

GOOD MANUFACTURING PRACTICES

(GMPs)



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GMPs or cGMP defines as the measures of general hygiene as well as the measures of the prevent food from becoming adulterated due to unsanitary condition.



GOOD MANUFACTURING PRACTICES (GMPs)

- The aim of GMPs is to reduce the risk of contamination of food product during *processing, handling, packing, storage and transportation*
- Broad and general in nature
- GMPs do not require record keeping, but need some information providing for monitoring of hazards controls
- GMPs assist to guide the development of SOPs and SSOPs

The Development of GMP in Thailand

- **Thai GMPs are adopted from the principle of hygienic practices according to Codex.**
- **Thai GMPs are the mandatory regulations which all food plants should be compliance since 2000.**

Comparison between Thai GMP and Codex GMPs

Codex

- 1. Objectives**
- 2. Scope/Uses/Definition**
- 3. Primary Production**
- 4. Design and Facilities**
- 5. Operation Control**
- 6. Maintenance and Sanitation**
- Personal Hygiene**
- 8. Transportation**
- 9. Information and Consumer Communication**
- 10. Training**

Thai GMP

- 1. Premises , Surrounding and Building**
- 2. Machines, Equipments and Utensils**
- 3. Facilities**
- 4. Process Control**
- 5. Maintenance and Cleaning**
- 6. Personal Hygiene**
- (3) Process control**
 - Product Analysis and Record**
 - Labeling**
- (6) Personal Hygiene**

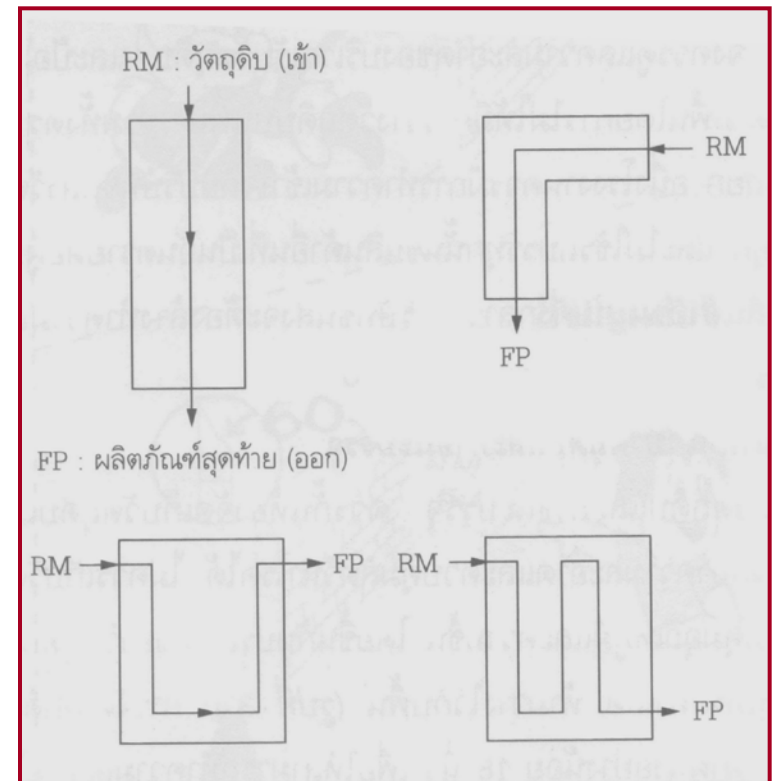
1. Premises, Surrounding and Building

- The entire location, neighboring properties surrounding areas , structure(s) and equipment need to be considered.
- the main focus is
 - *To prevent potential contaminate from incoming into contact with food product*
- Contaminants may be airborne contaminants
- Farms, Waste dispose , Flooding area
- Overhead condensate, Chipping point, Rust Dusts



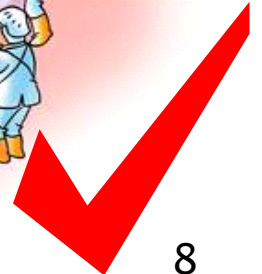
1. Premises, Surrounding and Building

- The facilities should be designed so that product flows in one direction only
- Should be separated
 - raw ingredients
 - their containers
- Should be separated
 - waste
 - and their source of contamination
- Prevention of cross contamination



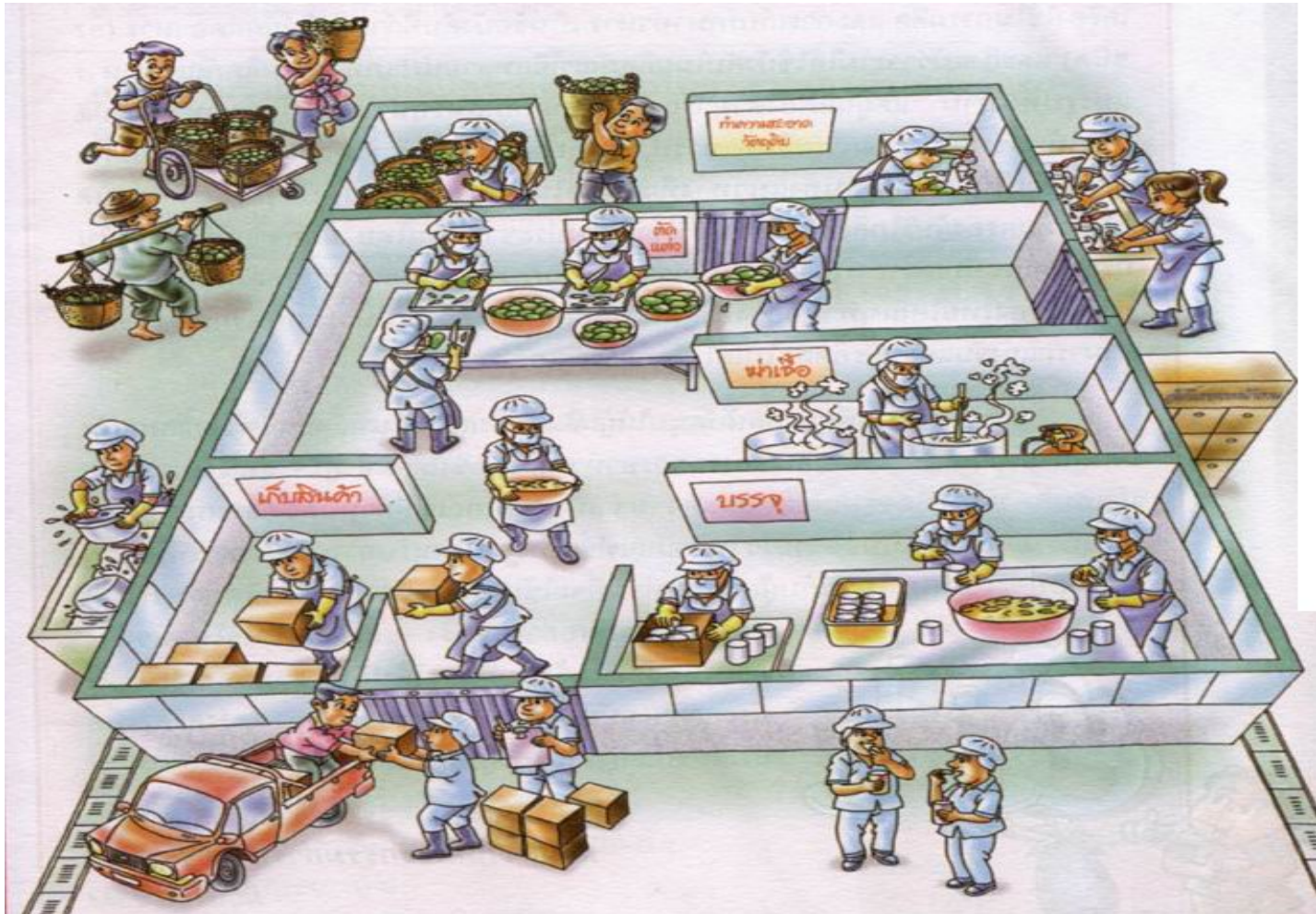
1. Premises, Surrounding and Building

- All facilities should be designed so that product flows in one direction only
- available space for machine/ equipment installation
- easily access to clean
- and working orderly to prevent cross-contamination



1. Premises, Surrounding and Building

Each area have to be separated and convenience to work and prevent recontamination have to be concerned.



1. Premises, Surrounding and Building

- All ingredients should be kept in proper temperature and relative humidity
- Keep away raw ingredients from finished product
- **Consider accessibility of storage area**

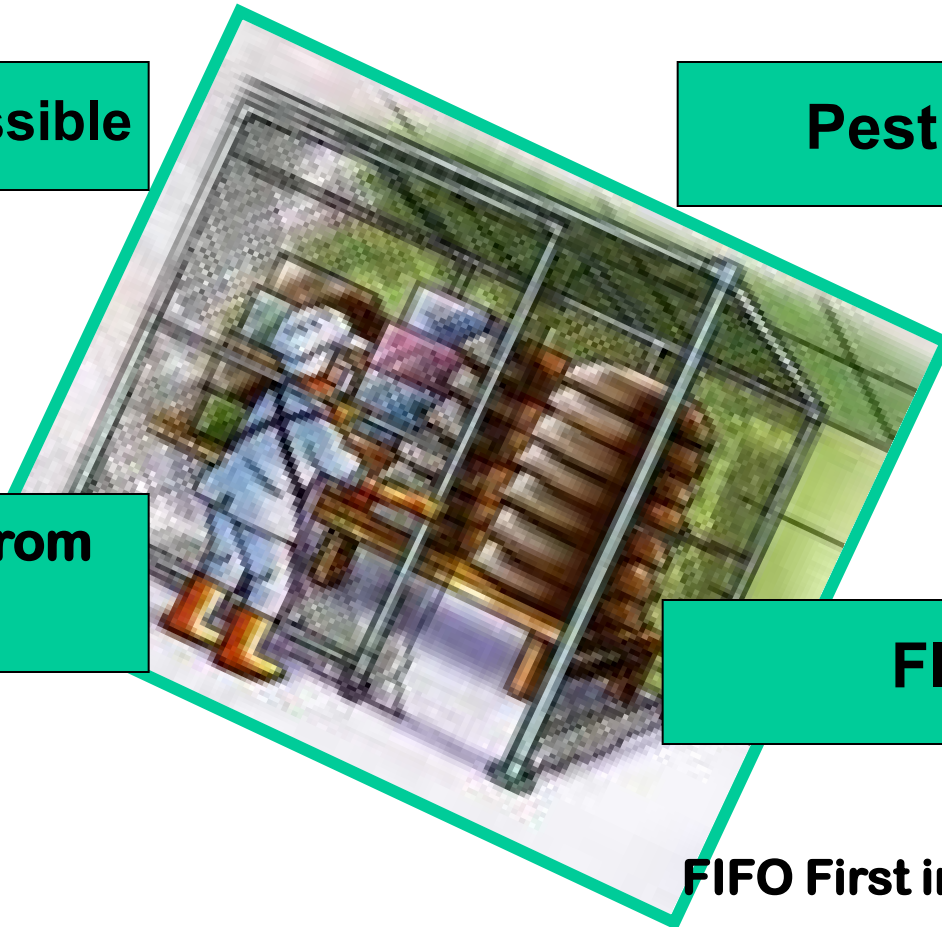
Easy accessible

Pest control

Keep away from floor

FIFO

FIFO First in and First out



1. Premises, Surrounding and Building

Buildings should be well screened with barriers designed to exclude vermin, domestic and wild animals, including birds and insects.



1. Premises, Surrounding and Building

No waste and unused machine is collected in processing areas and plant surrounding.



1. Premises, Surrounding and Building

- **Lamps and bulb lights should be covered**
- **Floor should be constructed with a slight slope to avoid water accumulation**
- **Sewage system should be constructed to prevent waste accumulation in processing , packing and storage rooms.**



1. Premises, Surrounding and Building

Floor, wall and ceiling

- Floor should be constructed with a slight slope to avoid water accumulation
- Materials should be durable, smooth surface and water-proof



1. Premises, Surrounding and Building

Recommendations for the proper chemical storage:

- All chemical agents, such as fuels, additives, fertilizers, pesticides, sanitizers, etc. must be packed in durable containers, properly labeled, and stored in dry, clean, closed places.
- ***separated from food products and packing material.***
- These supplies must be handled only by authorized personnel.



- Properly labeled,
- Stored in dry, clean, closed places.
- Material Safety Data Sheet is in-place.



1. Premises, Surrounding and Building

- **Packing and storage areas should be separated and , ideally, different personnel should handle separate tasks to avoid cross-contamination.**
- **Comprehensive Sanitation Standard Operating Procedures (SSOPs) and maintenance programs should be implemented.**
- **Pest control and monitoring should be in place.**

2. Machines, Equipments and utensils

**All equipments,
utensils and food
contact surfaces
have to be proper
designed and easily
to clean.**



2. Machines, Equipments and utensils

- **The design should be easy to access and clean .**
- **The schedule of replacement of worn parts and maintenance of equipment should be planed.**
- **If equipment has any paint on it, the paint should be approved for food processing equipment and it should not chip easily.**
- **Rust should be removed so it will not flake off onto the product.**
- **Oil leaks and over-lubrication must be avoided.**
- **Only food grade oil and lubricants should be used.**

2. Machines, Equipments and utensils

Materials and design

- All equipment and containers that come in direct contact with food or ingredients should be stainless steel or plastic.
- Equipment must have smooth surfaces .
- Avoid to use wood cutting board



2. Machines, Equipments and utensils

- **Containers should be made of non-toxic materials.**
- **used only for transporting food**
- **should be cleaned and disinfected after each use.**
- **If it is direct contact ed with soil, mud, compost or fecal material**
- **It should not enter the receiving or packing facility at any time.**
- **Containers used for food, particularly fresh produce,**
- **should not be used to transport any other materials.**



2. Machines, Equipments and utensils

- **it is a good practice to color code or label containers**
- **used for transporting the product before and after washing**
- **and keep them well separated to avoid cross contamination.**
- **Inspection for pest control and monitoring of infestation**



3. Process control

- **Written specification should be in place for all food additives, food ingredients and packaging materials.**
- **All supplier must be compliances to all laws, and assure that they have food safety program and GMPs in place .**
- **Some ingredients may be necessary to require proof of safety prior to acceptance.**
 - **COA, a letter of guarantee and other means of documents**
- **On going audit program may be needed.**

3. Process control



Time and temperature control with record

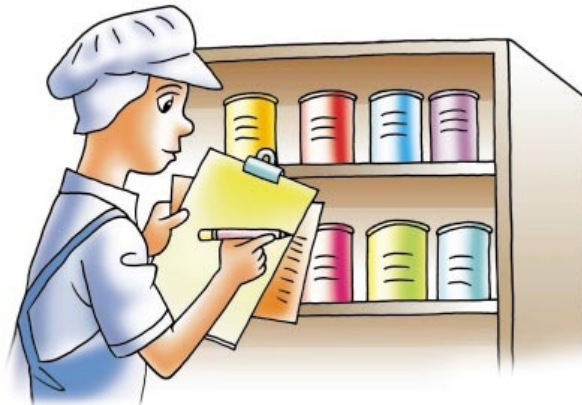
Production, storage, handling and transportation of finished products



Storage Control

3. Process control

- All foods have to be done under the hygienic practices.
- Prevent the cross-contamination .
- Prevent spoilage by control temperature and humidity.
- Temperature must be monitored and recorded.
- Product or process record have to be kept for 2 years in case of need to track back



4. Facilities

4.1 Water, ice and steam

Water supply shall be sufficient and derived from an adequate source.

- Potable and non-potable water system need to approve a quality and maintenance as necessary.
- **Sanitizers** that added to all water contact food or food contact surface is needed.



4. Facilities

4.1 Water , ice and steam

- **Reused water has to be treated properly to assure the microbiological quality and to prevent re-contamination to incoming product.**
- **In washing particularly produce, an appropriate changing water from time-to-time to prevent the growth of microorganism**

4. Facilities



4.2 Toilet facilities

- Wash hand basins
- Locate at appropriate stations
- Need liquid soap with hand sanitizer
- Need dry hard equipment or clean towel
- Avoid hand doorknob
- Avoid hand facet

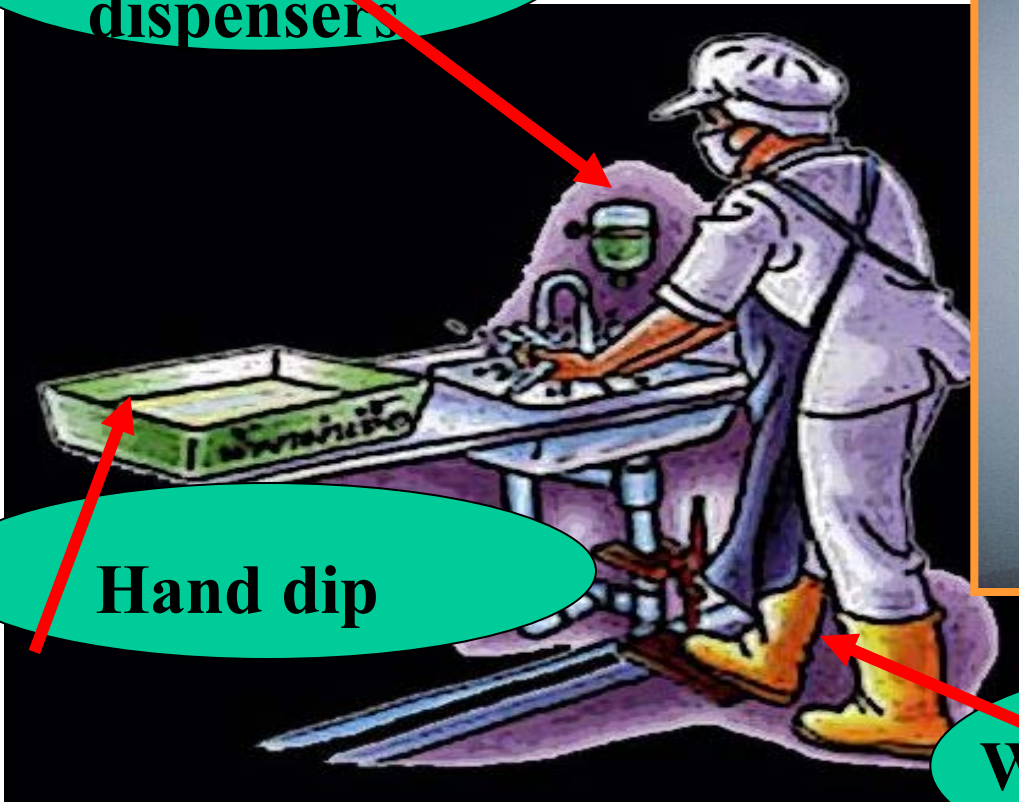
4. Facilities

Liquid soap
dispensers

Hand dry facility

Hand dip

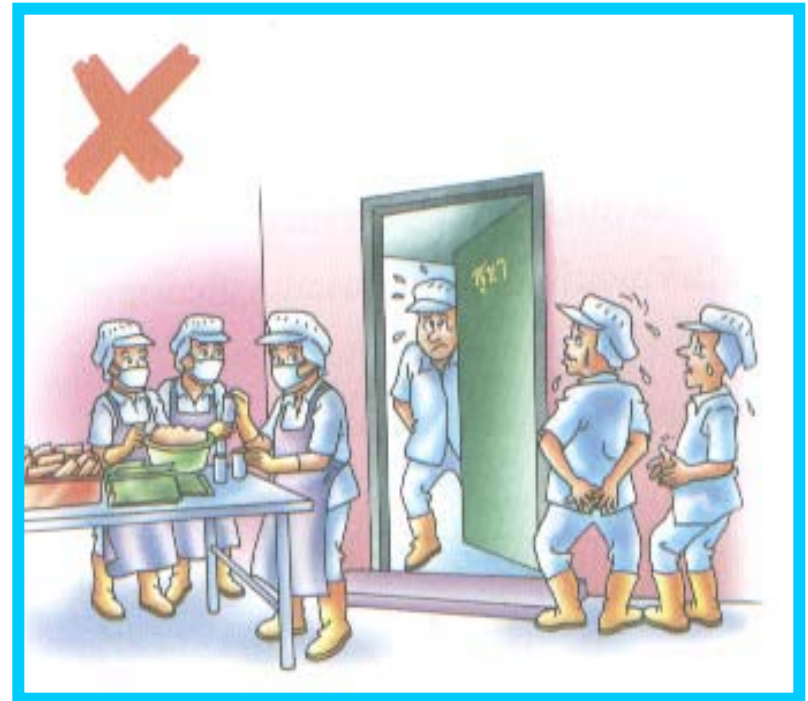
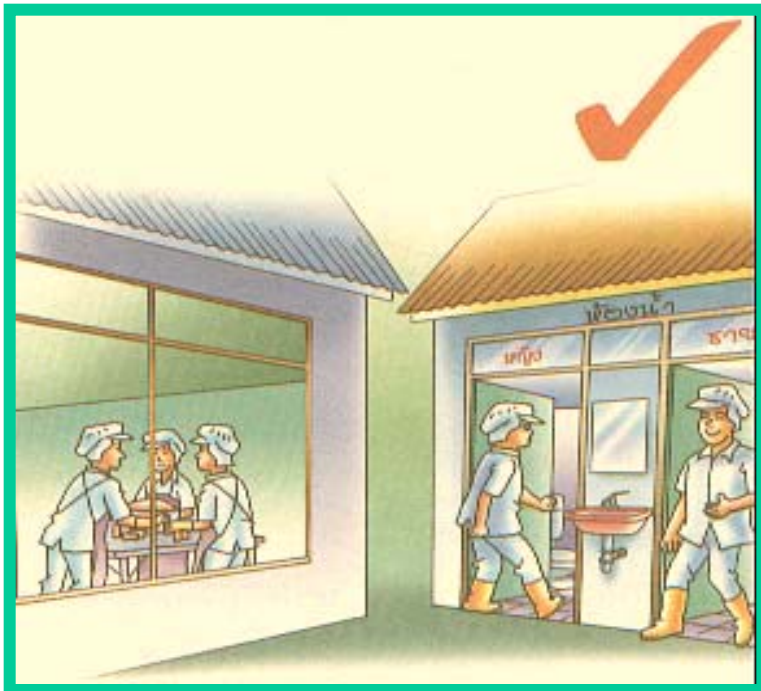
Without hand touch



4. Facilities

- **Toilet facilities**

- Adequate, clean and maintain in hygienic condition.
- Separate from processing area.



4. Facilities

Number of Toilets Facilities and Wash Hand Basins

Per heads	Women Toilets	Men Toilets	Wash hand basins
•15 or less	1	1	1
•more than 15	2	2	2
•more than 40	3	3	3
•more than 80	Extra 1 room/per 50 persons	Extra 1 room/per 50 persons	Extra 1 room/per 50 persons

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4.3 Pest control

- Rats
- Mice
- Insects
 - cockroaches, flies, ants
- Stored product pests
 - beetles, weevils, flour moths
- Reptiles
 - lizards
- Birds
- Animals attacked by pests
 - cats and dogs



4.3 Pest control



4.3 Pest control

Pest can pose hazards in relations to:

- **Biological -
carriers of serious virus and bacterial
contamination**
- **Physical -
contamination by body parts, hair, urine,
droppings, and eggs**
- **Cost of wastage**

4.3 Pest control

Pests require

- Security
- Shelter
- Food and water
- Two factors for prevention
 1. Denial of access-proofing, screening of windows, curtains on doors and sealing of holes
 2. Denial of food and shelter-good hygiene and cleanliness

4.3 Pest control

Factory kept clean

- Effective waste control
- Food in preparation kept covered
- Clean spillages quickly and effectively
- No food left outside the facility

- Food stored off the floor and away from walls
- External shelter denied
- Raw materials checked upon intake and during storage
- Food stored in pest proof containers
- Drains kept clean and screened

4.3 Pest control

- **Physical Control–**
electric fly killers, rodent traps, sticky fly strips, curtains, bird screens
- **Chemical–**rodenticides, insecticides, and fumigates
- **Understand your raw materials and likely associated pests**
- **Inspect incoming raw materials on intake**
- **Take professional advice**
- **Inspect the facility regularly and record these inspections**
- **Work with staff to make sure they understand the need for hygiene and cleanliness**

- Place traps inside the facility near (but not in front of) each outside door and opening window.
- Do not install ILTs over exposed food or near food prep surfaces.
- Install at large wall mount at least 2 m (5 ft) above floor.
- In food-processing areas, place ILTs so as to draw insects away from the food.
- Do not install ILTs over exposed food or near food prep surfaces.
- Install at the place and height does not interfere the work left-working
- Anti-Static Yellow PVC strips
Impedes the ability for flying insects to identify the door opening



4.4 Waste Management

- Designate a specific secure, confined area outside the processing facility for the temporary holding of trash and produce waste.
- Trash and waste collection center should be constructed to facilitate cleaning and to avoid accumulation of residue and bad odors.
- This area must be well outside the production perimeter.
- Use closed containers and need to consider dominant winds to avoid bad odors in the production and packing facilities and the surrounding neighborhood.

4.4 Waste Management

- **Trash containers and waste baskets used inside the production and packing areas must be conveniently located and properly identified.**
- **Trash containers and waste baskets should be able to be tightly closed, and not easily overturned.**



- **Trash and waste material should be removed often and schedule for the daily cleaning activities.**
Separation of organic and inorganic waste material with appropriate recycling is recommended.



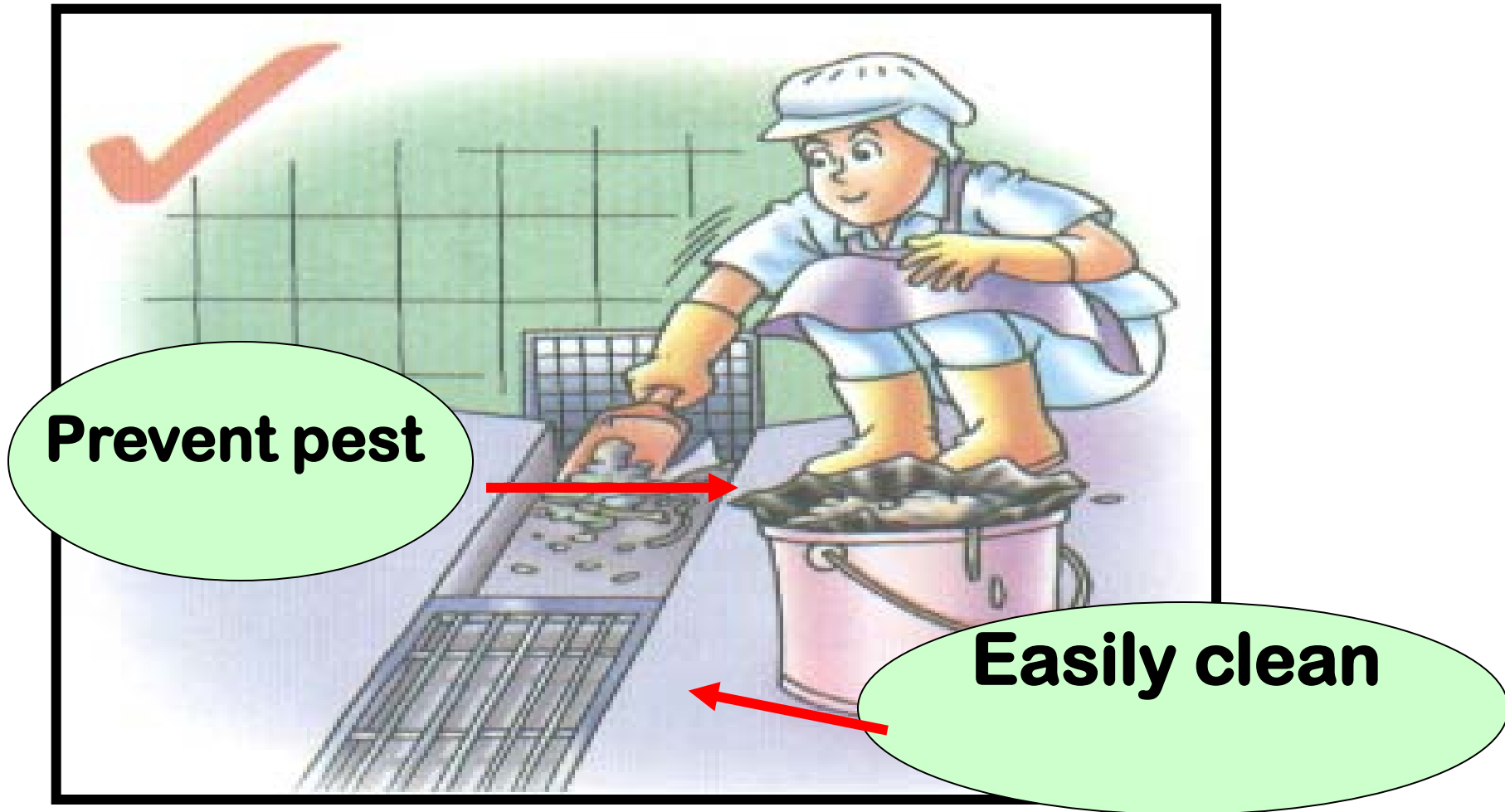


Separate waste

- Tightly closed, and not easily overturned.



4.5 Drainage



5. Maintenance and cleaning

- **Keep contact surfaces clean and free of contamination from tools, cords, cleaning utensils, machine parts, lubricants and paper.**
- **Clean all spills as well as wipe or mop up spilled liquids promptly .**
- **Keep everything off the floor and the area clean and floors swept.**
- **Work areas should be cleaned regularly throughout the shift.**
- **Scrape the floor around the work after completing a job.**
- **Always leave work area clean at the end of each shift.**

5. Maintenance and cleaning



**Separate Chemicals
from Food Ingredient**



**Clear Labeling All
Chemicals**

6. Personal hygiene

- All employees working in direct contact with food , food contact surfaces and food packing must conform to hygienic practices**



Any unhygienic practices is not allowed in food handling areas

Diseases transmission through food

- **Examples of microbial pathogens that are common only transmitted by infected food workers:**
- **Norovirus, Hepatitis A, Shigella spp, Enterohemorrhagic E. coli, Salmonella Typhi**
- **People known, or suspected, to be suffering from, or to be a carrier of a disease or illness likely to be transmitted through food, should not be allowed to enter any food handling area if there is a likelihood of their contaminating food.**
- **Any person so affected should immediately report illness or symptoms of illness to the management.**

- **A person who has diarrhea or is a carrier of a communicable disease that can be transmitted is prohibited from working with food.**
- **That person must be excluded from working in receiving, inspection, washing, or other processing areas.**
- **Cuts and open skin lesions can be a source of pathogens and must be treated appropriately**
- **Wash the affected area**
- **Apply a bandage, and then cover with a barrier (e.g. glove)**

6. Personal hygiene



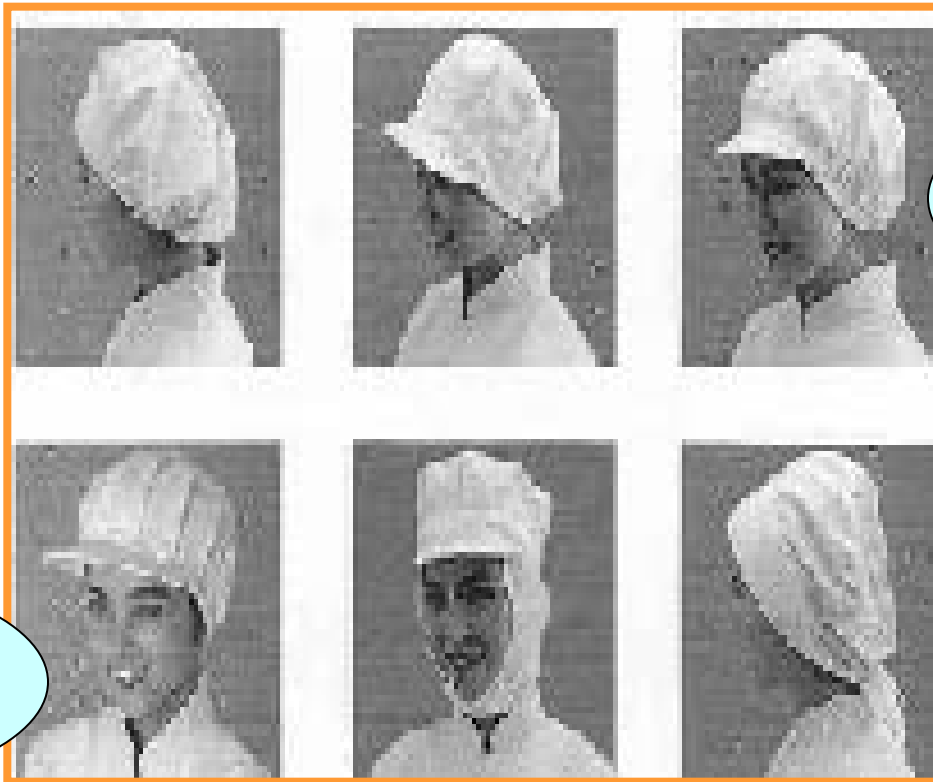
- Ensure that a clean bandage covers any open wounds
- Inform supervisor if feel ill with symptoms that could contaminate ingredients or products

Clothing

- Wear pants and covered sleeves
- Separate shoes
- No open toes and high heels, are to be worn in the factory
- Personal belonging and street clothing must be stored in locker rooms
- Covered mask and hat properly



Hair net and hat cover



Ears cover

Hairs cover

All employees must wash their hand thoroughly

Handwashing Should Take Place

- **When they enter food handling areas**
 - **Before starting work•**
 - **After any absence from a work station**
 - **After handling contaminated materials**
 - **After breaks**
 - **After using toilet facility**
 - **After blowing nose or touching face or hair**
 - **After performing maintenance on equipment**
 - **After picking up objects from the floor**
-
- **Every Time after Changing Activities**

- No perfume, fragrant cream or any jewelry or nail polish.
- Fingernails should be trimmed short.



- Disposable gloves must be used correctly to ensure handling hygiene and safety
- Gloves must NOT be used in place of proper hand washing
- Wash hands thoroughly before and after wearing gloves



**No eating or testing any food
during operation**



- keep hand out from scratch or
- touch any of body parts during handling food,
- washed hand after touching

- No eating, drinking ,
- smoking
- or chewing gum



6. Personal hygiene

- **Visitors to food manufacturing, processing or handling areas should,**
- **wear protective clothing adhere to the other personal hygiene provisions in this section**

Training

- Careless employee practices can cause product contamination
- The best way to avoid contamination is to prevent it
- *Training and education is the way to prevent*
- Regularly fresh up best practices and the standard operation procedure (SOP) and sanitation standard procedure (SSOP) through training





THANK YOU