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 sensorial 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.

<table>
<thead>
<tr>
<th>Cow Milk Composition</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Water %</td>
<td>87,0 - 89,0</td>
</tr>
<tr>
<td>Total solids %</td>
<td>11,0 - 13,0</td>
</tr>
<tr>
<td>Fat %</td>
<td>3,4 - 4,4</td>
</tr>
<tr>
<td>Nitrogenous Substances %</td>
<td>3,4 - 3,6</td>
</tr>
<tr>
<td>Casein %</td>
<td>2,7 - 3,0</td>
</tr>
<tr>
<td>Whey Proteins %</td>
<td>0,7 - 0,8</td>
</tr>
<tr>
<td>Lactose %</td>
<td>4,8 - 5,0</td>
</tr>
<tr>
<td>Calcium (mg/100g)</td>
<td>120</td>
</tr>
<tr>
<td>Phosphorus (mg/100g)</td>
<td>65</td>
</tr>
<tr>
<td>Ashes %</td>
<td>0,9</td>
</tr>
<tr>
<td>pH</td>
<td>6,6 - 6,7</td>
</tr>
</tbody>
</table>
**It is possible to use natural milk starters ...**

<table>
<thead>
<tr>
<th>time</th>
<th>pH 2%UHT</th>
<th>pH 1% UHT</th>
<th>pH 2% raw</th>
<th>pH 1% raw</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>6,66</td>
<td>6,71</td>
<td>6,68</td>
<td>6,69</td>
</tr>
<tr>
<td>1</td>
<td>6,34</td>
<td>6,37</td>
<td>6,45</td>
<td>6,4</td>
</tr>
<tr>
<td>2</td>
<td>5,59</td>
<td>5,6</td>
<td>6,12</td>
<td>6,27</td>
</tr>
<tr>
<td>3</td>
<td>5,02</td>
<td>5,03</td>
<td>5,54</td>
<td>5,8</td>
</tr>
<tr>
<td>4</td>
<td>4,69</td>
<td>4,75</td>
<td>5,09</td>
<td>5,3</td>
</tr>
<tr>
<td>5</td>
<td>4,5</td>
<td>4,53</td>
<td>4,6</td>
<td>4,85</td>
</tr>
</tbody>
</table>

**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.

![Acidification curve](image)

- **Selected starters**
- **Acidification curve**
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.

\[
\text{°SH/50} = \frac{\text{°SH}}{2} = \frac{\text{°D}}{4.5} = \frac{\text{°L}}{0.045}
\]
Curd Draining

18/05/2016

Emilia Brezzo
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.

18/05/2016

Emilia Brezzo
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