# CRESCENZA

## a great Italian cheese

**Crescenza** is one of the traditional cheeses from the plains of Northern Italy

**Crescenza** tells us a little bit of the art of cheese-making in Italy

# A bit of geography

## Where are we?




## Who are we?

# A simple cheese tricky to make

Today's program:

- Step by step to know the secrets
- Ready to use cheesemaker's instructions
- A special guest for your Question Time: a cheesemaker with experience

# Good Cheese from Good Milk

Whole cow pasteurized milk is used to make crescenza. It is better not to use milk stored for more than 12 hours.

To obtain a good reactivity to rennet the milk used must have a correct balance of all components.

# Milk properties

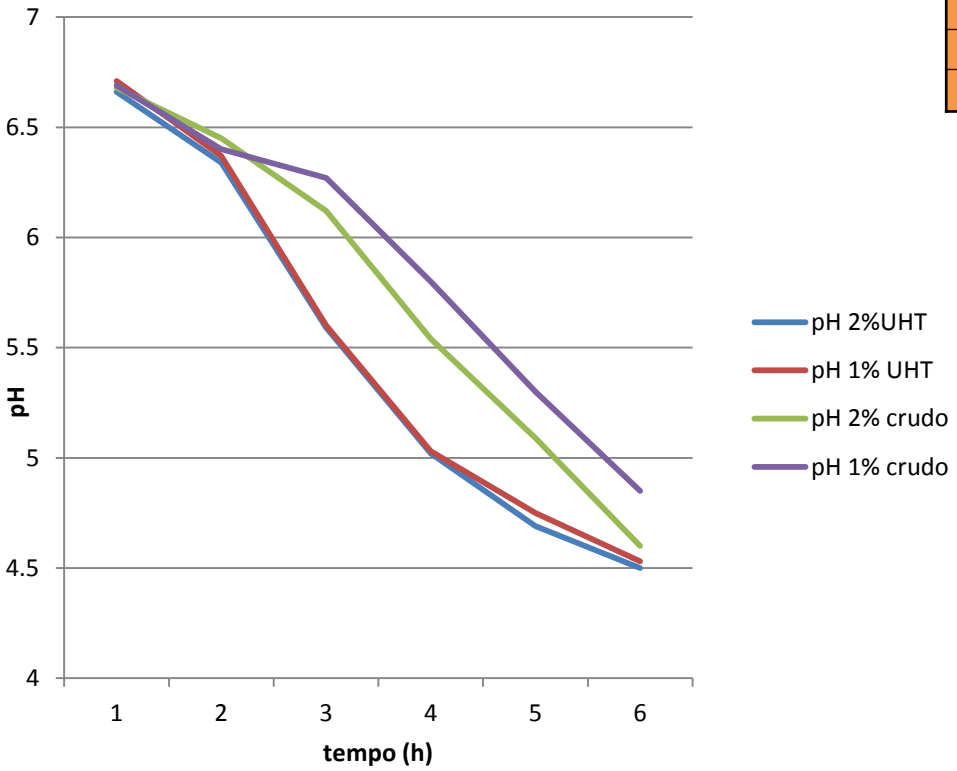
- Milk component ratio will affect cheese sesorial characteristics and yield.
- Calcium deficiency can give rise to anomalous clot formation.
- To obtain a soft and creamy cheese fat content should be 4% or above.

| Cow Milk Composition | |
|---|---|
| Water % | 87,0 - 89,0 |
| Total solids % | 11,0 - 13,0 |
| Fat % | 3,4 - 4,4 |
| Nitrogenous Substances % | 3,4 - 3,6 |
| Casein % | 2,7 - 3,0 |
| Whey Proteins % | 0,7 - 0,8 |
| Lactose % | 4,8 - 5,0 |
| Calcium (mg/100g) | 120 |
| Phosphorus (mg/100g) | 65 |
| Ashes % | 0,9 |
| pH | 6,6 - 6,7 |

# Starter

It is possible to use natural milk starters …

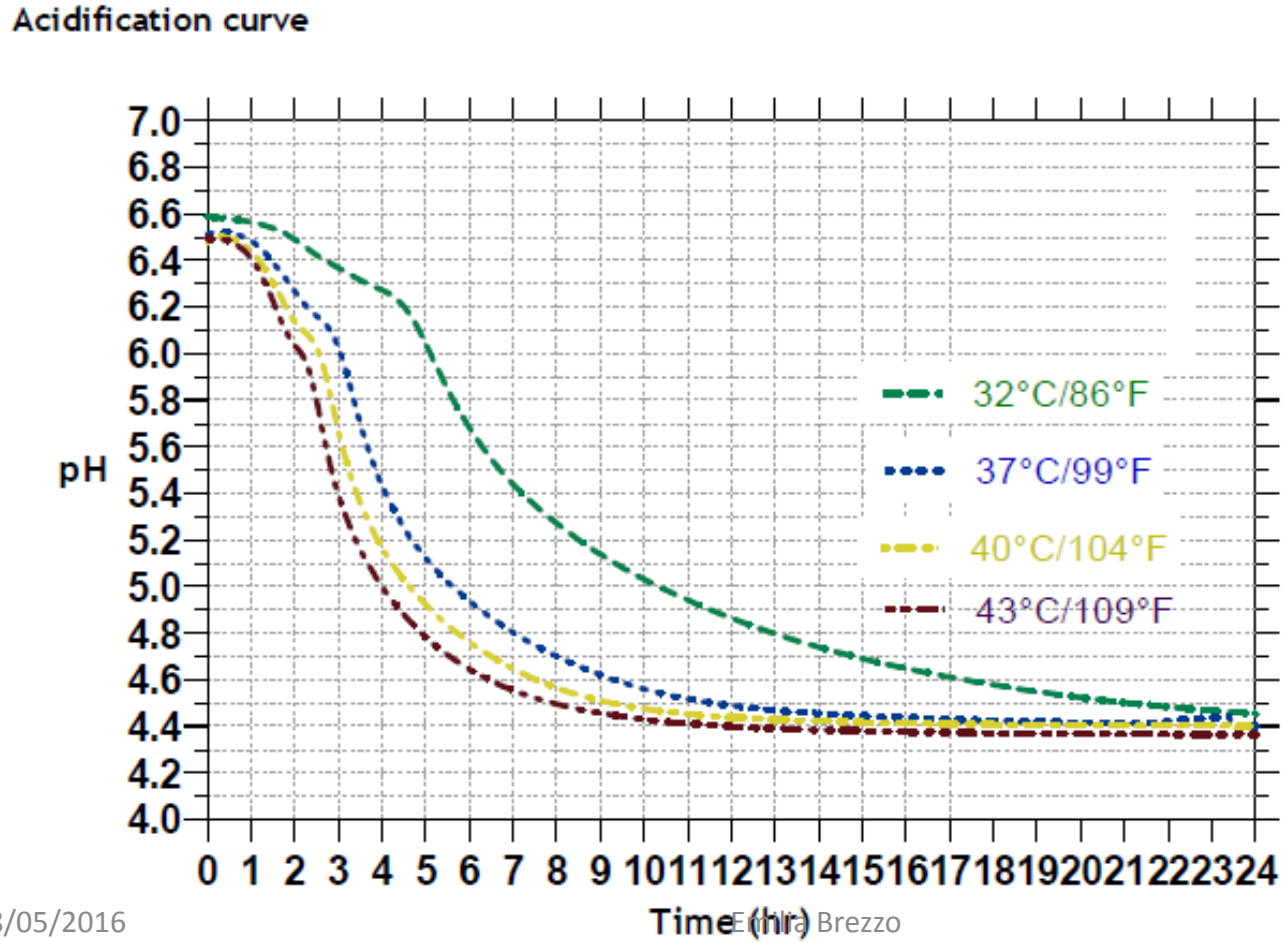
| time | pH 2%UHT | pH 1% UHT | pH 2% raw | pH 1% raw |
|---|---|---|---|---|
| 0 | 6,66 | 6,71 | 6,68 | 6,69 |
| 1 | 6,34 | 6,37 | 6,45 | 6,4 |
| 2 | 5,59 | 5,6 | 6,12 | 6,27 |
| 3 | 5,02 | 5,03 | 5,54 | 5,8 |
| 4 | 4,69 | 4,75 | 5,09 | 5,3 |
| 5 | 4,5 | 4,53 | 4,6 | 4,85 |




**Natural milk starters** are obtained from milk thermised at 62 °C for 20 min. Milk is then incubated at 45 °C for about 8 h until a natural coagulation occurs. With this procedure we select a microbial population composed **mainly (but not only)** of ecotypes of ***Streptococcus thermophylus***.

# … or selected starters

**Selected starters** (specially selected for making Crescenza) are composed **only** of ecotypes of ***Streptococcus thermophylus*** **slow acidity producers**. These starters are supplied by commercial companies like DSM dairy products or CHR Hansen.



# Adding rennet

Coagulation temperature is in the range 37 to 39 °C.

It is used a natural rennet with titer 1:10.000 or 110 IMCU (75% Chimosin and 25% Pepsin).

The quantity varies between 40 to 45 ml per 100 liters of milk.

Rennet must be diluted in water and thoroughly stirred to obtain a homogeneous solution. This is necessary to obtain an even coagulation.

# Factors that influence coagulation time:

- Quantity of rennet
- Milk temperature
- Acidity
- Milk composition
- Milk reactivity with rennet

# Coagulation

- Floculation starts in 10-15 minutes
- Complete floculation in 20-30 minutes

# Curd Cutting

- First Cut

Acidity of whey is in the range 2-2.5 SH/50 ml.

# Curd Cutting

- Second cut

Acidity of whey is in the range 2.8-3 SH/50ml

# Note on acidity measures

In Italy the standard method for measuring total acidity in milk is with Soxhlet-Henkel degrees over 50 ml of milk, so we write °SH/50 ml.

To convert **°SH/50 ml** in **per cent lactic acid (% L. a.)** is necessary to **multiply by 0.045**). The following table is a converter for other common measurement units.

$$°SH/50 = \frac{°SH}{2} = \frac{°D}{4,5} = \frac{°L}{0,045}$$

# Curd Draining

# Curd Extraction

Extraction must be done at a temperature of 24-25 °C to avoid the cooling of the curd.

Once the moulds have been filled is necessary the even up the quantity of curd.

# Moulds

Note that square moulds are used which are bottom-less to help draining; so the curd is laid directly on a straw-like plastic material.

# Heath-draining

"Heath-draining" means keeping the curd into moulds in a warm room to help draining and acidification.

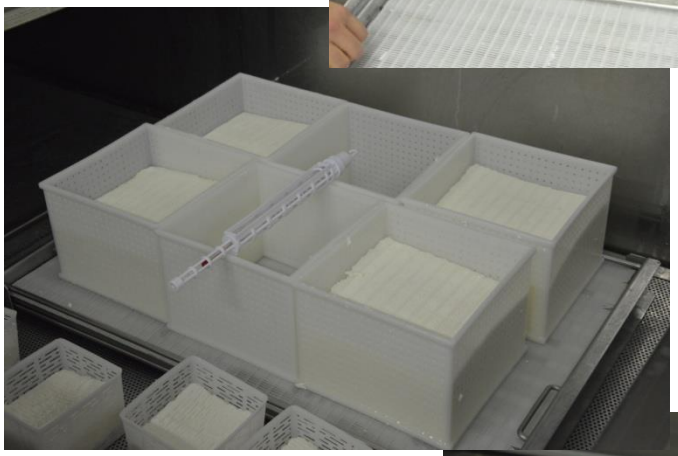
## Heath-draining is influenced by:

- Temperature: must be in the range 24-25 °C, and must remain constant
- Humidity
- Turnings

# Heath-draining

Heath-draining can last anything between 2 and 4 hours.

Heath-draining time is controlled by checking whey acidity, colour and clearness.



Ideal whey acidity is in the range 8-10 SH/50 ml with cheese pH 5.4-5.5.

# Brine

To prepare 100 litres of saline solution use 17-18 Kg of salt.

# Salting

Factors that influence salting are:

- Temperature: 12 to 15 °C
- Acidity: 4.8 SH/50 ml; pH 5.1-5.3
- Salt concentration: 17-18 Baumè.

# Ripening

Good ripening depends on three factors:

- Ambience humidity and temperature
- Care and cleanliness of equipment
- Daily turnings

Temperature in ripening chambers is 4-5 °C with humidity above 95%. High humidity avoids the formation of a rind and weight loss.

# Packaging

**Wrapping** must be made of waterproof material to avoid water loss.

An alternative packaging can be a **plastic container** with a bottom permitting some drainage.


# Selling

**Packaged crescenza** has a dedicated shelf in most food shops and supermarkets.

**Loose crescenza** is sold on-the-cut in dairy farmhouses and in deli shops.

# Crescenza in short … ready-to-use instructions

Whole Cow Pasteurized Milk or Whole Cow Raw Milk

Warm the milk to 42-45°C.

**Culture addition**

*Streptococcus thermophylus* slow acidificant.

If it is used a natural starter add 2-3%.

If it is used a selected starter follow the technical instruction and put the recommended dose in a sterile container with 200 ml of pasteurized milk and add to the vat.

Wait until the milk pH equals to 6.5.

**Coagulation**

Verify that milk temperature in the vat is between 37- 39 °C

Add rennet (110 iMCU) in the dose of 40-50 ml/100 litres.

Start reaction in 10-15 minutes.

Complete Coagulation in 20-30 minutes.

**Curd cutting**

1° cut: orthogonal section with squares 2-2.5 cm.

Check the acidity of the whey: 2-2.5 SH/50ml.

2° cut: nut or almond shape, with specials tools called “piatto” or “spannarola” and “lira”

Check the acidity of the whey 2.8-3 SH/50ml

**Curd extraction**

Extract the Curd gently but quickly.

Maintain the temperature to 24-25°C.

**Heath-draining**

Heath-drain for a time between 2-4 h.

Turn the cheese three times: the first after 20-30 minutes, the second after one hour from the first and the third after two hours from the second.

Check whey acidity: 8-10 SH/50ml

Check cheese pH: 5.4-5.5.

**Salting**

Salting in brine with temperature 12-15°C, ph 5.1-5.3.

Salt concentration 17-18 Bé

For cubed forms, about 2 kg weight, 30 min for each face

**Ripening**

Ripening in cold room (2-5°C) with RU 95 % for few days

Turn the cheeses every day

**Packaging**

# Thank you for your attention

# QUESTION TIME