



EU-India Capacity Building Initiative for Trade Development (CITD)



## **Train the Trainers in Food Safety and Nutrition**



**F**  **D**  
**FUNDA**

**Hygiene of our surrounding**

**MODULE 3**

**Level 3: 12 to 17 years**

# Did you know?



**Harmful organisms can invade the food service establishment through ....**

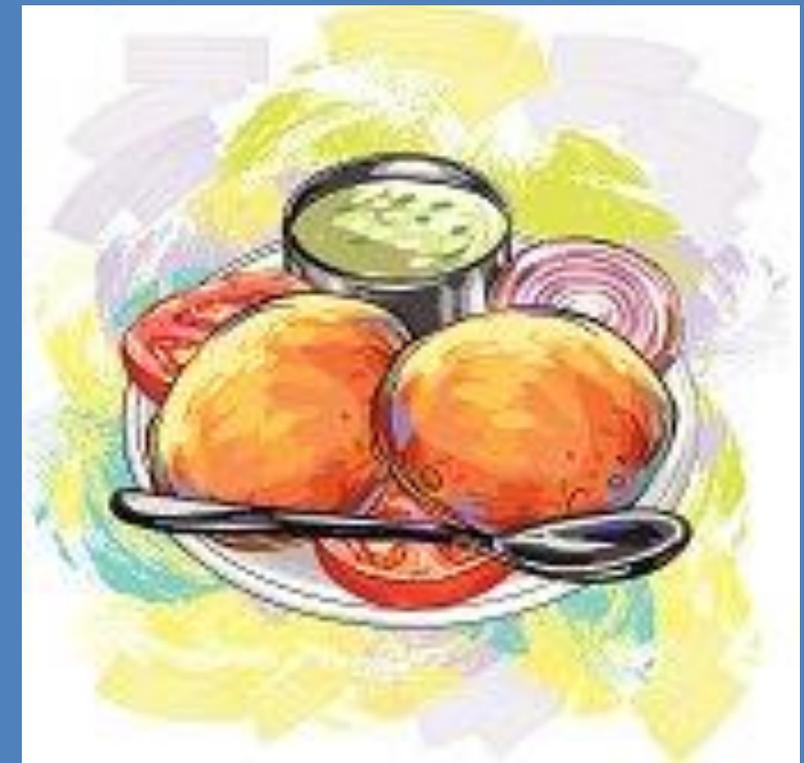
- **Food**
- **People**
- **Unsanitary facilities**
- **Unsanitary equipment**
- **Disease spreading pests**

**..... and make them unsafe for humans**

# Are street foods safe ?



- Street foods as you know are foods and beverages prepared and sold by vendors in streets and other public places for immediate consumption without further processing. They are easily available and affordable food options.
- Did you also know that the nutritive value and hygiene of these foods is usually neglected or compromised?





## SNF Fact File :



# A survey on Street Foods of Delhi revealed that...

Most people are unaware about the health hazards of Street foods and find them a convenient and tasty option



18% consume street food on a daily basis

50% of the students surveyed prefer street food over other kinds of food

38% to 45% students consume it weekly or monthly

74% buy street food for taste

31% students buy it for convenience and fairly low cost



# Why are street-vended foods A threat to public health ...

- They lack basic infrastructure and services, such as potable water supplies.
- Poor knowledge of street vendors in basic food safety measures.
- The problem arises when stored water is used instead of running water



## SNF Fact File :

In India, 99% of street food vendors re-used stored water multiple times for washing hands and dishes.





## Challenges faced by FOOD SAFETY AUTHORITIES

- Difficulty in controlling the large numbers of street food vending operations because of their diversity, mobility and temporary nature.
- Insufficient resources for inspection and laboratory analysis.
- General lack of factual knowledge about the microbiological status or the precise epidemiological significance of many street-vended foods.
- Inadequate public awareness of hazards posed by certain street foods.





## SNF Fact File : Street Food is exposed to polluted air



## Air Pollution

- Recognized as a major threat to human health
- Globally 1.1 billion people breathe unhealthy air (UNEP, 2002).
- The urban air pollution is responsible for approximately 800,000 deaths and 4.6 million lost life-years each year around the globe (WHO, 2002).
- The National Capital Region of Delhi has the highest number of vehicles in the country - more than Mumbai, Calcutta and Chennai put together.





## SNF Fact File :

## FSSAI, 2006 Regulation on Water

Use of potable drinking water, (boiled/ filtered water through water purifier etc.) shall be in protected containers of at least 20 litre.

**Health risks from the consumption of street juice arise mostly because industrial ice is used instead of ice made from potable water**





## **Pre Requisites for high level Hygiene of Food Establishment: Design and Facilities**

Attention to good hygienic design and construction, appropriate location, and the provision of adequate facilities is necessary to enable hazards to be effectively controlled.



## How food can become unsafe?



- **Poor cleaning and sanitizing:**
- Equipments and utensils are not washed, rinsed, and sanitized between uses
- Food contact surfaces are wiped clean instead of being washed rinsed and sanitized
- Wiping cloths are not stored in a sanitizer solution between uses
- Sanitizer solution was not prepared correctly



# Design & Facilities



## Food preparation areas

Premises, equipment and facilities should be located, designed and constructed to ensure that:

1. Contamination is minimized
2. The Design and Layout permit:
  - appropriate maintenance
  - cleaning and disinfections
  - minimize airborne contamination

## Kitchen

- Surfaces and materials, in particular those in contact with food, are non-toxic in intended use and, where necessary, suitably durable, and easy to maintain and clean.
- Where appropriate, suitable facilities are available for temperature, humidity and other controls
- There is effective protection against pest access and harborage



# Location of Food Establishments

Our kitchen or food establishments should normally be located away from:

- Environmentally polluted areas and industrial activities that pose a serious threat of contaminating food
- Areas subject to flooding unless sufficient safeguards are provided
- Areas prone to infestations of pests
- Areas where wastes, either solid or liquid, cannot be removed effectively.
- The design and layout of the kitchen should permit good food hygiene practices, including protection against cross-contamination while preparing food.

# Placement of Equipment

Equipment should be located so that it:

- permits adequate maintenance and cleaning
- functions in accordance with its intended use
- facilitates good hygiene practices, monitoring.

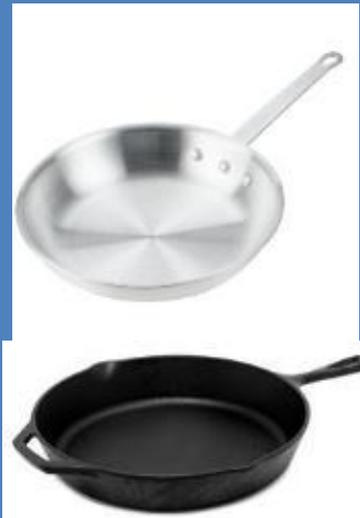


# Materials recommended for Equipment



- **Stainless steel** : This is durable and recommended for use in the kitchen both for equipment and utensils. It does not react with constituents of food. Easy to clean and maintain.
- **Brass** : Should be tin-plated before use
- **Copper** : Good conductor of heat and saves on fuel. If used for cooking, it should be tin-plated before use to prevent copper poisoning. Store drinking water in copper urns. (Copper bottom utensils – Excellent conductor of heat and is used as a base on steel utensils)

Tinning of brass and copper utensils is necessary to prevent copper poisoning. This results when acidic foods are cooked or stored in brass or copper containers which are not tin plated.



- **Aluminium** : Light weight, strong and good conductor of heat. Food containers should be ISI grade or made of Hindalium.
- **Iron** : Iron utensils and spatulas contribute significantly to the iron content of food cooked in them. Ideal metal for tawas, kadhai, tempering spoon and spatulas.
- **Non-stick cookware** : It is coated with Teflon, which helps us cook food in very little oil and prevents food from sticking to the pan. Once coating wears out, pan should be discarded.



# Materials used for Storage



- **Plastic** : Convenient to use for storing commodities and packing food, once food has cooled; and is light in weight. Gets easily discoloured and absorbs odours of food stored in it. The chemical Bisphenol-A (BPA) used in plastics can be carcinogenic.



- **Plastic bags** : The government has imposed restrictions on use of plastics to preserve our health and to conserve the environment. Plastic bags should be at least 8 by 12 inches (20 by 30 cms) in size and 20 microns in thickness. Do not accept smaller bags from shopkeepers or hot foods packed in such bags.



- **PET bottles and jars** : Store dry commodities like spices, and grains in them as they are see through and convenient to use.



- **Packaged water bottles** : Are not meant to be reused. Crush bottle after use and recycle. Repeated use of such bottles should be discouraged as they can be carcinogenic.

# Materials used for preparation



**Wood** : Used for meat chopping blocks, chopping boards etc can absorb stains, odours and moisture if not cleaned and dried properly. Wood is being replaced by polypropylene which is available in different colours to prevent cross contamination.



**Glass** : Cleanest and safest as it is non-reactive and can be washed sparkling clean. Can be safely used in the microwave oven to cook or reheat food. Handle with care



**Ceramic jars** : Used for pickles and collecting cream. Keeps the food cool

# Lighting



- Adequate natural or artificial lighting makes dirt visible and facilitates cleaning, enabling us to work in a hygienic manner.
- There should be no gloomy corners or passages where dirt is likely to collect.
- Good lighting in the kitchen to help the food handler see clearly and spot any visible signs of spoilage in food.
- It increases food safety and prevents accidents.
- The light intensity should be adequate with no glare or flicker and minimum shadow to prevent eye strain.
- Lighting fixtures in the kitchen should be protected to ensure that food is not contaminated by breakages.

# Activity 1: SNF STREET FOOD PATROL CHIEFS

You are the SNF Food Patrol Chief, Check the Street Food Vendors around your home and grade them on the basis of the following:

1. Hygienic Environment Yes or No
2. Location of the food stall (far from source of contamination like open drains, toilets, garbage, waste water etc)
3. Food Service Personnel's Hygiene (nails, hair, clothes etc)
4. Clean cooking and serving utensils. The food establishment should have adequate facilities, for cleaning food, utensils and equipment.
5. Hygienic conditions of Raw ingredients
6. Food displayed is open to contamination from dust, dirt, flies, customers etc.
7. Time and temperature of Food preparation and storage of cooked food.
8. Cold storage facilities (eg.food is often left open on the ground )
9. Maintaining Food Service Standards eg. Wearing gloves while serving pani puri
10. Quality of water used not only for cooking but also to wash utensils.
11. Personal health of the cook during illness
12. Are best practices being followed on the use of good quality raw materials, authorized colors and cooking medium (fat/oil)



# Activity 2

Match the items in column 1 with an appropriate answer from column 2.

	Column 1		Column 2
1	Brass utensils without tin plating	A	Good source of iron in food
2	Aluminium cooking utensils	B	Used in microwave ovens
3	Stainless steel	C	Durable and non-reactive
4	Empty Bisleri bottles	D	Copper poisoning
5	Copper bottom utensils	E	Should have ISI mark
		F	Absorbs stains, odour and moisture
		G	Improves conduction of heat
		H	Should be crushed and recycled

# Activity 2 - Answers

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## Activity 3

Put a ✓ tick mark on the correct statements



1. Floors and walls in kitchens need not be tiled.
2. All windows in a kitchen should have removable and cleanable insect-proof screens.
3. There should be no cracks and crevices in equipment and work surfaces.
4. Work table tops in a kitchen should be made of aluminium.
5. Food preparation area should be away from garbage dumps

# Activity 3 - Answers

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3. There should be no cracks and crevices in equipment and work surfaces. ✓
4. Work table tops in a kitchen should be made of aluminium.
5. Food preparation area should be away from garbage dumps ✓

# Activity 4

Put a ✓ tick mark on the correct statements



1. The air in a crowded room needs to be kept circulating
2. A poorly ventilated room can give us a headache and make us irritable
3. Ventilation hoods give us cool fresh air
4. If natural light and natural ventilation is there in a busy kitchen, no artificial lighting or ventilation is needed
5. Equipment which is difficult to assemble and reassemble should not be cleaned often

# Activity 4 - Answers

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# Cleaning Procedures

No accumulation of:

- Garbage except in garbage containers.
- Recycle matter except in containers.
- Food Waste
- Dirt
- Grease or
- Other visible matter



Cleaning procedures will involve, where appropriate:

- removing gross debris from surfaces.
- applying a detergent solution to loosen soil and bacterial film and hold them in solution or suspension
- rinsing with water to remove loosened soil and residues of detergent; dry cleaning or other appropriate methods for removing and collecting residues and debris; and where necessary, disinfection with subsequent rinsing.





## Equipment Cleaning

- Equipment and containers coming in contact with food should be made of materials which can be cleaned and sanitized with no toxic effect on food.
- Only food and mouth contact surfaces need to be sanitized.
- Large equipment should be durable and movable or capable of being disassembled to allow for cleaning, disinfection, and maintenance with no place for pests to breed.
- Refrigerators should be defrosted if necessary and cleaned once a fortnight.



## What are dish cloths?

- Dishcloths are typically square, and are usually made of cotton or other absorbent fabric.
- A dishcloth is used in the kitchen to wipe and clean dishes and other surfaces.



### Steps to Clean the Dish cloths:



1. Fill a pot with water.
2. Bring it to a boil.
3. Add the soiled rags to the boiling water.
4. Boil for 15 minutes. The boiling water will kill any mold, mildew, bacteria and germs that may be on the cloths and sanitize them.
5. After boiling, wash and dry as normal.
6. The cloths should always be sanitized and should smell fresh.

# Single service Items



- Single service items are made of plastic, paper, thermocol, aluminium foil, and leaves.
- They are designed to be used only once and then crushed and discarded
- They include glasses, plates, cups, bowls, straws, containers and utensils
- They are convenient to use when cleaning and sanitizing facilities are not available.
- They must be stored in much the same manner as food items.
- They must be covered and protected against the potential for cross contamination at all times.
- They must never be stored on the floor or left open.
- These are items which are to be used once then thrown away

Items include :

- Straws
- Paper cups
- Plastic cutlery



# Activity 5

**How should you ideally dispose off the following single service items:-**

- **Bisleri water glasses –**
- **Leaf plates –**
- **Plastic spoons –**
- **Aluminium disposable cartons –**

# Activity 5 - Answers

**How should you ideally dispose off the following single service items:-**

- **Bisleri water glasses - (Crush and recycle)**
- **Leaf plates – (Vermi-compost /Biogas)**
- **Plastic spoons – (Recycle)**
- **Aluminium disposable cartons – (Collect separately, Crush and recycle)**

# Waste disposal and Management





This is Ben, our friendly dustbin..



Mixed Paper



Plastic Containers  
(#1-5, 7)



Plastic Bags &  
Plastic Film



Shredded Paper



Cardboard & Boxboard



Metal Cans



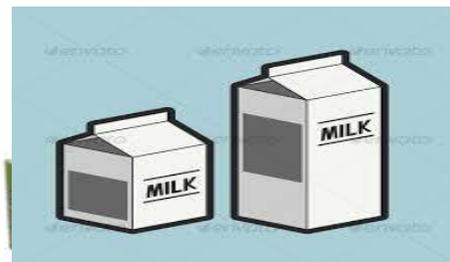
Styrofoam & Plastic  
Utensils



Paper Towels &  
Tissue Papers



Glass Bottles & Jars



Cartons



Toys



Metal Hangers



Diapers



Clothes



**This is Ben, our friendly dustbin..**



- Equipment and containers coming in contact with food should be made of materials which can be cleaned and sanitized with no toxic effect on food.
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- Large equipment should be durable and movable or capable of being disassembled to allow for cleaning, disinfection, and maintenance with no place for pests to breed.
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## What is waste?

Waste can be almost anything, including food, leaves, newspapers, bottles, construction debris, chemicals from a factory, wrappers, disposable diapers, or radioactive materials



## What is solid waste?



The term solid waste means:  
Material such as household garbage, food wastes,  
yard wastes, and demolition or construction debris

Solid waste are wastes that  
are not liquid or gaseous

Solid wastes are all discarded solid  
materials from municipal, industrial,  
and agricultural activities



# Did you know?

- A special breed of earthworms feeds on our garbage and breaks it down in its gut into simple substances which can be easily assimilated by plants.
- It conserves the humus of the soil by its excreta which is a highly enriched manure containing hundreds of earthworm cocoons to continue the process.
- The burrowing action of the earthworm tills the soil ten times deeper than the traditional plough.
- Fruits and vegetables grown on such soils are healthier, tastier and more nutritious than those grown on farms fertilized by chemical fertilizers.
- Such foods are called 'Organic' and fetch a higher market price.



# Activity 6

## MAKING VERMICOMPOST IN THE SCHOOL/HOME

**Material Required:** a pit or a medium sized bin, a handful of vermi-castings, brickbat, soil, garden waste, food waste

**Method:** Make a small hole at the bottom of the bin and put a layer of brickbat to make it self draining.

- Half fill the pit/bin with garden soil to which vermicastings have been applied.
- Each student should take turns to shred the food waste, spread it in a thin layer on the designated pit, cover the food waste with garden waste( dry leaves collected after sweeping the yard, weeds, twigs etc.) and sprinkle water on top.
- Keep repeating thin layers of food waste and garden waste.
- Sprinkle water on top to keep the soil moist.
- The earthworm cocoons hatch and worms feed on organic waste converting it to compost within a few months.
- Vermiculture can also be done in existing potted plants.



# Common Pests in Kitchens

- Houseflies
- Cockroaches
- Rats & mice
- Pigeons
- Spiders
- Wasps
- Weevils



# How do Pests Transmit Disease?

- Pests like houseflies and cockroaches breed in dirty places like garbage dumps and drains.
- They contaminate unprotected foods, utensils and other surfaces.
- Enroute, they collect many disease causing microbes on their bodies and in their stomachs.
- They spread diseases like diarrhoea, dysentery, typhoid fever, intestinal worms and food poisoning.



# How do Pests Transmit Disease?

Rats get into food containers and contaminate food with their excreta, urine and parasites present on their bodies.



# Do not let the fly have its meal before you

Flies cannot chew so they vomit on food to liquefy it. They suck up the liquid vomit containing harmful microbes.



While feeding, they drop excreta with pathogens. Fly specks include light drops of vomit and dark particles of excreta.



Sticky hair on limbs help carry bacteria everywhere.





# Stored grain pests

They attack and destroy stored grains making them inedible causing heavy losses





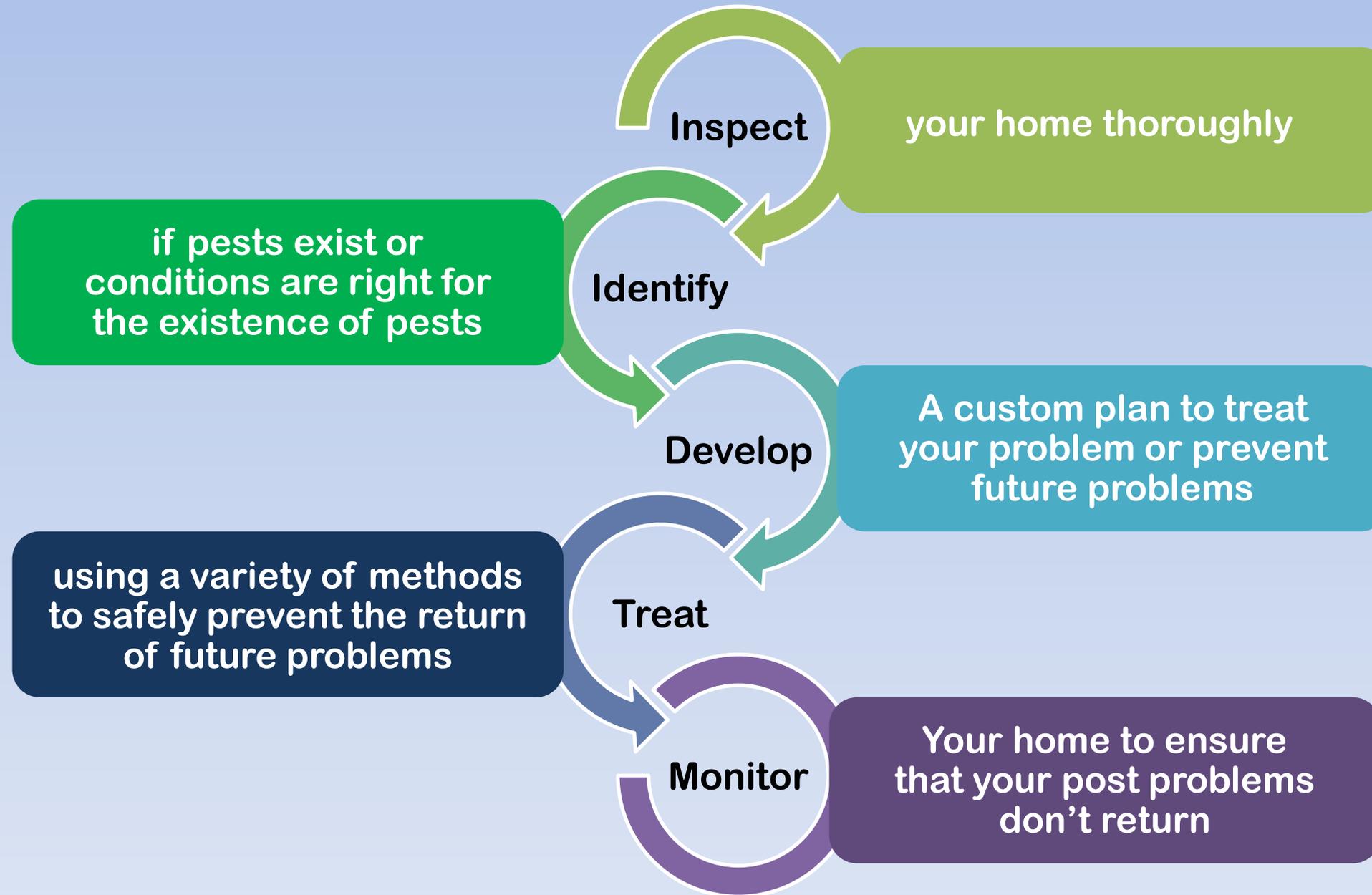
# How to control pests?

- Pests pose a major threat to the safety and suitability of food.
- Pest infestations can occur where there are breeding sites and a supply of food.
- Good hygiene practices should be employed to avoid creating an environment conducive to pests.
- Good sanitation, inspection of incoming materials and good monitoring can minimize the likelihood of infestation and thereby limit the need for pesticides.





# How to control pests?

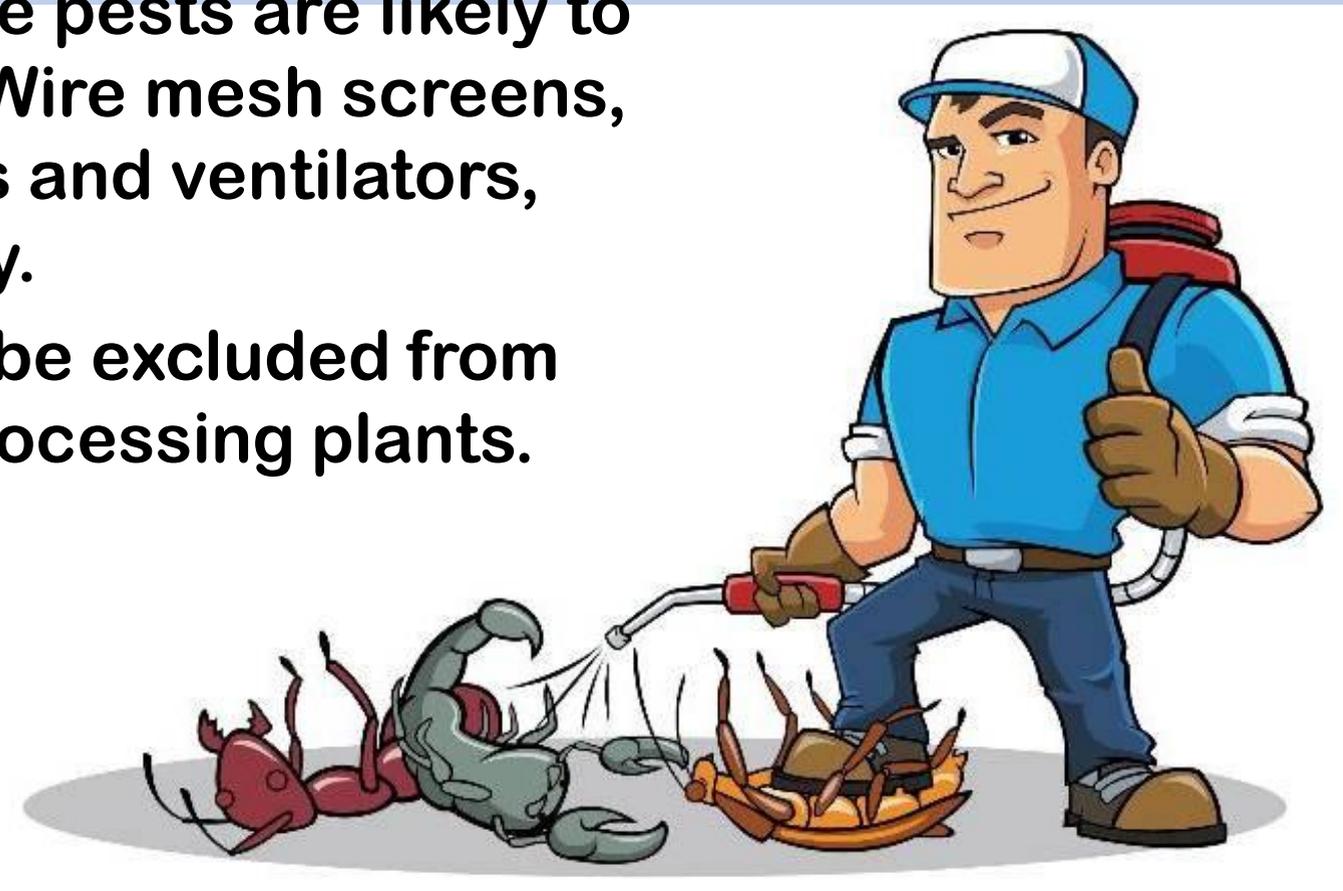


# Pest control management



## Preventing access

- Buildings should be kept in good repair and condition to prevent pest access and to eliminate potential breeding sites.
- Holes, drains and other places where pests are likely to gain access should be kept sealed. Wire mesh screens, for example on open windows, doors and ventilators, will reduce the problem of pest entry.
- Animals should, wherever possible, be excluded from the grounds of factories and food processing plants.



# Pest control management



## Harbourage and infestation

- The availability of food and water encourages pest harbourage and infestation.
- Potential food sources should be stored in pest-proof containers and/or stacked above the ground and away from walls.
- Areas both inside and outside food premises should be kept clean.
- Where appropriate, refuse should be stored in covered, pest-proof containers.



# Pest control management



## Monitoring and detection

- Establishments and surrounding areas should be regularly examined for evidence of infestation.

## Eradication

- Pest infestations should be dealt with immediately and without adversely affecting food safety or suitability. Treatment with chemical, physical or biological agents should be carried out without posing a threat to the safety or suitability of food.





**Thank You**