



# Possible Sources of Contamination in the Dairy

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## Identifying the Source of Contamination



- The tables on the following pages can be used to identify the possible source of a contaminant **following** a **non-conformity issue**.
- Key to Tables:
  - X Not Applicable
  - \* Least Likely Source
  - \*\*\* Most likely source (investigate first)



## *Listeria monocytogenes*

Possible Sources	Pasteurised Products	Raw Milk Products
Milk Production, Transportation & Storage		
Mastitis & Animal Health	X	*
Faecal Contamination	X	**
Environmental Contamination & Cleaning Issues	X	**
Processing		
Post Pasteurisation Contamination	*	X
Staff Hygiene	X	X
Environmental Contamination & Cleaning Issues	***	***



## *Listeria monocytogenes*

Main areas to investigate source of contamination:

- Raw milk or post-pasteurisation contamination
- Faecal contamination arising from feeds (e.g. Silage)
- Consider intermittent shedding by milking animals
  
- Biofilms / cleaning issues
- Standing water, floors and drains
- Dust or soil contamination from exterior
- Pest control



# Salmonella

Possible Sources	Pasteurised Products	Raw Milk Products
Milk Production, Transportation & Storage		
Mastitis & Animal Health	X	*
Faecal Contamination	X	***
Environmental Contamination & Cleaning Issues	X	**
Processing		
Post Pasteurisation Contamination	*	X
Staff Hygiene	*	*
Environmental Contamination & Cleaning Issues	**	**



# *Salmonella*

Main areas to investigate source of contamination:

- Raw milk or post-pasteurisation contamination
- Consider intermittent shedding by milking animals
  
- Staff illness or asymptomatic carriage
- Pest control
- Contaminated water
- Integrity of premises (for example - leaking roof with birds nesting overhead)



## *E. Coli* & Coliforms (Hygiene Indicators)

Possible Sources	Pasteurised Products	Raw Milk (Butter & Cream)
Milk Production, Transportation & Storage		
Mastitis & Animal Health	X	*
Faecal Contamination	X	**
Environmental Contamination & Cleaning Issues	X	**
Processing		
Post Pasteurisation Contamination	*	X
Staff Hygiene	*	*
Environmental Contamination & Cleaning Issues	***	***



## *E. Coli* & Coliforms

Main areas to investigate source of contamination:

- Post-pasteurisation contamination
- Faecal contamination of raw milk\*
- Contaminated water
- Cleaning of the premises or equipment

\*Note that there is no criterion in European Regulation on *E. coli* or coliforms in raw milk cheese.

Low levels in the milk can be expected to grow during cheesemaking and may not be indicative of a hygiene failure.

*E. coli* and coliforms are sometimes used as **faecal hygiene indicators** in the **raw milk supply** and it may be possible to apply the table in this case.





# Coagulase Positive Staphylococci

Possible Sources	Pasteurised Products	Raw Milk Products
Milk Production, Transportation & Storage		
Mastitis & Animal Health	X	***
Faecal Contamination	X	X
Environmental Contamination & Cleaning Issues	X	*
Processing		
Post Pasteurisation Contamination	*	X
Staff Hygiene	**	**
Environmental Contamination	X	X



## Coagulase Positive Staphylococci

Main areas to investigate source of contamination:

- Mastitis
- Contamination via the milking machine
- Staff hygiene (cracked or infected skin)