



Resources for Growing Your Cheese Business Safely

*Available in English and Spanish Translations



Developed in collaboration with a team of industry, trade association, and academic volunteers.

Overview

Protecting your customers by producing safe cheese is mission critical for growing your business. Soft cheeses with a pH above 5.5, a moisture above 50% (like Queso Fresco, Queso Blanco, Panela, Paneer, and similar styles) and/or ones that are non-cultured pose a higher risk of microbial growth and illness. This potential for growth may put your customers at higher risk for illness or death which could put your business reputation at risk. Having a Food Safety Program in place can help mitigate these risks and ensure the growth of your business safely.



Industry and academia have worked together to create a checklist related to routine practices for plant employees and quality design and food safety systems for managers to help identify and mitigate these risks (See syllabus listed below). Properly trained employees using Good Manufacturing Practices (GMPs), with a thorough knowledge of proper cleaning and sanitization, plus a basic knowledge of how to identify potential hazards are a must in preventing problems before they occur.

Equipping managers with a written Food Safety Plan to use when training and managing employees on how to control traffic patterns and conduct proper sanitation goes a long way in preventing contamination of your facility and your products. Using this checklist to train your staff helps keep your products, your customers, and your business safe.

As you progress through the items on this checklist and implement your food safety plan, please know you are not alone! Online training, workshops, food safety plan templates and one-on-one guidance with a food safety expert are all available for your use.

A list of resources can be found at this [link](#) or in person help is just a click or call away at Dairyfoodsafetycoach@cornell.edu or dial 1-315-787-2600. For more in-depth guidance see [Listeria Guidance Document](#)



Committing to a written and thorough Food Safety Plan helps create a culture of food safety for everyone in your facility and protects your products, customers, and your business.

[Click Here For Resources](#)



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Links to Resources You Can Use:

[New Employee Training Video](#)

[7 Steps of Effective Sanitation](#)

[Video de capacitación para nuevos empleados](#)

[Siete pasos para una desinfección eficaz](#)

Links to Resources You Can Use:

[Listeria Guidance Document](#)

[FSPCA Manual](#)

[Dairy Facility Design Checklist](#)

[Equipment Design Checklist](#)

[Guia para el control de *Listeria*](#)

[Manual de la FSPCA](#)

[Listado de verificación para el diseño de establecimientos lácteos](#)

[Listado de verificación para el diseño de equipos](#)

Note: Resources available in English and Spanish Translations

Routine Practices for Plant Employees

Good Manufacturing Practices:

To help prevent cross contamination, Good Manufacturing Practices (GMPs) are used. GMPs are practices like good personal hygiene, handwashing, clean footwear, clean uniforms, controlling employee/visitor traffic patterns, controlling ingredient traffic patterns, separating raw materials (including raw milk) from finished products, which help prevent the bringing pathogens into clean areas where they might contaminate product.

- Clean and proper footwear, hair/beard nets and smocks for contractors and visitors is required.
- Street clothing and footwear should be properly stored separately from clean uniforms. Sanitary footwear and hair/beard nets provided to avoid contamination risk.
- Locker rooms need a dedicated way in / out with GMP control, so that pathogen and/or allergen cross-contamination of uniforms and footwear does not occur.
- Handwashing and sanitation stations adjacent to all personnel access points are needed to encourage compliance and prevent cross contamination.
- Use of sanitary gloves is common in manufacturing environments. While gloves minimize direct human contact with foods and shield employees' skin from soil, they must be cleaned and sanitized in the same manner as hands.
- Soiled or damaged gloves should be replaced as they could be just as contaminated as unwashed hands. Hands should always be washed prior to donning gloves.
- Employees in packaging storage, ingredient storage, and cold storage areas should follow GMP guidance for hairnets, beard nets, clean footwear, jewelry, fingernail polish, handwashing, food, drink management, use of glass and hard plastic, and pest control.
- Maintenance and laboratory facilities and personnel also must follow GMPs as employees may be called to the floor for various tasks, and their carts, baskets and tools will enter the higher hygiene "RTE" areas and need to have acceptable hygiene control. Use of food grade materials and lubricants by maintenance staff is a must.

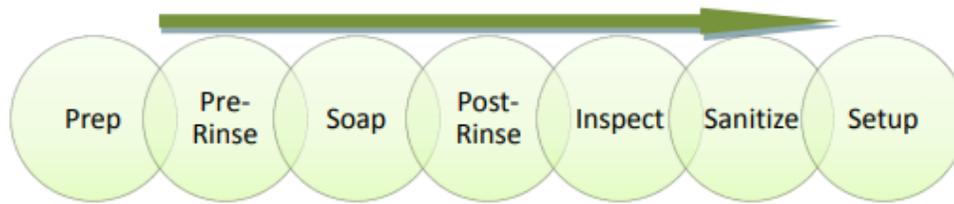
Your everyday actions during work have the potential to reduce food safety risk and keep consumers safe.

Sanitation: (Sanitary Design and SSOPs – Sanitation Standard Operating Procedures)

Sanitation is your number one defense. It is important that your equipment be clean and sanitary. Good design helps ensure cleanability and that pathogens do not take up residence in your facility

and on your equipment. This includes soils and bacteria that you can see and cannot see on processing equipment, utensils, floors, ceilings, and walls.

7 Steps to Effective Sanitation



Effective cleaning and sanitization require the use of food grade chemicals used according to the manufacturer's labeled directions. The pH and concentration levels need to be tested and verified to ensure effectiveness. High pressure water usage should be avoided to reduce the likelihood of overspray spreading microorganisms.

Be sure to clean and sanitize. You cannot sanitize a dirty surface.

Use of dedicated, food grade, cleaning utensils helps avoid product contamination. If utensils lay or fall onto a soiled or non-sanitized surface, such as floors or surfaces that previously held raw products, these items must be cleaned and sanitized before using again.

Post-production cleaning and sanitization, visual inspection and documentation are critical to ensure that the equipment is clean and maintained in good repair. If the equipment is not inspected and the date/time documented, you have no proof that proper cleaning and sanitization actually occurred.

Critical Control Points/Preventative Controls:

Hazards (physical, chemical, and microbiological) are in every facility. Assessing, controlling and/or eliminating these risks is important for ensuring the safety of your product. Critical Control Points are any point, step or procedure that can prevent, eliminate, or reduce hazards to an acceptable level. These include items like reaching legal pasteurization temperature for your incoming milk and appropriate product cooling during processing, packaging, storage, and distribution. Documentation requirements vary by location so be sure to check with your local regulators.

Preventive Controls are risk based, appropriate procedures and practices to minimize and prevent hazards. Minimizing run times, controlling temperatures during product draining, and eliminating sources of cross contamination such as hands, tools, equipment and even condensation drips are examples of preventative controls. Monitoring and identifying ways to minimize hazards is the responsibility of every employee. If you see something, say something.

For Comprehensive Guidance check out www.usdairy/foodsafety.org, contact dairyfoodsafetycoach@cornell.edu or call 1-315-787-2600.

Quality Design and Food Safety Systems for Managers

Self-Audit:

Controlling your food grade facility is important to protect your finished products from cross contamination. This includes how your building and equipment are designed. Facility layout, design of equipment, traffic patterns, air quality, air patterns and pest control are all important to evaluate and control. Self-assessing your operation is the first step to building a Food Safety System and identifying gaps in your current programs. This includes doing a HACCP (Hazard Identification) assessment which identifies physical, chemical, or microbial risks.

Facility Controls:

There is a greater likelihood of finding spoilage organisms and harmful bacteria known as pathogens in uncontrolled or raw manufacturing areas than in controlled production or Ready-to-Eat (RTE) areas. The first defense is proper pasteurization of milk and other raw materials, which kills these organisms. Pasteurization is often defined as the transition of a material from a “raw” to a safe or “RTE” status. Once pasteurized, it is important to prevent post-pasteurization contamination of in-process and finished product all the way until the cheese is packaged.

Controlling the flow of personnel, supplies, effective cleaning and sanitation of all processing equipment and general sanitation of the whole facility significantly reduces the potential for cross contamination. Best practices include:

Color coding of containers and utensils helps keep items in the correct Zone (i.e., Raw vs Ready-To-Eat).

Color coding of tools, smocks, hairnets, and shoes is a best practice for visual verification of raw/RTE separation compliance and to prevent unnecessary traffic flow through RTE areas.

Monitor loose items such as tools, pens, glass, wood, plastic, tape etc., to ensure foreign material contamination does not occur. Procedures for proper clean-up in the event of glass or hard plastic breakage should be developed.

Duct work and conduit should not be exposed over product areas.

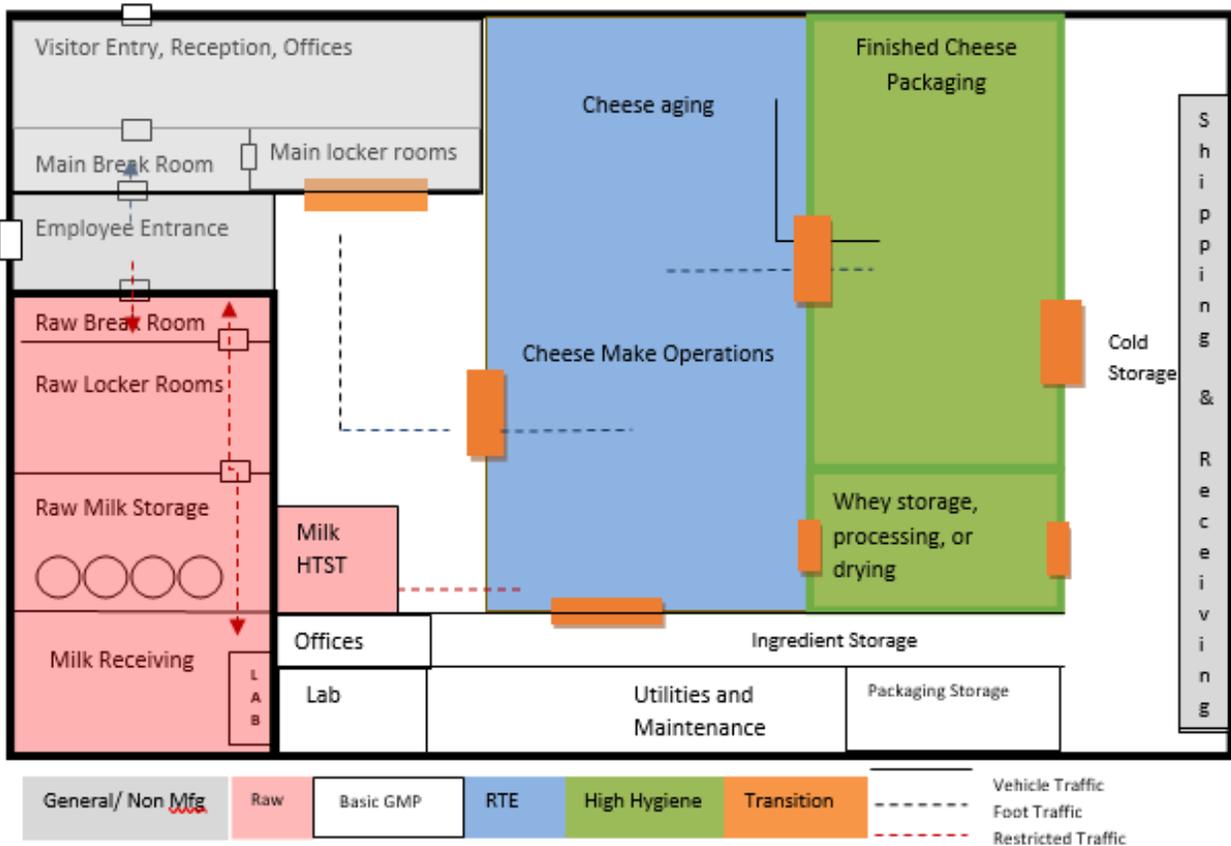
No loose or peeling paint should be in the facility as well.

Metal detectors should be calibrated frequently and documented to prevent metal contamination.

Hygienic Zoning and Preventing Cross Contamination:

Facilities should be zoned to help prevent cross-contamination from raw to finished RTE products. Raw and RTE areas should be separated whenever possible. Separation of these areas can be achieved by using barriers to restrict traffic.

Investing time to properly train employees using clear, written practices and facility guidance is one of the best lines of defense to mitigate food safety risks.



Physical barriers (doors, walls, railings, transition benches) are the most effective tool, but separation can also be achieved through floor markings, transition spaces, floor sloping, drainage barriers, and controlled airflow.

It is also possible to create separation through the use of “scheduling.” This involves removing finished products from an area before handling raw products followed by performing effective cleaning/sanitizing before reintroducing finished products back into the area.

Traffic flows should be designed to avoid having people and equipment from different “raw” zones travel on common paths with “RTE” zones whenever possible.

Doorways and transitions for foot and vehicle traffic should be managed with proven and effective floor foamer and spraying devices that are timed or motion triggered. Devices should be routinely monitored for proper sanitizer concentration, and functionality (foam structure, pattern of spray, etc.)

Storage areas should be separate and/or clearly marked to prevent co-mingling of raw and processed products. If storage space is limited, processed products should always be positioned

Within your facility, food safety risk can increase depending on where people walk, how products are stored and how equipment is organized and maintained.

above raw products to reduce the potential for overhead contamination falling or dripping onto finished goods.

Environmental Monitoring:

In order to protect your product from pathogens, you need to actively look to see if they are present in your facility. Having an Environmental Monitoring Program helps you determine their presence and tells you how well your preventive programs (i.e. sanitation) are working. Due to the complexity of designing a monitoring program, you may want to bring in an expert. See syllabus for links to introductory resources on this topic.

Working with an expert or your accredited testing lab will help you learn: What to test for, where and how often? How to use indicator organisms? How to take samples? Importance of having trained personnel and what to do when you find something.

Product and Formulation Risk:

Dairy products are packed full of nutrients that provide energy, vitamins, and minerals. This is great, but harmful bacteria like E.coli, Listeria and Salmonella also like these nutrients and can grow when cheese is not handled, processed, and/or stored properly. Most fresh cheeses are high in moisture, low in acid, low in salt, and/or do not have cultures added– all of which put them at greater risk.



Keeping your products cool during draining, packaging, storage, and transportation is crucial for minimizing the growth of harmful bacteria.

Ways to reduce risks that are inherent in your formula include reducing the pH, adding cultures, or increasing preservatives. It is also very important to ensure rapid product cooling to avoid temperatures where rapid growth of these harmful bacteria occurs.

Allergen Control:

It is important that any allergens in your product are labelled correctly. Controlling for them when receiving materials and during storage is especially important. Proper labelling, documentation of use, proper cleaning and sanitation during change overs, storage separation protocols and employee training all are important for reducing this risk.

Vendor Approval Process and Documentation:

Everything you bring into your plant, including ingredients, could bring pathogens into your facility and put your product at risk. It is important to have programs in place to ensure you have the proper controls and documentation. This includes knowing if they are RTE, if they contain allergens and ensuring that you pasteurize any ingredients that are “raw.” Controls are important for anything that touches your products including packaging.

Traceability Requirements:

It is important to be able to track where your ingredients came from, what products they went into and where your cheese goes in the event of a recall. The most crucial elements are documenting ingredient lots, having clear product lot separation, product codes with production date and line, and good recordkeeping during warehousing and manufacturing. All products should have the ingredients and lot codes recorded on the make sheet/recipe log. Proper control of raw materials, packaging, labels, work in progress, finished product and rework all need to be documented. Mock recalls should be performed to ensure 100% accountability within 4 hours (e.g., a problem raw material lot is identified). If not achievable, control programs and training should be revisited.

Pulling it all together – Your Food Safety Plan

All of the elements above should be part of your written food safety plan. This written plan will be the first thing that an auditor will ask for when visiting your facility. In addition to your plan, a Food Safety Program should include, product and process descriptions, intended use descriptions for consumers, a process flow diagram, and a Preventive Controls Qualified Individual (PCQI) certified individual either on staff or on call for your facility.

The Food Safety Plan should identify preventative controls (process control, sanitation control, allergen control, supplier verification) and documented proof that all hazards are being strictly monitored and controlled. Food safety is your responsibility. On-going training and verifications help create a culture of food safety for everyone in your facility, which further protects you and your customers.

Re-Audit Gap Analysis

Congratulations. Now that you have your Food Safety Plan, it is important to review it by repeating the self-assessment every 6 months as people, raw materials, and/or processes may have changed. Additionally, you may want to consider having a third-party auditor review your plan with you to identify any additional gaps you may have overlooked. Third party evaluations help pinpoint risks and gaps in your plan, your operation, and/or your employees' knowledge base that you may have missed because of the day-to-day time constraints of producing products and selling them to your customers.

A third-party evaluator does not have to be an inspector or auditor, it can also be an outside consultant. Best practice is to engage a third-party consultant who can assist you with projects and programs including new facility design, remodeling, expansion, food safety plans, supplier verification, allergen program, labelling, employee training, environmental controls, etc. Then, an inspector/auditor can review your plan and operation on an ongoing basis for the effectiveness of your quality control programs. Having a plan helps prevent food safety issues and maintains your business and reputation with your customers.

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Acknowledgments

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