



Project: Technical assistance to improve implementation of food safety standards and disease crisis preparedness

**Training course: Prerequisite programs (GMP) and HACCP**  
**GMP- general**

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Date: .....

Place: Nicosia, Cyprus

*Project funded by the European Union Aid Programme for the Turkish Cypriot community,  
implemented by NSF Euro Consultants Consortium*

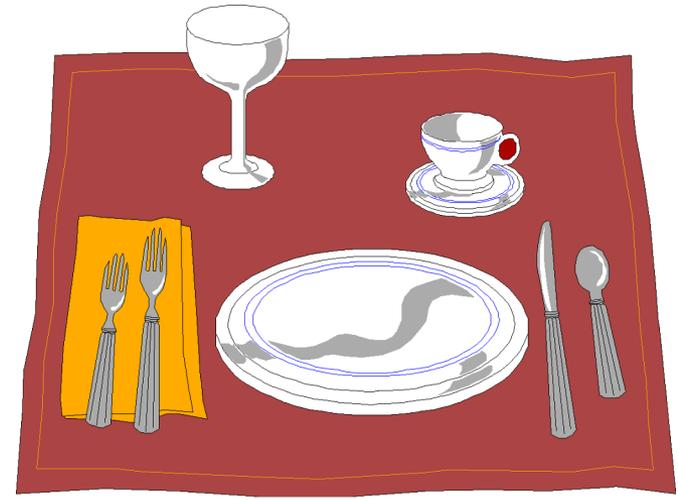


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# Food Safety from Farm to Table



- **Production**
- **Processing**
- **Transportation/Distribution**
- **Retail**





Before applying HACCP to any sector of the food chain - this sector must operate in conformity with the General Principles of Food Hygiene, the appropriate Codex of practices and appropriate national and/or international food safety standards

The goal is to reduce the risk of foodborne illness associated with food to the maximum extent possible



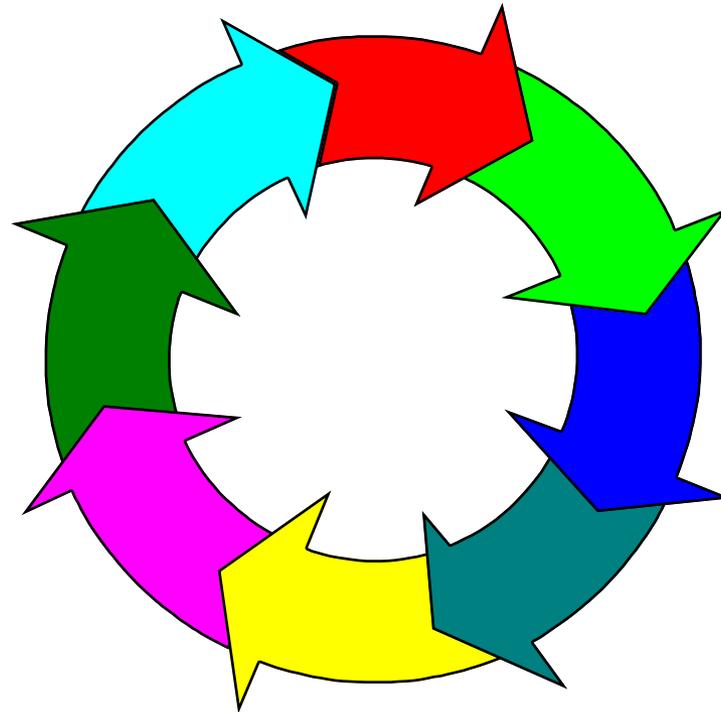
- Hygiene standards and procedures usually described as Good Hygienic Practices ( GHP) or Good Manufacturing Practices (GMP), have been in place for many years and constituted an essential tool in traditional food control. These concept are still essential in a modern food control system by providing the basic environmental and operating conditions for production of safe food and thus being a requisite or foundation for HACCP in an overall food safety management program.
- What is new in the concept of formalizing the PRP alongside HACCP and the legal requirement of documented monitoring.



- In the European Union, the prerequisite requirements were previously included in the old “horizontal” legislation such as the Hygiene Directive and “vertical” or commodity - specific legislation such as the Directive specifying the requirement for food processing.
- The need for PRP-s is now strengthened and made clearer in the new legislation as 852, 853/2004- which contain general and specific good hygienic practice requirements.
- Many activities can be considered part of a PRPs depending on the product and the actual processing conditions.
- For this reason, it is unlikely that two processing facilities have identical PRPs.

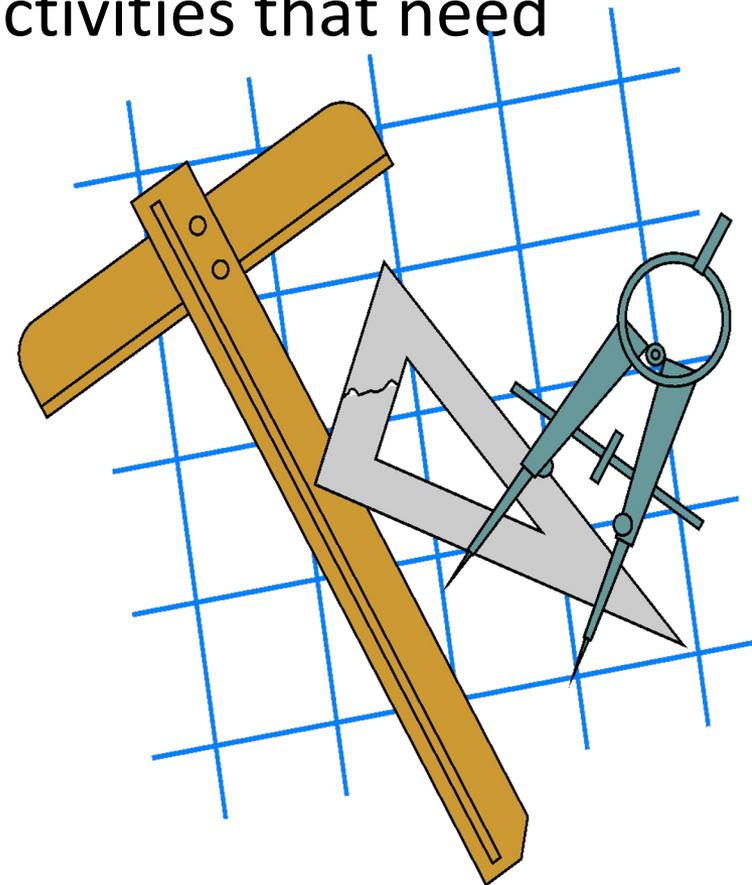


“Universal steps or procedures that control the operational conditions within a food establishment allowing environmental conditions that are favorable to the production of safe food.”



Below is a list of key points and activities that need to be addressed in any PRPs.

- **Construction**
- **Lighting**
- **Ventilation**
- **Plumbing and Sewage**





- **Dressing Rooms/Lavatories**
- **Equipment/Utensils**
- **Sanitary Operations**
- **Employee Hygiene**
- **Custom Exempt Facilities**
- **Grounds and Pest Control**



# Conditions of premises and facilities

- Objectives

To provide:

- Adequate space for equipment, installation and storage of materials.
- Separation of operations to avoid cross contamination.
- Adequate lighting and ventilation.
- Protection against pest and environment.

**Be constructed and of such materials so as to:**

- Be easily cleanable
- Not contaminate product
- Be appropriate for the operation



## **Issues that need to be considered include the following:**

Considered when selecting a new site and when changes occur in the areas surrounding the factory that have a direct impact on operations. These include:

- The effects of neighboring industries/activities
- To airborne contamination, e.g. dust, odors, chemicals
- To microbial contamination from sewage treatment plants etc.
- Waste, especially hazardous chemicals waste
- Increased potential for pest infestation caused by the area becoming overgrown and strewn with rubbish etc.
- These factors can be overcome by taking appropriate measures, e.g. installation of air filters, increased preventative pest control etc, but there are financial and time implications.



If the company may not be able to control the activities of others in the surrounding area, it does have a responsibility to ensure the immediate area around the factory

- Is kept clear of vegetation or scrap materials rubbish, to minimize areas where pest may inhabit
- Is paved or asphalted, to minimize the likelihood of dust/ mud entering the factory
- Has adequate drainage away from the factory to prevent water accumulation or entry into the premises
- Is fenced or walled to prevent pests entering the site, in addition to providing site security and controlled access to the factory.



The key to maintaining the safety and cleanliness of the processing environment is controlling the movement of product, ingredients, packaging and personnel into and out of the processing areas.

- Processing staff to enter and leave the factory via one entrance through the changing rooms.
- “outside” staff to only enter processing area after changing clothes and passing through changing rooms. To assist this procedure it is beneficial to have different color work crotches for the different areas



- Separate loading and unloading facilities for raw materials, final product, chemicals and packaging to prevent cross contamination.

All entrances should have the additional control measures of “plastic strip curtains” and or air curtains over the entranceway to prevent pest, birds, insects as well as dust and dirt, entering the processing area.

The materials used for doors should follow the same principles as for the fabric of the building.

Additionally doors should be self- closing, able to be opened without the use handles.



The fabric of the building can be defined as the materials that form the walls, floors, ceilings and other surfaces. Although they might not be in direct contact with the food materials choice will affect the overall safety of the product by means of optimizing hygienic conditions.

All surfaces should be:

- Smooth
- Inert
- Non porous/waterproof
- Easy to clean





In addition to the use of suitable materials, the design of walls, floors and ceilings should be designed such that areas that trap dirt and soil are minimized and cleaning efficiency is maximized. For e.g.:

- **Horizontal surfaces that trap dust and dirt.**
- Where surfaces do not meet these criteria they should be clearly identified and the cleaning procedures modified to ensure that it is effective.



Services necessary to operate the factory are efficiently managed and properly designed. These include:

## **Electricity :**

The supply of electricity must be reliable and provide adequate power for lighting and machinery. Further essential equipment such as refrigeration and air handling units must not be compromised. Electrical supply in plant must be properly designed.

## **Lighting:**

Sufficient lighting should be provided to not only provide a safe working environment but also to permit the visual inspection of both premises and product. Lights should be inset to ceiling in cold stores, chill stores, and factory processing key areas to prevent forklift damage and to minimize cleaning damage. The most common problem associated with lighting result from the use of glass bulbs. They must be protected from damage and explosion by being encased in hard plastic and metal cages.



## **Water :**

All water used within a food processing facility should be of potable/ drinkable standard and should include chlorination if the source is own

## **Ice:**

Should only be made using potable water and care should be taken to avoid contamination during production, storage and transport.

## **Drainage:**

The floors should be sloped so that all water flows away from walls towards the drains in the floors. Floor drains should be designed so that the direction of flow is always from clean to dirty areas. The drainage systems for processing waste and sewage from channing facilities should be separate to prevent any backflow or cross contamination.



## **Ventilation :**

Filtered, cool, dry air with sufficient volume is vital to prevent condensation and food product from degrading or being contaminated. Methods of supplying ventilation depend largely on the ambient conditions of the factory location. Where ambient temperatures fluctuate significantly, refrigerated air conditioning should be employed.

Whichever method is used it is essential that regular maintenance be scheduled to ensure a quality air supply.



- Operations within the factory need to be managed and controlled to minimize any potential risk to the product. This normally means the factory has a linear product flow and is divided into distinct areas of operations so that high risk and low risk areas are physically separated and movement of people, product waste in and out of each area are strictly controlled. Consideration should be made as to the effect of different processing conditions on nearby product e.g.
  - Heat from smoking/cooking operations causing condensation on cold surfaces.
  - Wet operations (icing, grading, wasting etc) on packaging materials.



Secondary processing is classified as any procedure that results in a product that is ready to eat without subsequent cooking and all operations that follow up to and including packaging. This often takes place in an area totally separate from all other operations called the “High Care” area. This area requires additional procedures in place to ensure a greater degree hygiene control, since the consequences of product contamination is so much higher.

It is the management’s responsibility to ensure that the product is processed with the minimum of delays and that the accumulation of product at any individual process step is avoided. Where this is not possible, product should be appropriately stored rather than left at ambient temperature.



- Factory design and process layout approval by competent authority
- Pre- production checks confirming process layout as required by competent authority



- Objectives:

To ensure that the all equipment used in food processing:

- Is appropriate for the use to which it is put.
- Does not contaminate product.
- Is easy to clean



In order to ensure the safety of the final product it is essential that selection of equipment used within the factory is based on the following principles.

## **Materials:**

All materials used in equipment must be:

- non- toxic
- Resistant to corrosion
- Smooth
- Easy to clean and disinfect
- Resistant to breakage, tears, splintering, and wear
- Non porous- resistant to penetration of unwanted substances e.g. bacteria, moisture
- Inert- should not transmit unwanted odors, coloring or flavoring substances

Wood should not be used or present in a processing environment, either as utensil handles or as work surfaces



All equipment should be designed so that it is easily and efficiently cleaned and that:

- All surfaces and joints should be smooth so as to avoid areas that can harbor dirt and bacteria.
- Joints should be welded or bonded and the use of screws or rivets only used where no other option exist.
- Corners should be rounded with a minimum radius of 2 cm.
- Machinery should be self- draining, with no areas where water or product debris can accumulate.
- Large equipment and machinery should be designed and located to facilitate cleaning.



In addition, it is the management's responsibility to ensure that equipment is used only for the purpose it was designed.

Where the equipment fulfils these criteria it is generally longer lasting, easier to maintain and keep clean. There are however, several management procedures that should be implemented to ensure that this is verified:

- All equipment, fixtures and fittings within the factory should be subject to a damage report procedures.
- Noticeable damage must be immediately reported to a nominated person who records the incident details, assesses the potential risk to product safety, and notes the appropriate action taken.



- Equipment and machines need to be maintained on a regular basis with schedules established to manage this task . Included should be regular equipment calibration- especially temperature, timers, belt speeds, etc where appropriate.
- The management are also responsible to ensure that staff are appropriately trained to safety use specific machinery and equipment.



- Monitoring that the equipment meets the required standards should involve a “Pre- operative” visual inspection of the equipment (and records kept) before use for:
  - Cleanliness
  - Damage
  - Foreign bodies
  - Appropriate use of equipment and its position in the factory.



- Standard inspection records are normally maintained. Records reporting damaged equipment must have recorded actions which bring it into compliance. Trends in constantly damaged equipment warn management that equipment is not robust, a method is not correct or staff need further training.



# **OPERATIONAL PRE REQUISITE PROGRAMS**



Operational conditions and procedures:

- Safety of water and ice (qualitative conditions)
- Cleanliness of food contact surfaces
- Prevention of cross contamination
- Personal hygiene and employee health
- Safe storage and use of toxic compounds
- Pest control
- Waste management
- Storage and transportation
- Traceability and recall procedure
- Training



- **Objectives**

- To maintain water quality in the food processing environment.
- To describe how to carefully manage water supply and quality.
- To prevent contamination of water supplies and food.





- Water of a potable standards should be available and use in all cleaning, processing and ice or steam production.
- Water that is not a potable standard e.g. clean sea water can be use only in operations where there is no contact with the product or fire fighting, cleaning external areas of factory, steam generation.
- The quality and safety of water should be monitored and recorded.
- Contamination of water supplies should be prevented.



- The quality and safety water needs to be effectively managed due to it being both an ideal vehicle for contaminating product and its widespread use within food processing, including:
  - As an ingredient in some food products.
  - To convey or transport products.
  - To wash foods.
  - To clean and sanitize utensils, containers, personnel, and equipment.
  - To make ice.
  - For drinking.



- Even where water is supplied to the factory guaranteed as “potable quality” by a water company or local authority, **it is still responsibility of the company to test this water for microbial contamination**, both at the point of entry and at the point of use within the factory.
- It is therefore necessary to have documented sampling procedures that are carried out on regular basis to ensure the continued use of safe good quality water.
- Step in developing the procedure will include:



- Mapping and marking of water supplies both within the factory and factory plans, to ensure that potable (non potable, hot) cold water supplies are identifiable and separated. Storage tanks, purification equipment etc also needs to be clearly identified.
- Individual water supplies (taps) within a factory should be numbered so that the location from which samples are taken can be identified.



- During the first year of operations it is recommended that analysis be undertaken at monthly intervals for all water supplier so as to establish a baseline from which future sampling procedures can be developed in order to minimize the cost of sampling whilst demonstrating water and hence product safety.
- The frequency of subsequent sampling and types of analysis will be dependant largely on the sources of water. If water is supplier by tanker or direct from the ground or is stored before use, then sampling should be more frequent (monthly) and include both microbial and chemical analysis. If however the water is treated and piped directly to the factory by a water company or local authority, WHO also have a responsibility to supply water of a potable standard, then the frequency may be reduced.



- The sampling of both water and ice should be conducted so that contamination after the sample is taken is minimized. The frequency and method of sampling should be detailed in the written procedures.

## Records:

- Records of all monitoring activities and results of analytical test must be kept for at least two years.

- **Objectives:**

- To effectively remove dirt/waste.
- Maintenance of hygienic surfaces.
- To prevent contamination of the product.





- Management should ensure the following exist:
  - A documented cleaning programme which includes schedules, plans and manuals for all equipment, floors, walls, ceilings, doors etc.
  - Correct cleaning equipment and materials available.
  - Detailed written instructions on the methods and appropriate concentrations for chemicals use.
  - Monitoring of cleaning is undertaken by a responsible person at an agreed frequency.
  - Corrective actions are implemented when monitoring shows unacceptable standards.
  - Appropriate records of cleaning for each clean.
  - Training of hygiene teams is in line with their role including the hazards of incorrect chemical handling, equipment usage, avoidance of contamination etc.



The management of cleaning activity within a company can be described in terms of”

- **Cleaning schedule**

Cleaning schedules should ensure that:

- All parts of the establishment are appropriately clean, including the equipment used for cleaning.
- Continuous monitoring of cleaning procedure suitability and effectiveness is conducted and where necessary, recorded

- **Cleaning procedures**

Cleaning procedures should provide concise, easy to follow written instructions for cleaning each area of the factory or piece of equipment. A cleaning procedure should include details of:



- What is to be cleaned?
- When it is to be cleaned?
- The time required.
- Precautions needed.
- Who is to clean?
- How the cleaning is done?
- Which chemicals are to be used?
- Which equipment is to be use?
- What protective equipment is required?
- Who is responsible for monitoring the cleaning?
- Records to be kept.
- The methods and chemicals to be used for cleaning will depend on the nature of the surfaces/ equipment that is being cleaned and the availability/ cost of cleaning materials.

# Sequential steps in a typical cleaning procedure



Pre- clean	Remove loosen food or dirt
Main- clean	Detergent removes more firmly adhering food
Rinse	Remove traces of detergent
Disinfect	Further reduction in the number of micro organism
Rinse	Removes traces of disinfectant
Dry	Air dry or use disposable materials to minimize recontamination



- Due to the importance of cleaning food contact surfaces in preventing product contamination, each and every cleaning procedure needs to be checked both during the cleaning, to ensure the correct procedures are followed, and on completion to ensure that the cleaning was effective. The primary method of checking cleaning is **visual inspection** of both the cleaning being carried out to established procedure and the appearance of the cleaned surfaces. In addition, the senses of smell and touch can be employed to provide a qualitative assessment of cleanliness, however this only gives an indication of gross failure to achieve a clean. In addition regular checks on the cleanliness of food contact surfaces during processing operations should be made, so that cleaning can be undertaken when necessary to prevent build up of contamination



- Records should be kept of how and when each area, piece of equipment etc. was cleaned, and who was responsible for ensuring that the cleaning was done according to the written procedure and that the required standard of cleanliness was achieved. In addition records of the type and amount of cleaning reagents used should be noted especially where concentrated chemicals are diluted before use



- It is not only essential that the cleaning activity is recorded but that the procedures use are **verified** to be effective at removing dirt and reducing bacterial numbers to acceptable numbers. The methods generally require the cleaned surface to be swabbed and the swab analyzed by some acceptable methods:
  - Laboratory – in the accredited LAB
  - Or express test



- **Objectives :**

- To prevent contamination of the product or it's ingredients from the factory and personnel.
- Prevent contamination of final product from raw materials.
- Maintain clear separation of raw and cooked products through handling, storage, processing and factory design.



# Prevention of cross contamination

- The management of preventing cross- contamination is crucial. Compliance with the legal requirements will involve the following systems:
  - Effective separation of raw materials or ingredients from cooked or ready to eat products during processing, handling and storage.
  - Proper employee health and personnel hygiene procedures.
  - Restricted and controlled movement of goods and people within the factory.
  - Effective hygiene and cleaning systems implemented.
  - Use of potable water.
  - Specific factory training in contamination control.



- Cross contamination in the transfer of biological or chemical contamination from raw food, food handlers, or the environment. The cross- contamination most frequently implicated in foodborne illness happens when pathogens or viruses are transferred to ready to eat food. Managements must therefore know their enemies- typical pathogens, sources and routes to the ready to eat foods and then control them. A detailed knowledge of the factory layout people, product and waste flow and understanding of the product's susceptibility to specific pathogens is needed. Management must then design and implement effective control and monitoring procedures.



- The handling, storage, processing and distribution must be controlled to prevent the contamination of any ready to eat product.
- The control of cross contamination is through key prerequisite programmes including employee hygiene, factory design and cleaning.
- The “Golden rules” for prevention cross contamination are:
  - Designing the factory correctly
  - Ensuring correct people flow around processing areas
  - Specifically training the cleaning team on protocols for high risk areas
  - Not contaminating processed food by poor storage
  - Not allowing infected or ill food handlers to work with food
  - Ensuring adequate toilets and wash hands basins
  - Disposition and controlling waste and leftovers
  - Not moving high risk product into low risk areas or into contact with raw or dirty product.



- Named personnel must be given specific training and responsibility to monitor and record key information.
- Factory routine start up inspection must ensure planned raw and ready to eat product separation, cleanliness of fixed and moveable equipment, especially use for raw and finished product, including cleaning operations.
- Employee sanitation points should be reviewed for readiness, availability of detergent, sanitizer, concentration, hand towels, toilet rolls, soap etc. The sanitation point review should include footbaths, hand-wash stations and toilets including availability of water at required temperature and number of useable hand wash station or toilets for the workforce.



- Further checks are scheduled at important points in the day at agreed periods e.g. every 4 hours and or shift changeover, new start- up, clean down etc.
- Specific observation on return from lunch or toilet breaks is useful to note if employee practices are consistent or factory design is adequate to cope with the lunch or break time rush.



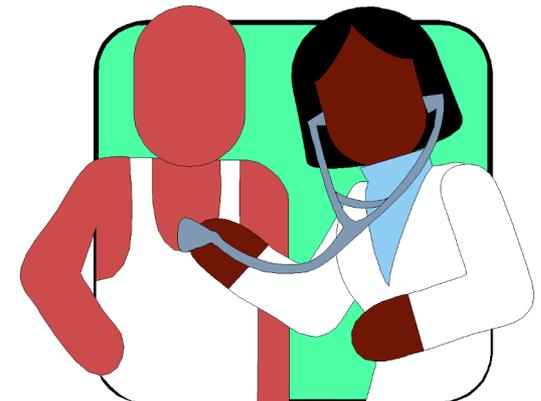
- Key monitoring records are completed on the daily check sheets.
- Further checks may be done at monthly intervals e.g. physical condition of plant and cold stores, employee health records, cleaning records, contamination incidents and actions.



- **Objectives:**
- To ensure a high degree of personnel hygiene and absence of listed medical conditions from the workplace.
- To ensure personnel have the ability, training and experience to enable good hygienic practice regimes to be implemented and maintained.
- To prevent contamination of the product or it's ingredient by personnel.



- Food handlers are probably the biggest potential single source of contamination for a food product. It is therefore essential that good personnel hygiene practices be implemented by all staff, to prevent the transfer of hazards to the product.





- A major source of microbial contamination of food is from pathogenic microbes carried by food handlers.
- The company therefore needs to control the access to processing areas by implementing the following:
  - Medical questionnaires for all new staff with possible follow up medical examination where required.
  - Microbial screening of workers in high care processing areas.
  - Health questionnaire to be completed by all visitors to the factory.
  - Reporting procedures for staff to report illness or injury



- All employees in a food processing factory should undergo basic hygiene training, related to their role, so that they are know what is expected of them in terms of ensuring product safety.
- In order for hygienic practices to be fulfilled the company has the responsibility to provide and ensure the correct use of the following:
  - Work clothing- to be worn only in the workplace



- Changing facilities, toilets and washing facilities appropriate for the number of employees. Separate facilities should also exist where there is a high care production area producing ready to eat products. These facilities must be separated from the factory production area and should be the only route by which employees can enter the processing areas.
- And adequate number of hygienically maintained toilets should be provided in proportion to the size of the workforce. They must be located outside the processing areas so that staff must exit via the changing rooms and change out of work clothing before using these facilities.
- Some companies will provide additional amenities such as shower facilities to enhance hygienic control.



- Whilst the completed questionnaires, medical and microbial screening results when linked to the personnel records constitute the documented evidence that the company is undertaking the required employee health procedures, it is also necessary for factory managers and supervisors to be observe staff for signs of illness and or unhygienic practices

- **Records:**

Recording of individual staff member's compliance with GHP is not necessary, however records of non compliance should be kept and where applicable linked to disciplinary action.



- **Objectives:**

- Positive control of toxic chemicals within food processing areas.
- Prevention of product contamination.
- Ensuring safe use of chemicals within factory.



- Toxic or non food approved substance must be stored outside of the processing environment in a separate room.
- All substance food approved or otherwise, must be clearly labeled.
- Records of toxic substances to be kept, detailing usage and health information.
- Unidentifiable chemicals and substances are not to be used and must be legally disposed.



- The use of chemicals, such as cleaning agents, disinfectants, pesticides, machine lubricants, and various additives are essential in order to meet the required standards of GMP within a food processing factory. However many of these chemicals have the potential to cause harm or illness to the consumer and therefore their control within the factory is essential.
- Only chemicals that are necessary and are approved for use in food premises should be stored on the processing site, other chemicals such as petroleum based product, if essential for refrigeration units etc. should be stored in a separate building.
- The following rules should be followed for the use and storage of all chemicals within the factory:



- All chemicals should be stored away from processing areas. Ideally in a separate room used only for this purpose.
- Access to chemical stores should be limited- lockable room or cupboard.
- All containers should be made of appropriate inert materials and clearly labeled with their:
  1. Contents
  2. Concentration
  3. Manufacture's details and instructions for purpose use
  4. Use by date
  5. Appropriate warning symbols
- Storage of chemicals should be such that chemicals that react are separated e.g. acids, alkalis and hypochlorites are stored separately, so that any leakage does not start a potentially dangerous reaction.



- Use of chemicals should be recorded and only undertaken by trained personnel.
- Where chemicals need to be weighed, measured or diluted, this should be carried out away from the processing areas. Any utensils that are used should be reserved solely for this task and be clearly identifiable from any similar tools used in processing.
- Where chemicals are transferred to other containers for use in the factory, the containers should be clearly labeled with information regarding the nature, concentration and any safety warnings. After use, these working solutions should be immediately returned to the storage area.
- Chemicals should only be used within the processing areas when there is no risk of contaminating the food product.



- An approved list of chemicals is available to purchasing staff.
- The purchase of new or different chemicals is undertaken only with management approval.
- Checks on chemicals used within the factory.
- Corrected procedures are followed for the use of chemicals.
- Chemicals store stock should include training in the use of specific chemical.
- Chemicals store stock should be monitored.
- System in place to record the disposal of out of date or superseded chemicals.
- Training records.



- List of approved chemicals and their use.
- Daily monitoring of chemicals use.

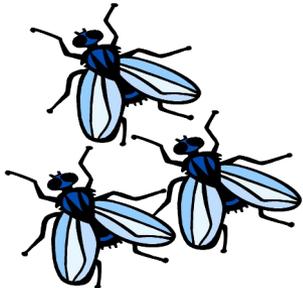


- **Objectives:**
  - **Exclusion or preventing access.**
  - **Control of environments conducive to pests.**
  - **Destruction and eradication of pest.**





- Effective pest control systems must be in place.
- Management of premises must include pest deterrent measures.
- Records of pest control must be maintained.
- Staff must be trained and made responsible in identifying and their activity.
- Where chemicals controls are used, staff must be trained to safety handle and use these product.



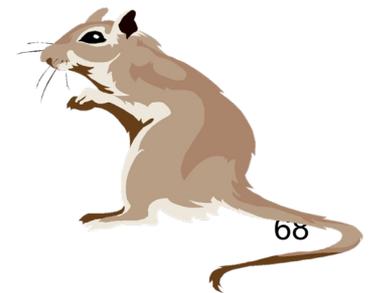


- This programme related to pest such as rodents, birds, cats, dogs and insects. Two reasons for controlling them are:
  - Prevention of product contamination with pathogenic microorganisms the pest acting as the vector.
  - Aesthetic issues relating to physical contamination of final product with the pest.

GMP will address pest control issues by consideration of the following measures:

## **Exclusion and deterrent measures:**

Building design should then include:





- External opening windows to be fitted with washable fine mesh screens
- Doors should be self closing or fitted with plastic strip curtains
- The use of air curtains on all exits and entrances may be required in climates where flying insects are prevalent.
- Ventilation grill and ducts should be fitted with washable mesh screens or insect proof air filters,.
- Other external penetrations such as pipe – work, conduit holes , beams and trusses should be sealed with fine mesh or approved caulking compounds.
- Good building maintenance procedures will then reveal any future weaknesses in the fabric of the building and ensure the upkeep of existing controls.



- **Control of breeding grounds:**

This will include procedures that :

- Maintain the factory surroundings free of rubbish, undergrowth stagnant water etc.
- Ensure that all waste is stored in sealed bins or refuse containers before appropriate disposal.
- Storage of dry goods should be in cool and dry conditions.
- Cleaning procedures within factory prevent the accumulation of dirt/product debris, in equipment, drains, storage areas etc.





- **Destruction/eradication methods:**

The methods used will be dependant on the pest, however in many cases the destruction of pests will involve the use of toxic chemicals. For this reason either trained staff or contracted specialist are used.



- Disposal of dead animals should be undertaken through approved methods such as burying or incineration. Disposal and destruction of live animals can sometimes be distressing and should be undertaken only by trained personnel.
- Flying insect destruction in the workspace should be undertaken using electronic flying insect killers. Sprayed insecticides can be used for instant destruction of an insect infestation but use must be extremely well controlled. All food must be stored out of contact and all work and food contact surfaces must be covered and after that the surfaces have to be cleaned. Application should only be undertaken by trained personnel.



- Staff responsible for monitoring pest activity should be trained to:
- Carry out a general visual inspection of grounds and premises for signs of pest activity.
- Check security of waste disposal bins and containers.
- Check all external and internal drains for integrity of exclusion measures and build up of food waste.
- Ensure exclusion measures are in place and regularly checked for integrity
- Check for rodent trap integrity
- Checks on operation of electronic fly killers ensuring agreed service checks are undertaken.
- Check difficult to clean parts of equipment and machinery for signs of pest activity.
- Stored product infestations should be monitored against records.



- Following implementation of a pest control plan it is vital to keep records of all pest control activity.
- Records are important as they:
  - Provide a record of all chemicals in use.
  - Show frequency of monitoring checks.
  - Show numbers and species captured in any period.
  - Provide evidence of due diligence.
  - Indicate effectiveness of control measures in place.
  - Provide early warning of new or different infestations.
  - Can be cross referenced with other incidents of pest related problems in the geographic region or through common raw materials supply.



- **Objectives:**

- To ensure offal and waste materials are removed from the process area.
- Facilities are provided for food and non food waste.
- Waste water is managed and controlled.





- Show provision of waste management policy.
- Allow correct disposal of food and non food items.
- Minimize waste in drains.
- Activate appropriate controls to prevent pathogen cross contamination.
- Establish systems which prevent accumulation and attraction of pests.





- The following monitoring activities should be incorporated into the waste management system:
  - Establish management commitment and involve staff.
  - Identify the processes that make the greatest contribution to the site's water and effluent costs.
  - targeting opportunities to reduce costs.
  - Implementing no- cost and low- cost measures.
  - Monitor progress
  - Maintain continuous improvement.





- There should be a planned programme of waste minimization, including:
  - The measures to be taken.
  - A schedule for their introduction
  - The estimated cost involved
  - The specification of responsibilities
  - Staff training and instruction
  - Targets for waste minimization
  - And any performance incentives.



- **Objectives:**

- Minimize risk of bacterial growth, contamination and damage.
- High levels of hygiene maintained.
- Product stored and transported within temperature limits.
- Maintenance of records.



- Compliance with hygiene standards.
- Maintenance of temperature limits.
- Storage life must be met.
- Ice quality to be assured.
- Traceability systems in place.
- Record keeping systems must be in place.





- Where necessary, conveyances and bulk containers should be designed and constructed so that they:
- do not contaminate foods or packaging;
- can be effectively cleaned and, where necessary, disinfected;
- permit effective separation of different foods or foods from non-food items where necessary during transport;
- provide effective protection from contamination, including dust and fumes;
- can effectively maintain any temperature, humidity, atmosphere and other conditions necessary to protect food from harmful or undesirable microbial growth and deterioration likely to render it unsuitable for consumption; and
- allow any necessary temperature, humidity and other conditions to be checked.



- Ingredients requiring refrigeration should be transported at 4°C or less and should be appropriately monitored. Frozen ingredients should be transported at temperatures that do not permit thawing.
- Food products should be transported under conditions that prevent microbiological, physical and chemical hazards.
- Use and maintenance:
- Conveyances and containers for transporting food should be kept in an appropriate state of cleanliness, repair and condition. Where the same conveyance or container is used for transporting different foods, or non-foods, effective cleaning and, where necessary, disinfection should take place between loads.
- Where appropriate, particularly in bulk transport, containers and conveyances should be designated and marked for food use only and be used only for that purpose.



- Carriers should be inspected by the manufacturer on receipt and prior to loading to ensure they are free from contamination and suitable for the transportation of food.
- The manufacturer should have a programme in place to demonstrate the adequacy of cleaning and sanitizing. For example, for bulk carriers a written cleaning and sanitizing procedure should be available.



- The transportation and distribution segments are very diverse. In many cases, transportation firms may be handling a variety of products in addition to food, which adds to the complexity of the situation.
- The first step is to identify those circumstances that pose a significant health risk, such as improper handling of sensitive products or ineffective cleaning or sanitizing of transportation vehicles. For example, inadequate control of temperatures during transportation and distribution can contribute to microbial growth, formation of mycotoxins, spoilage and/or deterioration of certain products.



- Checklist should be completed to confirm:
  - Prerequisite documentation is place – certificate for approval from control body.
  - Special product dispatch instruction notified to relevant personnel.
  - Goods order and acceptance documentation in place.
  - Checklist for cleanliness.

## **Records:**

Are maintained to show:

- Cool chain temperature trace through storage and transportation. rules on driving times do not compromise product.

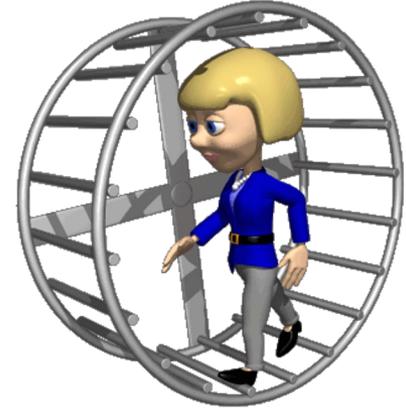


- **Objectives:**

To ensure that information regarding the source of raw materials and processing conditions can be linked to specific product.

To ensure that product information is transferred throughout the supply chain.

to permit the rapid removal of potentially harmful products from the supply chain.





- All substances to be used as or incorporated into food products to be traced back through the food chain to its source.
- All product should be labeled with appropriate details.
- Product that is suspected of being unsafe is traceable and immediately withdrawn from the supply chain.
- The competent authority should be informed of product recall events



- In the simplest terms traceability is the ability to identify the source of each consignment of raw material , to label individual products with identification codes that can be linked to this information and the processing history and to identify the customers that were supplied with the final product.
- In many instance the necessary information to ensure traceability will be collected, recorded and used within the normal operating practices of a food processing company however it is probable that the information is not linked together within the company's management systems e.g. supplier details are kept by the purchasing department, whilst customers details are kept by the sales dept and the product identification code is not linked to either.



- Therefore even if a traceability system is not formally implemented within a company it is essential that a systematic approach to the management of traceability is developed and integrated into the other information management systems operated. Product information that is provide to customers must meet the minimum labeling requirements and provide sufficient information to ensure that the product can be traced back to the supplier by the supplier name and batch identification number (BIN).



- **Product recall procedures:**
- All primary aim of a traceability system is to enable all product that is potentially harmful to be efficiently removed from the human food chain. As such the company must have in place a documented product recall procedure that details the steps by which potentially harmful product is identified and where necessary removed or recalled from the food chain. The staff team responsible for this act must be trained.



- In paper based systems visual checks of completeness of records at each stage is required.



- **Objectives:**

- Provide training commensurate with task, role and responsibility.
- Ensure training is appropriate.
- Demonstrate the importance of training and its effectiveness.



- **Training is fundamentally important to any food hygiene system.**

All personnel should be aware of their role and responsibility in protecting food from contamination or deterioration. Food handlers should have the necessary knowledge and skills to enable them to handle food hygienically. Those who handle a strong cleaning chemicals or other potentially hazardous chemicals should be instructed in safe handling techniques.

- **Inadequate hygiene training, and/or instruction and supervision of all people involved in food related activities pose a potential threat to the safety of food and its suitability for consumption.**



- **Training programmes**

- Factors to take into account in assessing the level of training required include:
  - the nature of the food, in particular its ability to sustain growth of pathogenic or spoilage microorganisms;
  - the manner in which the food is handled and packed, including the probability of contamination;
  - the extent and nature of processing or further preparation before final consumption;
  - the conditions under which the food will be stored; and
  - the expected length of time before consumption.
- Training should be appropriate to the complexity of the manufacturing process and the tasks assigned.



- **Refresher training**

Training programmes should be routinely reviewed and updated where necessary. Systems should be in place to ensure that food handlers remain aware of all procedures necessary to maintain the safety and suitability of food.



- Monitoring of a training program will involve :
  - Register of attending participants
  - Result of assessment
  - Course feedback from students
  - In addition to ensure successful management of the overall training and staff development program as measured against the learning objectives should be monitored.



- Record to be kept should include:
  - Details of training courses e.g. date, location, training provider and etc.
  - Course evaluation and actions implemented to improve course design or delivery.
  - Individual staff training records detailing courses they have attended.



# PRP-s Standard format

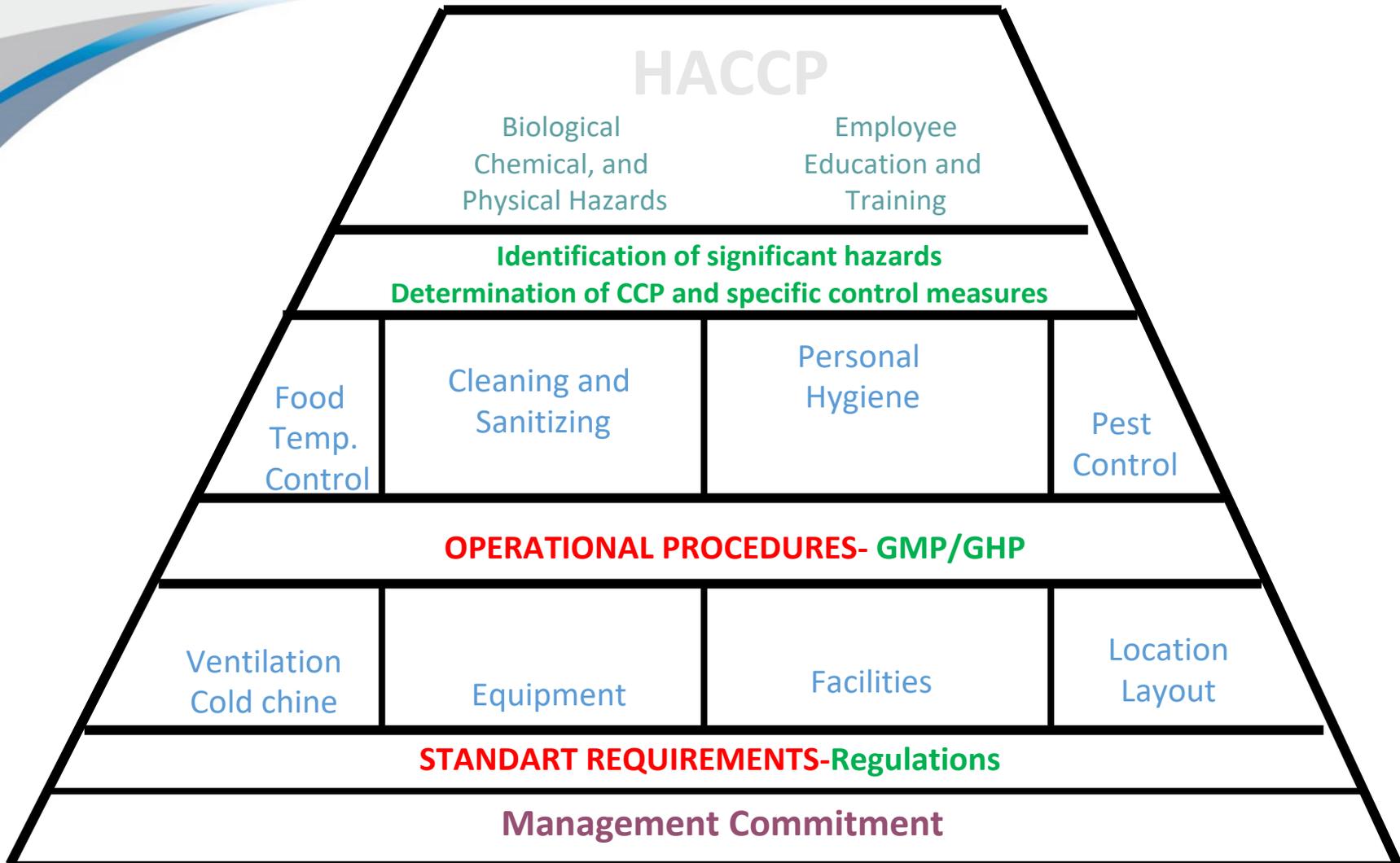
- **Criteria**  
*what is required*
- **Monitoring**  
*what, how, when and who*
- **Corrective actions**  
*if something goes wrong*
- **Records**  
*physical evidence*
- **Verification**  
*check that it works*



1. Safety of water and ice
2. Cleanliness of food contact surfaces
3. Personnel hygiene and health
4. Prevention of cross contamination compounds
5. Maintenance of facilities for personal hygiene
6. Protection of food from adulterants
7. Waste management
8. Recalls and traceability
9. Training
10. Pest Control
11. Proper labelling & safe storage & use of toxic compounds
12. Specification and supplier control
13. Transportation and storage



# FOOD SAFETY PYRAMID





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# THANK YOU FOR YOUR ATTENTION



*Project funded by the European Union Aid Programme for the Turkish Cypriot community,  
implemented by NSF Euro Consultants Consortium*