



# Milk processing

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## Topics

- › Quality of raw milk – influence on dairy products
- › Hygiene parameters from cow to dairy product
  - › Checklist: CCP milk production
- › Organic Processing
  - › Council Regulation 834/2007
  - › Consumer milk
  - › Fermented products (yoghurt, kefir, etc.)
  - › Butter
  - › Cheese
- › Degustation of fermented products from Germany, Switzerland and Ukraine



## Quality of raw milk

- › Influence of feedstuff: more roughage yields to higher amount of
  - › essential fatty acids as,  $\Omega$  3 - fatty acids
  - › CLA (conjugated linoleic acid)
- › and vitamins
  - › Carotinoide (Pro-vitamin A)
  - › A-tocopherol (Vitamin E)
- › All these parameters lead to a healthier milk
  - ›  $\Omega$  3 – FA: Risk of Cardiovascular diseases is lower
  - › Vit. E: Antioxidative effect – against cancer
  - › CLA: Positive effect on weigh management (obesity)
  - › Pro-vitamin A: deficiencies leads to blindness



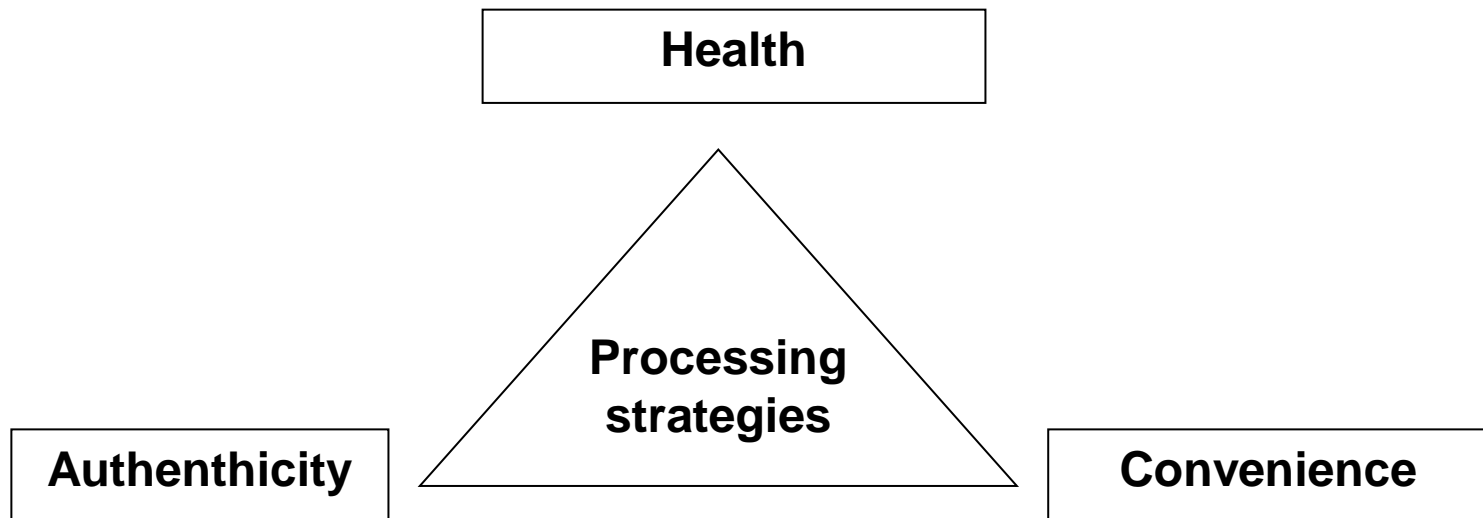
## Consumer perception – organic products

- › Consumers expect for organic products healthy and natural products:
  - › Use of natural raw materials
  - › Welfare orientated animal husbandry
  - › Environmentally friendly land use
  - › Environmentally friendly processing techniques
- › But there is a
  - › Trend to more convenience
  - › Trend to longer shelf life



## Consumer perception

- › Different concerns and expectations to organic food has to be addressed at the same time:





## Hygiene Parameters

- › Milk shall not have more than
  - › TBC 100'000 (total bacteria count)
  - › SCC 400'000 (somatic cell count)
- › A higher amount of TBC influences the fermentation
  - › Failure in fermented products
  - › Disorder of fermentation: added bacteria can be inhibited in growth
  - › Sensory problems – deficiencies in taste and consistency



## Critical Control points (CCP) in milk production

- › Use a checklist with the CCP to reduce the TBC
- › The most important question is: is there any potential contamination with unclean equipment, rooms, staff, plant facilities? Is milk being exposed to it with direct contact?
- › It's important that everything is cleaned before used
- › Be aware of cooling chain: always below 6°C
- › It's important that everything is cleaned before using it
- › Most important: hygienic of staff
  - › sick people are not allowed to work!
  - › Hand washing,
  - › special clothes only for processing room



## Critical Control points (CCP) in milk production

- › The checklist covers all the steps from milking to the finished product
  - › Milking
  - › Storage
  - › Filling equipment
  - › Bottles, glasses used
  - › Transport
  - › Staff
  - › Rooms





## Checklist to get high quality tank milk: Exercise

- › Groups:
  - › go through the list and discuss, where you could have a problem in your equipment.
  - › This checklist is only for milk.
  - › Develop your own checklist: You must have a checklist like that for all your processes