tricky fix. Usually this happens when you forget your cheese in a saturated brine. Depending on the level of salt it has absorbed, you may be out of luck, but there is one trick you can try.

Soak your cheese in milk for the approximate time that you over salted your cheese or to taste. The problem that you will run into with this, is that as the cheese releases the salt into the whey, it will become slimy. This is due to the pH of the milk being different than the cheese. On a cheese that is quite large, you may easily be able to shave off the slimy bits, but on smaller balls, ropes or blocks, it won't be as ideal. In any case it is worth a try.

Another thing you can do is shred it and keep it in a freezer bag labeled over salted. Next time you make a regular batch for shedding and freezing, cut in a few handfuls of the super salty cheese.

Contaminated

Slimy, Weird Colour, Bad Smell, Mold, Bubble Formation in Cheese

Mozzarella is a fresh cheese and it especially in the case of citric acid mozzarella, it has a very short shelf life. You may find that your mozzarella only lasts a few days in the fridge before it starts to look an off colour and slimy. At this point I would not consume it.

To lengthen the fridge life of your mozzarella use the easy shredding technique for salting. This will lengthen the fridge life of your mozzarella to at least a week. It also makes freezer storage easier because you can easily shred and freeze flat.

Naturally acidified mozzarella can be stored in the refrigerator in a light salt brine for an extended period of time. Unfortunately I don't have good recommendations for this, as I have never been successful at not having it become slimy. If you do choose this route, use whey as the base for your brine.

Unlike aged cheeses, or even some fresh cheeses, mozzarella has very little protection from unwanted contamination. Because of the high heat that it is stitched at, a lot of the raw milk bacterias that would normally protect your cheese to an extent, have been killed off or not given an opportunity to flourish. I am very strict with my refrigeration handling of mozzarella. Even during the easy shredding technique, I brine my cheese in the fridge, and I don't often leave it on the counter long after making.

The only cheese I have ever actually made myself sick from is a coliform contaminated mozzarella. I don't say this to scare you, I just say it to make you aware of the lack their of, of protection for your citric acid mozzarella cheese. I am more lax with my naturally acidified mozzarellas than with the acid ones, but regardless if I notice slimy or weird colours, off smells, mold, or puffing up, I give it to the chickens. Mozzarella is a very soft cheese and unlike hard cheeses, unwanted mold can penetrate very quickly.

How to Adapt Recipes to Work With Your Milk

As we talked about in the video, Mozzarella recipes have been adapted to work with milk that is sitting at a pH of about 6.8. Any variation from this makes the cheesemaking a little more tricky.

More Acidic (Older)

as your milk is still good (No off flavours) you can still use it to make mozzarella. The trick is to understand that because it is older, it will be more acidic. Remember the Rhyme, "If it is sunk below the whey, it's probably ok to stretch right away". Keep in mind that coagulation time, will most likely be a lot less and that you may have to stretch it directly from cutting the curd. Use the teabag test to determine if it is in the stretching window.

I don't recommend decreasing the citric acid, as this can be a bit of an inexact science. My feeling is that you are better off to go into mozzarella making with older milk, with the understanding that stretching is going to happen a lot quicker.

Alkaline Milk (Something is Off With It)



If you are consistently unable to get your cheese into the stretching window, consider testing your milk for mastitis with a CMT test. This is not necessarily the reason why, but if this is a chronic problem, its a great place to start.

Milkmaid society



Conclusion

In the end, never be afraid to turn it into something else! Fails happen. To be honest I had a fail while I was making this masterclass! I read my recipe wrong and didn't add enough calcium chloride. I found myself so frustrated because I couldn't get my cheese to stretch. The kids were running around and yelling in the background, I was trying to film and I couldn't get the mozzarella to stretch no matter how long I waited. Feeling frustrated, defeated and like a fraud, I served up my not very stretchy mozzarella to my children as a snack and resolved to try again the next day. The next day, I realized that I had read my recipe wrong!

The moral of that story is, Fails happen! Mozzarella can be frustrating when it doesn't work, but with a little bit of troubleshooting, my greatest hope is that you can figure out what is going wrong, and coax your milk into that ideal ph window! My second greatest hope is that when those fails do happen, you can adapt and turn your milk into ricotta, halloumi or cheese curds, learn from the fail and try again next time!

Robyn