



III

# Good Manufacturing Practises (GMP)

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# Good Manufacturing Practises

6 chapters with advice and suggestions in the Guide:

- Cultures
- Coagulants
- Additions to the milk and curd
- Salting
- Product storage and transport
- Direct sale



# Cultures

## Indigenous cultures

- From milk
- From whey

## Commercially available

- Direct to the vat inoculation (DVI)
- Semi-direct starter
- Bulk starter
- Adjunct cultures (non-acidifying cultures)

## Recommendations:

- Buy from trusted suppliers
- Store at recommended conditions
- Prepare, measure out and dose correctly



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# Coagulants

## Traditionally self prepared

- Animal rennet from abomasum from calf, kid or lamb
- Vegetable coagulant from plants like *Cynara*

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- Microbial coagulant
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## Additions to milk and curd

- Additives (like preservative agents)
- Flavourings
- Enzymes (like lipase)
- Ingredients (like herbs, spices, nuts and fruit)

### Recommendations:

- Make sure that use is permitted and at what level
- Buy from trusted suppliers
- Heat treat herbs or fruits prior to use in some cases
- Store at recommended conditions
- Make sure that you know which allergens are present  
(like lysozyme derived from egg white)



# Salting

- Dry salt
- Brine

## Recommendations:

- Buy from a trusted suppliers
- Store at recommended conditions
- Maintain brine tanks properly
- Make sure that pH and salt% of brine are correct





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## Product storage and transport

Storage in cold rooms, refrigerated displays, cabinets. Loading in vehicles and unloading at customer's premises.

### Avoid contamination

- Wear clean and protective cloths when handling unpacked products
- Wash hands thoroughly and keep high standards of personal hygiene
- Keep equipment and rooms clean
- Respect temperature and %RH limits for storage and transport
- Store and load products only in properly designed and maintained places/displays/vehicles

### Avoid cross contamination

- Avoid contact between unpacked and packed or other food products
- Remove spoiled or damaged products



## Direct sale

Sales directly to final customers in farm shops, on market places on exhibitions and fairs.

### Avoid (cross-)contamination, in addition to previous slide

- Make sure utensils are cleaned after use
- Weigh unpacked products on piece of packaging material
- Adapt technique to avoid contamination with currency when handling cheese during sales
- Store packaging material dry and clean, protected against dust, humidity, pests and insects

### Handling of unsold products

- Repack most vulnerable products first
- Place products immediately in cold storage or ripening room
- Keep unpacked products that were unsold not in contact with other products in stock




# Tools available for Good Manufacturing Practises



- 3.1 Factsheet Cultures
- 3.2 Fact sheet Cultures from milk
- 3.3 Fact sheet Cultures from whey
- 3.4 Power Point Coagulants
- 3.5 Power Point Salting and brining

**Maintenance of Brine Tanks**

- Use water of **potable** quality to prepare brine and store it in a clean container.
- If the brine tank cannot be kept in the production or ripening areas it is possible to cover the tank with a lid if contamination is likely.
- The brine should be kept at a **temperature** appropriate to the technology.
- **Replenish salt** and stir after each use.

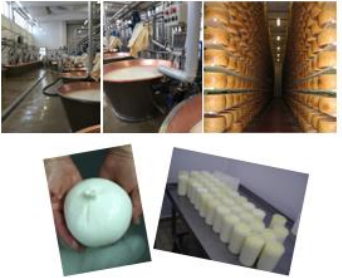


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**Teacheesy**

Simple GMP points to make a good indigenous starter from WHEY

Indigenous cultures obtained from whey are generally used for hard cheeses, pasta filata cheeses and lactococcal cheeses.



This kind of indigenous cultures are called *Sternostrato*

Good Whey to make *Sternostrato* comes from Good Milk and an Hygienic elaboration yielding an excellent cheese; use milk from animals in very good health, in accordance with law requirements

**Teacheesy**

to make a good indigenous starter from MILK



... milk, according with the requirements of the ... cooling down the milk ... milked by hand, is usually richer in microorganisms

**Teacheesy**

Cultures

... are microorganisms with a rounded or a ... shape that can ... as a result of anaerobic carbohydrate fermentation.

... al role in milk even if they come from environmental contamination ... animals' feces, human's skin, treats' tools, etc...

... etic bacteria:

... portant for humans' health ... spottors with pathogenic bacteria ... lactic acid ... e proteolytic enzymes, which are essential for ageing cheese ... e aromatic compounds that give cheese unique flavor.

... f the GMP in raw milk production and milk pasteurisation is the caus ... steria in milk. This is the reason that it is a good practice to introduc ... enia (starter) in milk to make cheese.

**Fate of Pathogens in Rennet Preparations**

Organism	pH	% Salt
<i>Listeria monocytogenes</i>	5.00	10
	4.50	20
<i>Salmonella</i>	5.00	10
	4.50	20

www.combase.cc  
Non-thermal Survival Model @8°C

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