

Degrees of probability: **high**, **medium**, **low**

HAZARD PREVENTION PLAN

Process step	Facultative measures to prevent	Listeria monocytogenes	Salmonella	Staphylococcus aureus	Escherichia coli
Milk production	Choosing well cleanable and maintainable milking equipment	Prevent poor type or condition of milking equipment		Prevent poor type or condition of milking equipment	Prevent poor type or condition of milking equipment
	Periodic milking machine maintenance	X	X	X	X
	Employee training on process hygiene	Proper milking procedures, hygiene in milk production, milking order	Identification of clinical signs of salmonellosis (like diarrhoea) Use of manure from other farms treated with great caution	Proper milking procedures, hygiene in milk production, milking order	Identification of E. coli mastitis
	Cattle testing prior to purchase		Carriers of Salmonella may excrete the bacteria in their stools	Carriers of staphylococci aureus may shed the bacteria in the milk	
	Regularly milk testing for somatic cell counts			X	



Process step	Facultative measures to prevent	Listeria monocytogenes	Salmonella	Staphylococcus aureus	Escherichia coli
	Regularly bulk milk testing	X	X	X	X
	Employee training on personal hygiene		Salmonella may cause diarrhoea, carriers of Salmonella may excrete the bacteria in their stools	Covering wounds, use of masks in case of a bad cold	
	stool sample of each employee		XXX		
	Employee training on process hygiene	with the help of cheese defect database		with the help of cheese defect	
	Develop cleaning and disinfecting plan	X	X	X	X
	Validation of cleaning and disinfection procedures	X	X	X	X
	Employee training (proper cleaning and disinfection procedures)	X	X	X	X



Process step	Facultative measures to prevent	Listeria monocytogenes	Salmonella	Staphylococcus aureus	Escherichia coli
	Periodic swab sampling from milking machine	Only if raw milk is used for cheese making		Only if raw milk is used for cheese making	
Production	Changing facilities for personnel prior to entry to production areas	X	X	X	X
	Periodic monitoring and maintenance of premises and equipment	Defects on floors can provide a water source and can be a source of microbial contamination.			Defects on floors can provide a water source and can be a source of microbial contamination.
	Employee training on personal hygiene	Clothing and footwear exchange	Salmonella may cause diarrhea, carriers of Salmonella may excrete the bacteria in their stools	Covering wounds, use of masks in case of a bad cold	Clothing and footwear exchange
	stool sample of each employee		X		
	Periodic drinking water testing				Provide water test results of the public water supplier or of own testings
	Regularly drain testing for LM	X			



Process step	Facultative measures to prevent	Listeria monocytogenes	Salmonella	Staphylococcus aureus	Escherichia coli
	Proper choice of the lactic starter culture	Ensure rapid acidification	Ensure rapid acidification	Ensure rapid acidification	Ensure rapid acidification
	proper choice of the process temperature			Higher temperature can support growth of CPS Lower temperature slows the growth of CPS (e.g. 18 °C instead of 22°C lactic cheese, < 37 ° semi hard cheese)	
	Acidification monitoring	Identification of inactive starter cultures		Identification of inactive starter cultures	Identification of inactive starter cultures
	Employee training on process hygiene	with the help of cheese defect database		with the help of cheese defect database	
	Milk pasteurisation	Only if pasteurised milk is used for cheese making	Only if pasteurised milk is used for cheese making	Only if pasteurised milk is used for cheese making	Only if pasteurised milk is used for cheese making
	Develop cleaning and disinfecting plan	X	X	X	X
	Validation of cleaning and disinfection procedures	X	X	X	X



Process step	Facultative measures to prevent	Listeria monocytogenes	Salmonella	Staphylococcus aureus	Escherichia coli
	Employee training (proper cleaning and disinfection procedures)	X	X	X	X
Maturation	Changing facilities for personnel prior to entry to ripening areas	X			X
	Employee training (Personal hygiene)	Clothing and footwear exchange	Salmonella may cause diarrhea, carriers of Salmonella may excrete the bacteria in their stools	Covering wounds, use of masks in case of a bad cold	
	stool sample of each employee		X		
	Employee training on process hygiene	with the help of cheese defect database Support	Proper drying of wooden boards (No entry for birds)		
	Develop cleaning and disinfecting plan	X	X	X	X



Process step	Facultative measures to prevent	Listeria monocytogenes	Salmonella	Staphylococcus aureus	Escherichia coli
	Validation of cleaning and disinfection procedures	X	X	X	X
	Employee training (proper cleaning and disinfection procedures)	X	X	X	X
	Regularly smear water testing after cheese surface treatment for LM	Only if red smear cheeses are produced			
	Regularly end-product testing	Sampling is an ineffective way of detecting low level contamination	Sampling is an ineffective way of detecting low level contamination	Sampling can be a way of detecting high level contamination	Sampling can be a way of detecting high level contamination
Sale	Prevent cross contamination during sale	Keep away sources for infection (red smear cheeses) from milk products	Keep away sources for infection (like eggs, poultry) from milk products		

