Queensland Cheese Artisan

QUEENSLAND CHEESE ARTISAN – CHEESEMAKING ½ DAY

Timetable

9am	Housekeeping
	Start Feta
	Start Halloumi
	Overview of cheesemaking
	Finish Halloumi
	Finish Feta
12.00pm	**Workshop concludes**

HALLOUMI

Ingredients

- 3 Litres of non -homogenized Milk
- 2ml rennet or 2 Rennet Tablets diluted in spring/filtered water
- 1ml CaCl diluted in water
- Salt & dried mint leaves

Step		Time	Temp
Add cacl	Add cacl to milk		
Heat Milk	Heat milk up to 34c degrees		
Add Rennet	**Add rennet** to milk mixture. Stir well.		
Rest	Allow rennet to set. **Rest for 25-30 mins** (until firm set). It's very important not to move or disturb the pot during this time		
Cut Curds	Once the curds have set and there is clean break. Cut the curd into 1.5cm cubes. **HEAL – LEAVE TO HEAL 5 MINS**		
Stir	Gently		
Heal curds	Leave the curds to **heal** (Rest) for **5 mins**. This starts the process of expelling moisture/whey		
Stir & Cook the curds	Stir gently Heat slowly to 40°C over 15mins (first cook)		
Rest curds	Rest curds for 5 mins		
Drain curds	Drain curds into colander – KEEP THE WHEY.		
Press curds	Wrap the curds into cheesecloth Place the curd mass between 2 chopping boards Press with 2 x 2 litres of water-filled milk bottles Press 10 mins Start to heat the Whey		
Turn and repress curds	Turn the curds mass over repress for 20 mins		
Heat Whey	Start heating the Whey (aiming for 90°C) Remove any old curds on surface of whey		
Cut curds	Remove curds from Cheesecloth Cut into 10cm curd blocks.		
Cook Curds 2	When whey is 90-95°C Gently add halloumi curd blocks to whey. Cook for approx 30-40 minutes – wait for curd blocks to rise **(don't stir or agitate whey)**		
Cool curds	After approx. **5 mins** on the surface curds Gently remove curds to drain on cutting board **approx 10 mins**		
At Home	That evening (approx 2 hours): Dry salt or Brine Salt Store fridge		

Options

Salt – dry salt (add mint optional). sprinkle approximately 2% salt (2g salt to every 100g cheese) or if you want ¾ to 1 teaspoon of salt evenly over all sides of the cheese then refrigerate cheese in a dry sealed container. Consume within 7 days days. Vacuum sealed will last for 4 weeks. Could also added other herbs and spices (e.g. chilli, peppercorns)

Brine – place cheese into 10% or 15% brine, refrigerate until you consume. CaCl & vinegar need to be added to brine. will last several months (a little saltier)

FETA CHEESE

Ingredients

- **2 litres** fresh milk (must be non-homogenised)
- **1/16 tsp** (pinch) heap MA235 starter culture
- **1.25 ml** rennet or 1 rennet tablet diluted in a small amount of cold filtered/spring water
- **1 ml** CaCl, diluted in a small amount of cold water

Instructions

Step	Instructions	Time	Temp
Heat Milk	Heat to 30-34°C		30-34°C
Add cacl	Add CaCl to milk		
Add Starter Culture	**Add start culture** to milk. Allow to rehydrate for approx. 2 minutes. Stir well Allow to **ripen for 30 mins**		
Add Rennet	**Add rennet** to milk mixture. Stir well.		
Rest	Allow rennet to set. **Rest for 40 mins** (until firm set). It's very important not to move or disturb the pot during this time		
Cut Curds	Once the curds have set and there is clean break. Cut the curd into 1.2mm-1.5 cm cubes **LEAVE CURES TO HEAL**		
Heal curds	Leave the curds to **heal** (Rest) for **5-10 mins**. This starts the process of removing a little moisture (aka the whey)		
Stir curd 1	Very Gently turn the curds with your spoon. **Rest 10 mins**		
Stir curd 2	Very Gently turn the curds with your spoon. **Rest 10 mins**		
Hoop	Very Gently Scoop into cheesecloth-lined colander to drain whey		
Hoop	Gently Scoop the curds evenly into the baskets(hoop). Allow to set for approx. 3-4 hour (until matted together).		
Turn Hoop	Turn the curds in the basket		
Turn hoops	Turn a few times (4) over the next 24 hours Room Temperature.		
Day 2 – Dry Salt	Dry Salt – sprinkle approximately 2% salt (2g salt to every 100g cheese) or if you want ¾ to 1 teaspoon of salt evenly over all sides of the cheese then refrigerate cheese in a dry sealed container		

Options

Within seven days of manufacture the feta it must be:

- **vacuum sealed then refrigerated**
- **brined then refrigerated**
- **marinate of oil & herbs**
- **waxed and refrigerated**
- consume as fresh cheese after 7 days 4°C - 10°C

Salting

Salt – dry salt (add mint optional). sprinkle approximately 2% salt (2g salt to every 100g cheese) or if you want ¾ to 1 teaspoon of salt evenly over all sides of the cheese then look decide which option you will use for storage. Consume within 7 days if not using one of the above options. Vacuum sealed will last for 4 weeks. Could also added other herbs and spices (e.g. chilli, peppercorns)

Brine – place cheese into 10% or 15% brine, refrigerate until you consume. CaCl & vinegar need to be added to brine. will last several months (a little saltier)

BASIC CHEESE PRODUCTION

LACTOSE → LACTIC ACID

1. A starter Culture of bacteria is added to milk
2. Fermentation changes the sugar (lactose) to acid (lactic) which causes the milk to form a solid (called curd). Two methods of create acidification of milk; Acid (lemon juice, vinegar, citric acid, tartaric acid) or culture
3. Rennet (an enzyme) is added to speed up the process
4. Liquid is drained off (called Whey) through cutting and stirring the curds
5. Harder cheeses: the curd is then heated to contract and get rid of any
1. remaining whey
6. the cheese can then be salted, pressed into a form, cured and aged.

QUICK FORMAT FOR CHEESEMAKING

CPR – CaCl, Culture/Proteins and Rennet

CLEANLINESS

Cleanliness is extremely importantly for cheesemaking. The area that you intend on making your cheese, and your tools that you make your cheese with, must be spotlessly clean and sterilised. I cannot stress this enough. People use different methods (bleach, vinegar & bicarbonate soda or iodine solution). I use iodine solution during the course and at home because its quick and easy. Boil all the utensils for 5 minutes or use iodine solution. It doesn't take long, and this is one of the first things I teach everyone in my cheese making classes.

Clean all surfaces (with vinegar or iodine solution) including the utensils and let them dry naturally. This kills any wild mould spores that can inoculate your cheese unintentionally. I even spray my hands and give them a good rub together every time I handle the cheese during the process to alleviate this problem.

BE PREPARED BEFORE YOU START CHEESEMAKING

Have everything all prepared and laid out before you start. As I am waiting for the 15-20 minutes for the pot, stainless steel utensils and cheese cloths to sterilise, I get a clean tea towel and lay it on the kitchen bench next to the stove top, ready to place all the tools on. I select the recipe well in advance and get out all the necessary ingredients and put them on the side ready to go. Cheese making requires un-chlorinated water for diluting some ingredients, I pre-boil the water and let it cool to room temperature. You could use bottled water. You can pre mix the diluted calcium chloride with this water, and do the same with the rennet.

Cheese cultures:

All **cultures** do the same basic **work**. **Cheese cultures** rapidly raise the acidity of milk by consuming the lactose (milk sugar) present and converting it into lactic acid. This disables the already-present bacteria and helps the rennet (or coagulant being used) to set the **cheese**.

Cheese cultures are often grouped by the temperature range at which they work.;

Mesophilic culture - A mesophilic cultures grows/reproduces best in moderate temperature, neither too hot nor too cold, typically between 20 and 35 °C. The optimal temperature is 27 °C Used for the following cheeses Brie, Camembert, Havarti, Gouda, Edam, Feta, Blue Cheese, Chevre, and other buttery, Cheddar and Colby.

Thermophilic culture - Thermophilic starter cultures are heat-loving cultures, temperature growth range between 20-55°C. Their optimum temperature for growth and favour is between 30-41 degrees. Thermophilic cheeses include Parmesan, Romano, Provolone, Mozzarella, Emmental/Swiss and other Italian cheeses.

Also cultures can be sold as a mixture of both Mesophilic and thermophilic cultures. The different cultures promote different factors (e.g. gas produced, acidification) that affect the favour profile of your cheeses.

Brine

Salt brines – add 100g salt to 900ml water for 10%, 100g salt to 566ml for 15%, 100g salt to 400ml water for 20%. If storing cheeses for longer than 1 hour then add CaCl (1 ml) + vinegar (e.g. one teaspoon)

Calcium chloride

Under government regulations all drinking milk in Australia must be pasteurised (heat treated to 68C for 1 minute). Any milk that has been pasteurized and cold stored, you should have Calcium Chloride (CaCl) added. CaCl2 is used to improve the rennet coagulation process. Milk heated/chilled prior to cheese making can have negative effects on coagulation, and therefore negative effects on the final cheese texture/body.

CaCl helps the coagulation process in two main ways:

- When in solution, it forms calcium ions (Ca^{2+}), calcium is the “glue” that helps hold together protein structure.
- It can decrease pH slightly, which increases rennet activity and promotes coagulation.

Youtube Sources for Ideas & Recipes

HTTPS://WWW.YOUTUBE.COM/USER/GREENINGOFGAVIN : GAVIN WEBBER NUMEROUS YOUTUBE VIDEOS MAKING DIFFERENT TYPES OF CHEESES.

Suppliers of cheesemaking equipment/cultures

All these suppliers have provided quick service, no complaints.

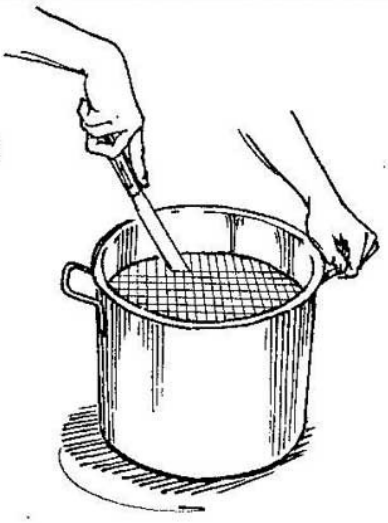
https://www.cheesemaking.com.au/ (Brisbane based. Quick deliveries)
https://www.cheeselinks.com.au/ Quick deliveries always express postage.
https://www.littlegreenworkshops.com.au/cheese-making/ (VictGavin Webbers business)

CUTTING HARD-CHEESE CURDS

a

If you are cutting the curd into ½-inch cubes, place your curd knife ½ inch from the left side of the pot; gently draw the knife through the curd in a straight line, making sure you reach the bottom of the pot. Make a second slice ½ inch to the right of the first one. Continue making ½-inch slices across the pot. Now you have a pot of curd cut into ½-inch slices.

b

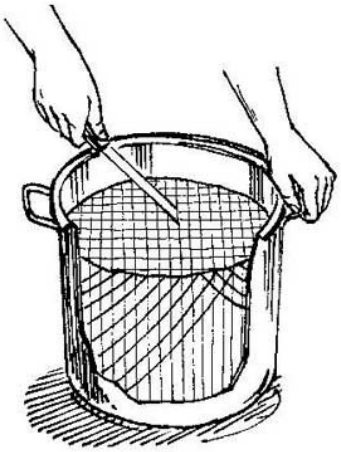


Turn the pot 90 degrees and repeat the cutting. When you are done, you will have a checkerboard pattern of ½-inch-square curds.

c

Then, with the knife at a slant and using the previously cut lines, cut the curd at a 45-degree angle.

d



Turn the pot 90 degrees and repeat the cutting.