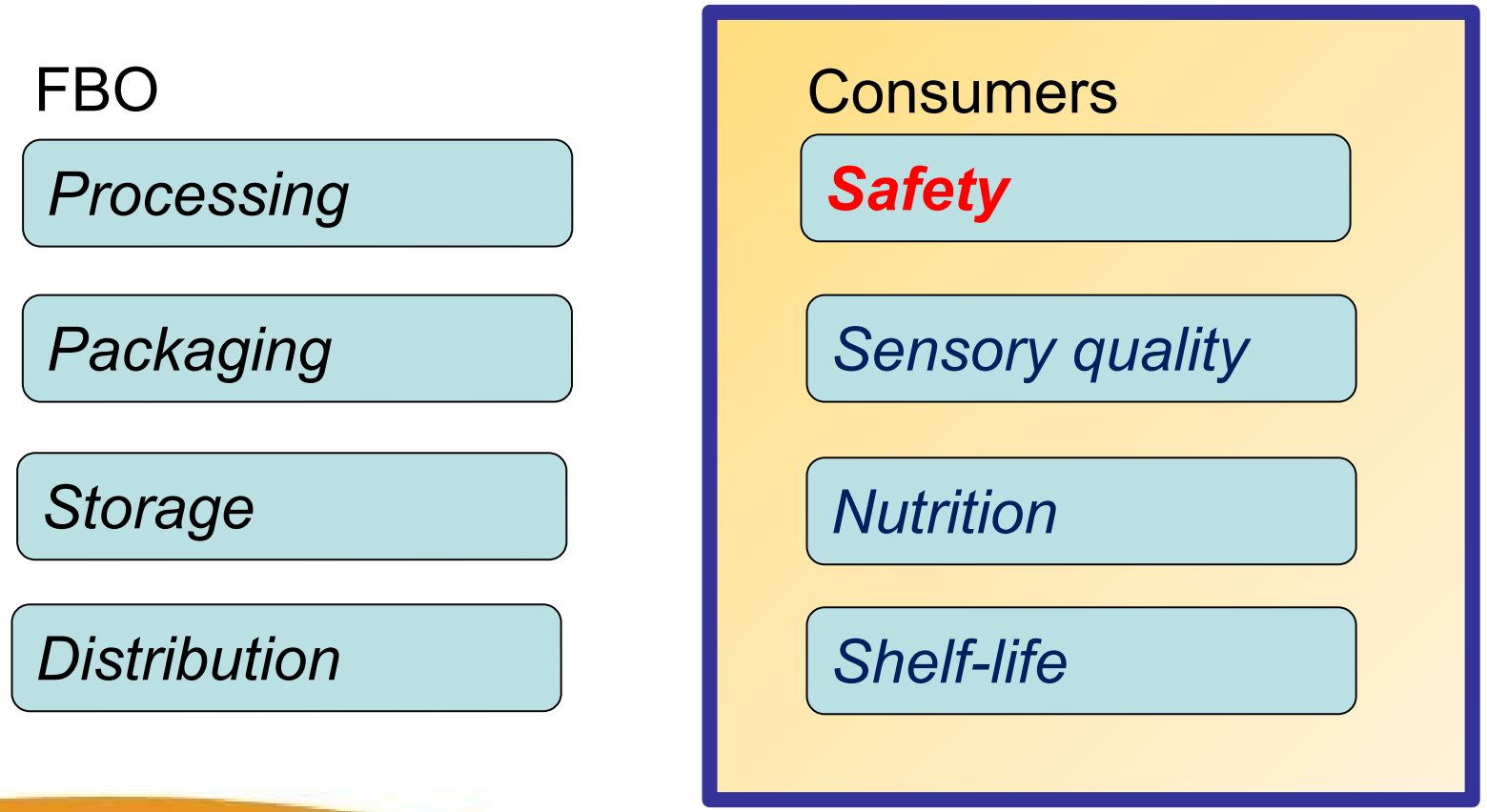
foodsafety

Overview of presentation

- **Food safety**
- **Implications of unsafe food**
- **How to eliminate P/C/B hazards**
- **Food hygiene/Temp Control/Pest Control/Personal hygiene/Food storage/Cleaning/Allergens** *21*
- **AI in Food Processing**
- **Food Safety Standards** *21-30*
- Certifications – Food Safety
- FSMS/ ISO22000/HACCP/TACCP/HARPC
- BRC/FSSC/Kosher/HALAL
- Certification Agencies in India (HACCP/FSMS) *30-40*
- Principles of HACCP
- Elements of ISO 22000:2018 *60*
- Q/A

FOOD PROCESSING



Legal Compliance is must

Who is at risk?

- Infants
- Toddlers
- Elderly
- Pregnant women
- Immunocompromised
- Taking specific medications

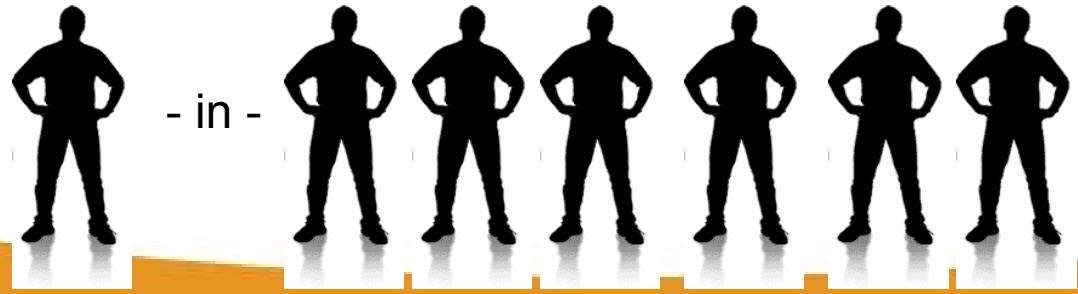
FOOD SAFETY

- Safety – prevention / protection from illness / sickness / injury,
- Food safety- illness/sickness arising from consumption of food

- Foodborne illness - Caused by eating contaminated foods or beverages

Lack of safety precautions / procedures can lead to *Hazards*
(Hazard: source of illness, injury, sickness..)

Understanding the hazards and methods for their control is important for food safety



HAZARDOUS SUBSTANCES

Physical

- Hair
- Pin
- Stone
- Glass
- Metal piece
- Jewellery
- Buttons
- Safety pins
- Nut/bolt/washer
- Eqpt. part

Chemical

- **Detergent**
- **Pesticides**
- **Water pollution**
- **Air pollution**
- **Lubricant oil**
- **Heavy metals**
- **Toxins**
- **Veterinary drugs**

Biological

- Insects
- Rodents
- Flies
- Excreta of …
- Microorganisms
- Bacteria
- Fungus
- Virus

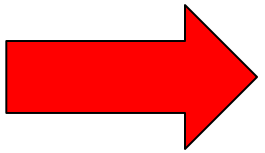
eliminate the hazards – reduce the risks

Food Poisoning

Bacteria are the major cause of food poisoning. Illness is caused by the presence of specific bacteria or their toxins, either in or on food.

Symptoms of Food Poisoning

- Vomiting
- Diarrhea
- Nausea
- Fever



Type of Foods that are considered "High Risk" in terms of food poisoning

- High protein foods such as meat and poultry
- Dairy products
- Eggs and egg products
- Soups, stews, stocks
- Rice
- Any product that requires refrigeration to prevent it from spoiling

Methods to Prevent / eliminate hazards

Physical

- Cleaning
- Magnetic separator
- Maintenance of eqpt./ building /utilities/instruments
- Hair nets, masks, gloves, uniform
- No jewellery

Chemical

- Cleaning/washing, sanitizing
- Check quality of water
- GAP
- Labelled and designated storage of chemicals
- Ventilation
- Air curtains

Biological

- Building
- Pest control
- Fly killers
- Rat baits
- Time
- Temperature
- Acidity
- Oxygen
- Moisture

PRP/oPRP/CCPs

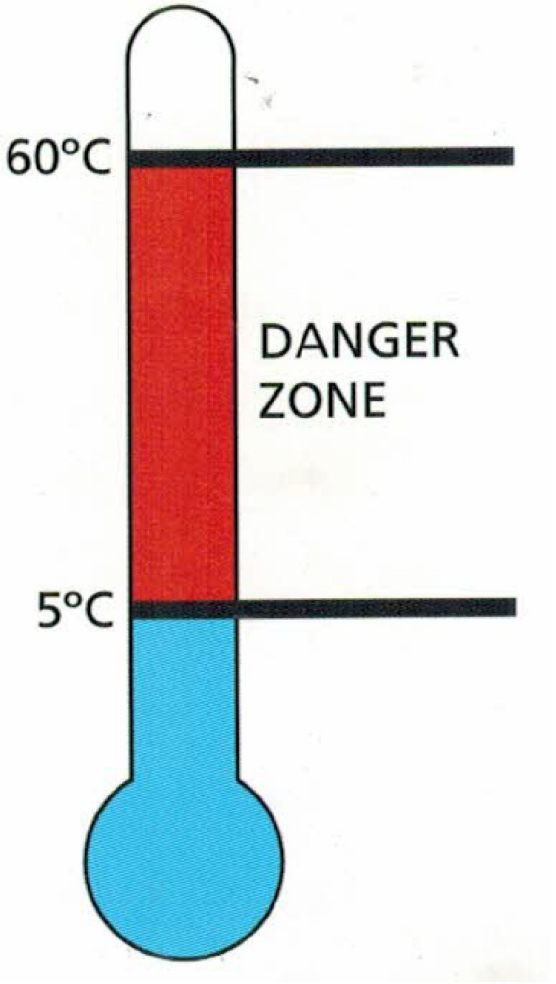
Temperature Control

Temperature

Temperature is the main method used to control the level of bacteria in foods.

Danger Zone

The temperature range within which the bacteria grows rapidly is between 5°C and 60°C. This is known as the danger zone. Below 5oC, bacteria grow more slowly and above 60oC, bacteria start to die.



Temperature Control

Temperature requirements

- Cold food must be kept at less than 5°C
- Frozen food shall remain hard frozen and at less than -18°C.
- Cooked food should be heated to a temperature of over 75°C.
- During cooling, food products must be cooled from 60°C to 21°C within 2 hours and from 21°C to less than 5°C within a further 4 hours.

- **Keep Hot Food Hot and Cold Food Cold**

Pest Control

Pest control to be undertaken by licensed agency.

Employees should not interfere with pest control activity.

Do not touch rat bait stations or any other pest control device.

Be aware of the pests and record any sighting of the pests like cockroaches, rodents and mice, flies, fruit flies, moths, ants etc.

Sometimes actual pests may not be visible, but evidence of their presence in the form of droppings, excreta, broken packaging etc. may be noticed.

Do not allow entry and breeding of pests in processing and storage areas.

PERSONAL HYGIENE (Food handlers, workers)

- **Food handlers must be clean and tidy and must wear a clean uniform, protective clothing and head wear**
- **Hair – clean, tied back and covered**
- **Disposable gloves to handle high risk foods**
- **Watches, earrings, nose rings/pins, rings, chains, necklaces not allowed.**
- **Fingernails short and clean**
- **Hand wash stations to be provided with soap, paper towel/dryer and hot water.**

When to wash hands

Wash hands after

- Handling garbage
- Handling raw food
- Using the toilet
- Sneezing, coughing and using a handkerchief or tissue
- Carrying out cleaning duties
- Eating or smoking

Wash hands before

- Before starting any food handling activities

Workers suffering from diarrhea, vomiting, flu, fever, etc. not permitted to work

Food Storage

Dry

- Cool dry and well-lit rooms.
- Product shall be stored off the floor and away from walls.
- Rotate stock – First In First out
- Ensure shelving is cleaned regularly

Cold rooms and Fridges

- Ensure temperature is less than 5^{o}C
- Store raw products beneath cooked or ‘ready to eat’ foods
- Cover, label and date all foods.
- Keep cold rooms, fridges clean

Freezers

- Ensure temperature is less than -18^{o}C
- Cover, label and date all foods
- Defrost and clean freezer regularly

Food Storage

2 – HOUR – 4 HOUR RULE

Products in the temperature danger zone

- **For less than 2 hours – may be returned to cold storage, cooked or consumed.**
- **From 2 hours to 4 hours – must be cooked, consumed or discarded.**
- **For more than 4 hours – must be discarded.**

CLEANING

All premises need to be kept clean and tidy

- Clean to remove soil and dirt and sanitise to kill bacteria.
- Cleaning procedures should be available describing how to clean the equipment and the structure of the facility.
- Cleaning chemicals should be stored away from work areas and from food and packaging storage areas.
- Record all cleaning activities in the cleaning report.

Keep surfaces in good condition so they are easy to clean

- Fix broken tiles
- Avoid wooden shelves
- Repair damaged junction seals
- Repair and eliminate rust on any surface

Cleaning will ensure

- Cross contamination is reduced and minimised
- Bacteria does not grow on the surfaces
- Quality of the product or process is of high standard

Waste disposal

- Waste is an easy breeding ground for bacteria and pests
  - Waste shall not be allowed to stay inside the food preparation premises.
  - It shall be routinely removed and disposed of properly, following the norms

Allergens

Following foods are allergic and may not be suitable for many individuals. Allergic foods may cause mild to severe sickness.

- Peanuts and their products
- Tree nuts and their products
- Shell fish, crustacean and their products
- Finned fish and their products
- Milk and milk products
- Eggs and egg products
- Sesame and sesame products
- Cereals containing **gluten** and their products (Wheat, rye, barley, oats and their products)
- Soybeans and their products
- Added sulphites in concentrations of 10 ppm (10 mg/kg) or more

The allergic reaction to food is caused by **a protein** in the food that the immune system mistakenly believes is harmful.

The 14 allergens are: **celery**, **cereals containing gluten** (such as wheat, barley and oats), **crustaceans** (such as prawns, crabs and lobsters), **eggs**, **fish**, **lupin**, **milk**, **molluscs** (such as mussels and oysters), **mustard**, **peanuts**, **sesame**, **soybeans**, **sulphur dioxide and sulphites** (if they are at a concentration of more than ten parts per million) and **tree nuts** (such as almonds, hazelnuts, walnuts, brazil nuts, cashews, pecans, pistachios and macadamia nuts).

This also applies to additives, processing aids and any other substances which are present in the final product.

Applications of Artificial Intelligence in the Food Industry

- Sorting Products and Packages and Products
- Food Safety Compliance
- Maintaining Cleanliness
- Developing Products
- Assisting Customers With Decision Making

Thank you

zards

Less Food Loss

Healthy Nation

FOOD SAFETY STANDARDS

- Microbiological contamination (pathogens, coliforms, TPC, Yeasts and Molds)
- metal contaminants (heavy metals)
- mycotoxins
- residues (pesticide residues)

Food Safety Standards Authority of India

Microbiological analysis - pathogens

Vibrio cholerae	IS 5887 (Part 5): 1976 APHA (4th Edition) Chapter 40-40.5, FDA-BAM Chapter 9	Detection/25 ml or 25 g
Vibrio parahaemolyticus	IS 5887 (Part 5): 1976 FDA-BAM Chapter 9	Detection/25 ml or 25 g
Listeria Species	IS 14988 (Part 1 & 2): 2001 FDA BAM Chapter 10, APHA (4th Edition) Chapter 36-36.5	Qualitative 1g, 25g.
Test For Commercial Sterility	APHA (4th Edition) Chapter 61-61.51	Qualitative (Pass/ Fail)

Contaminants, Toxins and Residues

Metal elements (in foods not specified) upper limit; FSSAI

Lead	-	**2.5 ppm**
Copper	-	30 ppm
Arsenic	-	**1.1 ppm**
Tin	-	250 ppm
Zinc	-	50 ppm
Cadmium	-	**1.5 ppm**
Mercury	-	**1.0 ppm**
Methyl Mercury	-	**0.25 ppm** (calculated as the element)

Chromium	-	**Refined Sugar - 20 ppb**
Nickel	-	**1.5 ppm**

All hydrogenated, partially hydrogenated, inter-esterified vegetable oils and fats such as vanaspati, bakery and industrial margarine, bakery shortening


alcoholic beverages
corn
wheat
barley
sugar cane
sugar beets
cottonseed
peanuts
11 Foods HIGHEST in Mycotoxins
www.ExhibitHealth.com
rye
sorghum
hard cheeses

Regulatory limits of mycotoxins

Toxin	Article of food	Limit μg/kg (FSSAI)
Aflatoxin	Cereals, pulses and products	15.0
	Ready to eat products	10.0
	Oilseeds, nuts	15.0
	Spices	30.0
Aflatoxin M1	Milk	0.5; 0.05 (EU)
Patulin	Apple juice	50.0
Ochratoxin A	Wheat, barley and rye	20.0
Deoxynivaleno	Wheat	1000.0

US FDA and EU have more stricter regulatory requirements for mycotoxins.

Residues (Insecticides, Herbicides, Fungicides)

- 567 formulations of 272 insecticides - registered in India.
- More than 150 combinations are also registered
- Worldwide, more than 1200 active substances are registered for pesticides production. *Pesticides can be classified into more than 100 classes/groups, for example, Carbamates, Triazines, Pyrethroids, Organophosphates, Organochlorines, Phenoxy alkane Pesticides, Pesticides based on glyphosate….*
- Organochlorines, organophosphates, carbamates and pyrethroids
- Tolerance limits of the residues (insecticides, herbicides, fungicides) on crop, food commodities are prescribed under regulations. Also called MRLs

FSSAI Tolerance Limits - Residues

Name of the insecticide	Crop/commodity	Tolerance limit (mg/kg or ppm)
Aldrin, Dieldrin	Food grains	0.01
	Milled foodgrains	Nil
Fenitrothion	Food grains	0.02
	Milled foodgrains	0.005

- Methods to measure / analyse food safety parameters are also specified and the testing is to be in accordance with these prescribed test methods
- Accredited Food testing laboratories

FOOD SAFETY MANAGEMENT SYSTEMS

Make food safe
PREVENT HEALTH HAZARDS
Reduce wastage of food
Improve compliance to regulations
Promote export

Management System

Management - the act of getting people together to accomplish desired goals and objectives using available resources efficiently and effectively. ..

People involved in production, processing, preparation, handling, storage, retail,… of food from farm to consumer (workers as well as management)

System - a set of principles or procedures according to which something is done; an organized scheme or method

How food is cultivated, harvested, transported, prepared, stored, moved, retailed, served…

ISO 22000 certification

ISO 22000 is a Food Safety management System that can be applied to any organization in the food chain, farm to fork, irrespective of manufacturing or service industry involved in food and beverage service, food and beverage trading, food and beverage warehousing, food and beverage transportation and food packaging, involved in Agriculture, Aquaculture, Horticulture, Fruits and Vegetables, Dairy Products, Meat and Meat Products, Fish and Fishery products, Spices and Condiments, Nuts and Nut products, Cereals, Bakery and Confectionery, restaurants, Hotels, Fast Food Operations.

ISO 22000 combines and supplements the core elements of ISO 9001 and HACCP to provide an effective framework for the development, implementation, monitoring and continual improvement of a documented FSMS.

What is HACCP?

- HACCP is a tool for identifying what can go wrong to make food unsafe for human consumption and then deciding how it can be prevented.
- Before HACCP is addressed, a pre-requisite programme must be in place covering the general principles of food hygiene.
- HACCP is applicable to the identification of microbiological, chemical, physical and allergen hazards affecting the food safety.
- HACCP must be applied to a specific process and product combination.

Types of HACCP Certification

- Codex Alimentarius HACCP
- Accredited HACCP (CAC RCP-1, 1969, Rev.3 2004)
- HACCP as per IS 15000:1996
- EU HACCP 2016/C278/01
- Singapore HACCP requirements

Food Safety Standards Authority of India (FSSAI)

To provide assurance of food safety, Food businesses must implement an effective Food Safety Management System (FSMS) based on **Hazard Analysis and Critical Control Point (HACCP)** and suitable **pre- requisite programmes** by actively controlling hazards throughout the food chain starting from food production till final consumption.

As per the condition of license under FSS (Licensing & Registration of Food Businesses) Regulations 2011, every food business operator (FBO) applying for licensing must have a **documented FSMS plan and comply with schedule 4 of this regulation.** Schedule 4 introduces the concept of FSMS based on implementation of **Good Manufacturing Practices (GMP) and Good Hygiene Practices (GHP) by food businesses**

FSSAI recommends that all licensed food businesses must have at least one trained and certified Food Safety Supervisor under FoSTaC for every 25 food handlers in each premise.

VACCP (Vulnerability Assessment Critical Control Points)

counterfeiting, adulteration, smuggling, stolen goods, dilution and mislabelling.

TACCP (Threat Assessment Critical Control Points)

intentional contamination of food products, sabotage of the supply chain, and using food or drink items for terrorism or criminal purposes.

HARPC (Hazard Analysis & Risk-Based Preventive Controls)

Categories of Standards

- **Specification** – absolute requirements of a product
- **Codes of Practice** – recommended sound good practice
- **Methods** - measurement / testing
- **Guidelines** - prescriptive, indicates current thinking & practice among experts in a field

Food Safety Certifications
Export - International

- International Featured Standard (IFS) Food Certification
- BRC-Food Certification
- BRC Packaging Certification
- FSSC 22000 Certification
- BRC Food Safety Culture Module
- BRC Agents and Brokers
- BRC Storage and Distribution
- FSSC 22000 – Food packaging manufacturing

Specific certifications

Kosher Certification

Jewish religious based product specifications

Halal certification

Products are permissible under Islamic law

Name of the Certification Bodies (FSMS/HACCP)

- Bureau Veritas (India) Ltd.
- TQ Cert Services Pvt Ltd.
- TUV SUD South Asia Pvt ltd
- TUV India Pvt Ltd
- IRCLASS Systems and Solutions Pvt Ltd.
- INDOCERT
- SGS India Pvt ltd
- DNV GL Business Assurance India Pvt Ltd
- One cert International pvt Ltd.
- Intertek India Pvt Ltd
- Vexil Business Process Services Pvt Ltd.
- BSI Group India Pvt Ltd.
- MS certification Services Pvt Ltd.
- COTECNA Inspection India Pvt Ltd
- Standards Organisation of Nigeria
- Integrated Quality Certification Pvt Ltd.
- Prime Certification &Inspection LLC

Principles of HACCP

1. Conduct a hazard analysis.
2. *Determine the critical control* points (CCPs)
3. *Establish critical limit(s).*
4. *Establish a system to monitor* control of the CCP.
5. *Establish the corrective action* to be taken when monitoring indicates that a particular CCP is not under control.
6. *Establish procedures for* verification to confirm that the HACCP system is working effectively.
7. *Establish documentation* concerning all procedures and records appropriate to these principles and their application.

Covered under Clauses 7.4 to 7.9 of ISO 22000:2018

Elements of ISO 22000:2005

ISO 22000:2005 has five main Clauses

- Clause 4: Food Safety Management System
- Clause 5: Management Responsibility
- Clause 6: Resource Management
- Clause 7: *Planning and realization of safe products (built around the principals of HACCP)*
- Clause 8: Verification, validation and improvement of the food safety management system

Clause 7 Planning & realization of safe products

7.1 General planning and realization of safe products

7.2 Pre-requisite programmes (PRPs)

7.3 Preliminary steps to enable Hazard Analysis

7.4 Hazard Analysis (Principle 1)

7.5 Establishing the oPRPs (Principle 1)

7.6 Establishing the HACCP Plan (Principles 2 to 5)

7.7 Updating of preliminary information and specifying the PRPs and the HACCP plan (Principles 2 to 5)

7.8 Verification planning (Principle 6)

7.9 Traceability system (Principle 7)

7.10 Control of non-conformity

7.1 General planning and realization of safe products

- Process planning
- Production / processing / service activities

7.2 Pre-requisite programmes (PRPs)

- GAP, GAHP, GSP, GHP
- Design and layout of processing unit
  - Maintenance, cleaning, disinfection
- Contact surfaces – non-toxic, easy to clean
- Adequate workspace
- Employee facilities
- Temperature and humidity control
- Pest control systems
- Personnel hygiene, GHP
- Handling and transportation
- Recall procedures
- Customer complaints - handling

7.3 Preliminary steps to enable Hazard Analysis

- **Step 1 Establish a team**

  (Food technologist / food nutritionist / process engineer / microbiologist / biochemist)

- **Step 2 Describe product characteristics (raw and final)**

- **Step 3 Identify the products intended use** (fresh-cut fruits – direct consumption; FC vegetables – cooking; ready to eat)

- **Step 4 Prepare flow chart / diagram**

- **Step 5 On-site confirmation of flow diagram**

7.4 Hazard Analysis (Principle 1 Conduct a hazard analysis)

Step 6 Identify the hazards, conduct hazard analysis and determine control measures

- Biological Hazards (micro-organisms, parasites, viruses, pests)
- Chemical Hazards
  - Agricultural chemicals
  - Plant chemicals
- Physical Hazards
  - Inadvertent material from the field
  - From the processing & handling
  - Materials entering the food during distribution
  - Intentionally placed in food
  - Miscellaneous

Hazard Analysis

Item	Hazard Source	Hazard identified			Accept-able level	Significant/ Insignifi	Justific ation
		Physical	**Chemical**	**Biologica l**			
Raw Materials							
Tomato	Soil	Stones , insects	Fertiliser, Agri-chemicals	Insects, parasites	????		
	Water	-	Agri- chemicals	Micro-organism s	????		
	Hands	Hair, metal	-	Micro-organism s	????		
	Transport eqpt.	Metal, nuts, bolts	-	-	????		
Water	Processing	-	Pesticides,	Micro-	????		

Hazard Analysis contd.

Item	Hazard Source	Hazard identified			Acceptable level	Significant/ Insignifi	Justification
		Physical	Chemical	Biological			
Equip-ment	Metal	Nuts, bolts , rust, screen, chippings	-	-			
	Chem-icals	-	Oil, lubricant				
Pack-aging material	-	-	chemical	MO			

Item	Hazard Source	Hazard identified			Acceptable level	Significant/ Insignifi	Justific ation
		P	C	B			
Processing steps							
Receiving							
Washing							
Peeling							
Cutting							
Sorting							
Dipping							
Drying							
Packaging							
Labeling							
Storage							
Distribution							

Hazards and control measures

Hazard	Control measures
Biological	Raw material: Analysis of raw material ,maturity indices, purchase specifications; pH/hardness/chemical residues/ temp. of processing water Operations: Concentration/strength of disinfectant and chemicals; washing time, temperature of water, intact packing, storage temperature
Physical	Proper use of magnets, visual inspection, preventive maintenance of equipment
Chemical	Use of food grade chemicals, compliance to GMP, separate storage for hazardous substance, purchase specifications, surveillance program for raw materials, Raw material

7.5 Establishing the oPRPs

- Hazards to be controlled by oPRPs
- Control measures
- Monitoring procedures
- Corrections and corrective actions
- Responsibilities & authorities
- Record monitoring

7.6 Establish the HACCP Plan

- Identification of CCPs
- Determination of critical limits for CCPs
- System for the monitoring of CCPs
- Actions when monitoring results exceed critical limits

7.7 Updating of preliminary information and specifying the PRPs and the HACCP plan

- Product characteristics
- Intended use
- Flow diagrams
- Process steps
- Control measures

Determine the CCPs (Principle 2)

Processing steps	CCP	Control measures
Receiving	-	
Washing	CCP1	Temp. of water , strength of disinfectant, pH of water; time
Peeling	-	
Cutting	-	
Sorting	CCP2	Visual inspection
Dipping	CCP3	Strength of anti-microbial agent/ texture preserving agent; time; temperature
Drying	-	
Packaging	CCP4	Intact packaging;
Labelling	-	
Storage	CCP5	Storage temperature
Distribution	-	

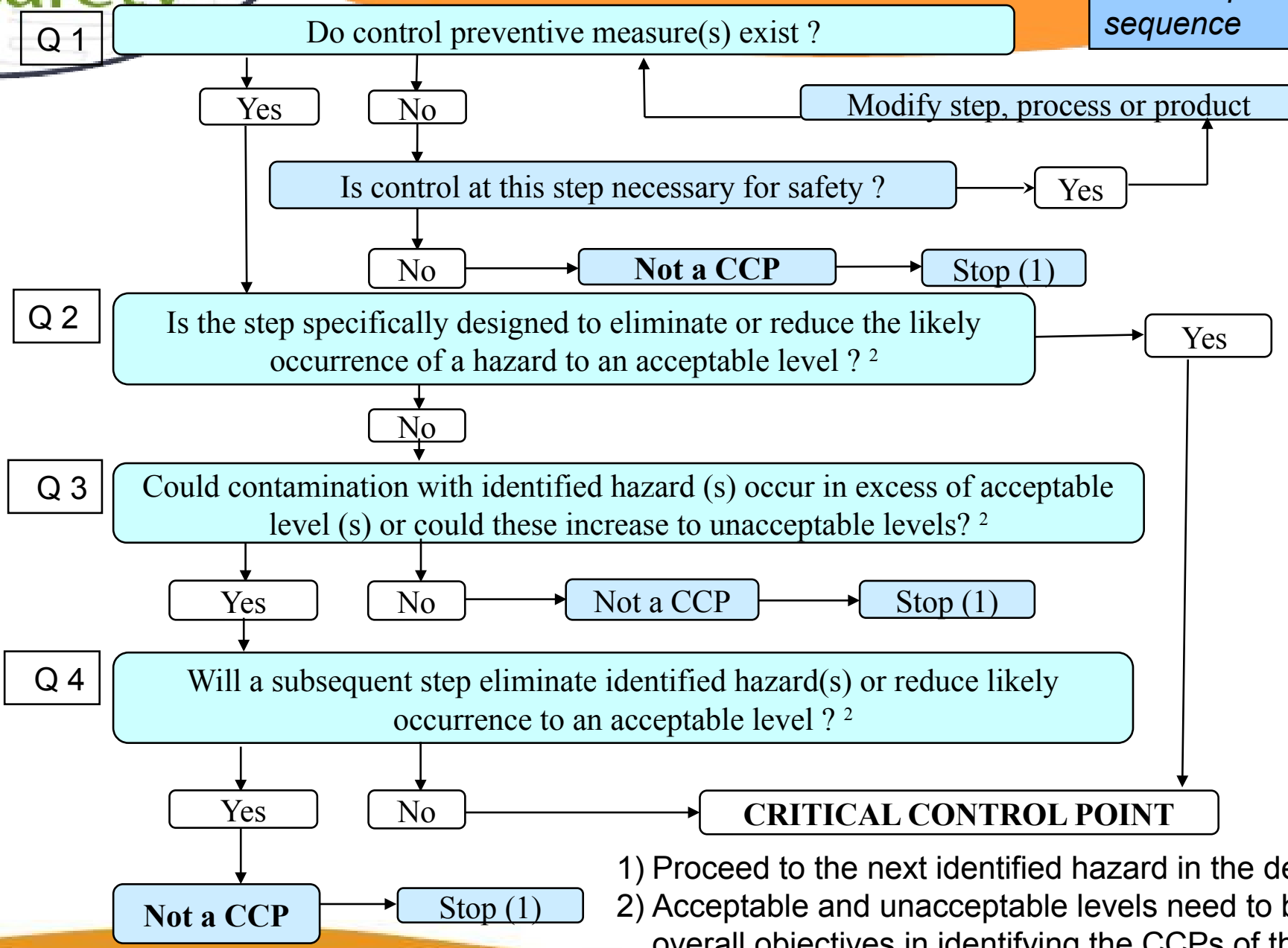
HAZARD EVALUATION

			Likelihood of the occurrence of the hazard				
			Frequent	Likely	Occasional	Seldom	Unlikely
			5	4	3	2	1
Severity	Catastrophic	4	**20**	**16**	**12**	**8**	**4**
	Critical	3	**15**	**12**	**9**	**6**	**3**
	Marginal	2	**10**	**8**	**6**	**4**	**2**
	Negligible	1	**5**	**4**	**3**	**2**	**1**

Extremely high		**CCP**
High		**CCP**
Moderate		**PRP**
Low		**PRP**

EXAMPLE OF DECISION TREE TO IDENTIFY CCPs

Answer questions in sequence



1) Proceed to the next identified hazard in the described process.
2) Acceptable and unacceptable levels need to be defined within the overall objectives in identifying the CCPs of the HACCP plan.

Establish critical limits for each CCP (principle 3) - as per product and process

Chlorine concentration: 80 ppm ,

Preservatives – as per regulatory requirement,

Temperature: 4^0C

Establish Monitoring procedures (principle 4)

			Monitoring Procedures				
Processing steps	CCP	Control measures		Who	When	What	How

Establish Corrective actions. (Principle 5)

Processing steps	Corrective actions
Receiving	Skilled operator for handling of equipment
Washing	Temp. of water, strength of disinfectant, pH of water ; time should be measured at regular intervals.
Peeling	Sterilised equipment should be used, handling with skilled operator
Cutting	Sterilised equipment should be used , handling with skilled operator
Sorting	Visual inspection should be done at every 30 mins
Dipping	Strength of anti-microbial agent/ texture preserving agent; time; temperature should be determined before and during the process
Packaging	Visual inspection of every 5 lot of produce
Storage	Storage temperature should be maintained and checked regularly.
Distribution	Proper Handling should be in place

Verification Planning (Principle 6)/ Clause 7.8

- Equipment Calibration
- Review of Purchase specification
- Soil sampling analysis
- Determination and observations of OPRPs and PRPs
- Monitoring of CCPs and critical limits
- Training for staffs and skilled operators

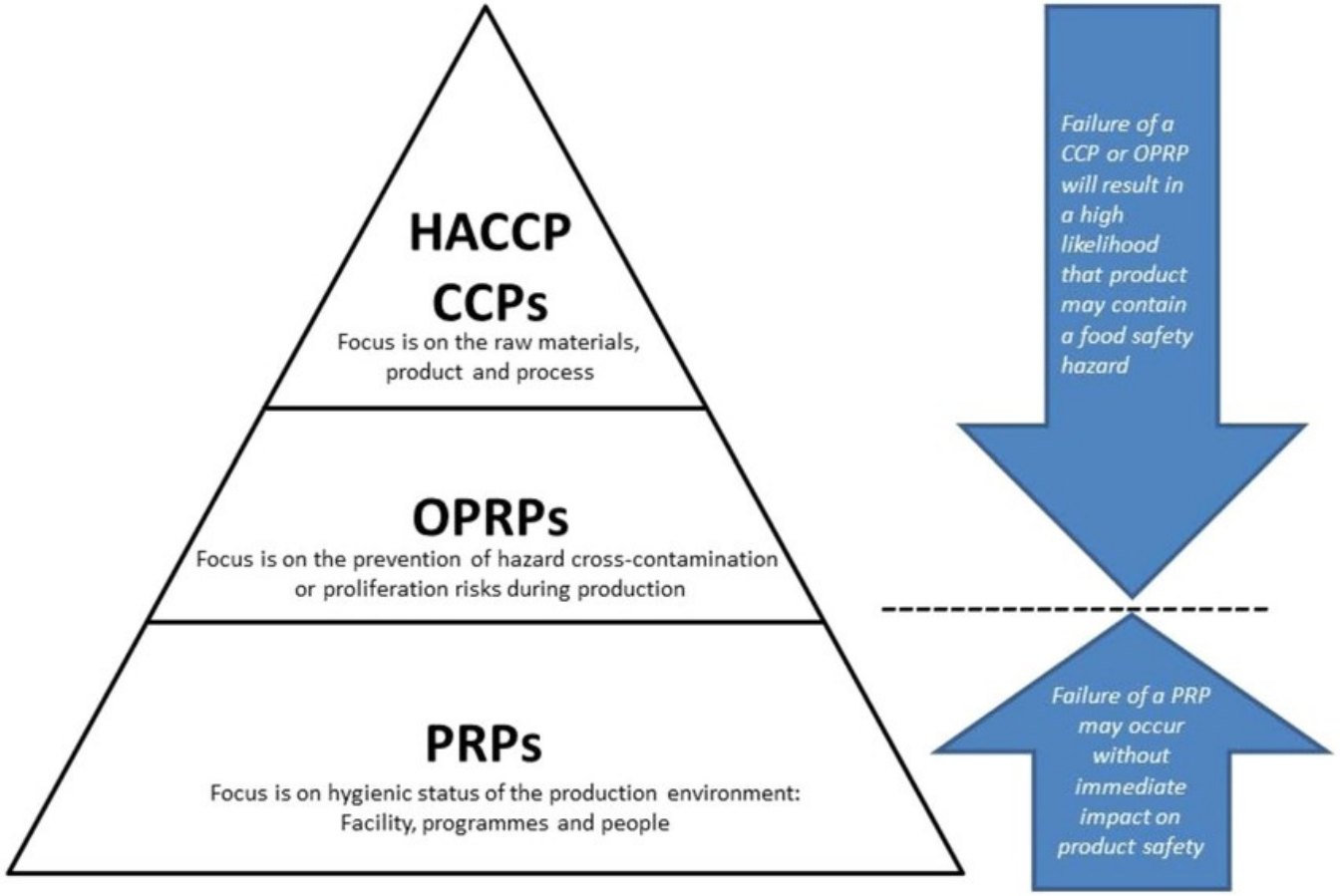
Keep Records (Principle 7) Clause 7.9

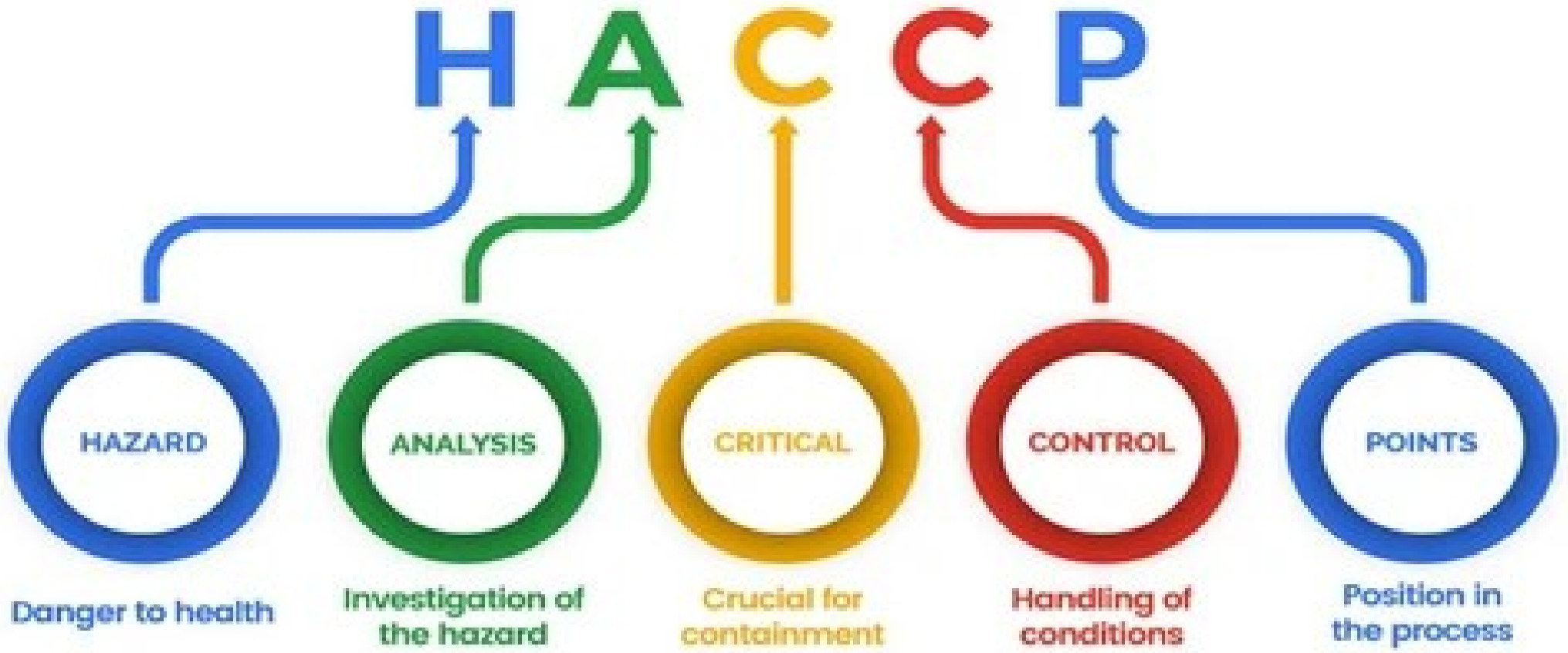
- All operational manuals including GMP, GAP, CCP.
- Overall assessment reports for:
  - Temperature logs
  - Hygiene Records
  - Receiving inspection records
  - Medical Reports of the workers
  - Equipment calibration records
  - Transportation records.

7.10 Control of non-conformity

- Corrections
- Corrective actions
- Handling of potentially unsafe products
  - Evaluation for release
  - Disposition of nonconforming products
- Withdrawal

THANK YOU ALL FOR YOUR PATIENCE AND INTERACTIONS


HACCP
CCPs
Focus is on the raw materials, product and process
OPRPs
Focus is on the prevention of hazard cross-contamination or proliferation risks during production
PRPs
Focus is on hygienic status of the production environment: Facility, programmes and people
Failure of a CCP or OPRP will result in a high likelihood that product may contain a food safety hazard
Failure of a PRP may occur without immediate impact on product safety


HACCP
HAZARD
Danger to health
ANALYSIS
Investigation of the hazard
CRITICAL
Crucial for containment
CONTROL
Handling of conditions
POINTS
Position in the process

- FATTOM
- Food, Acidity, temperature, Time, Oxygen, Moisture Content
- Monitoring – present
- Verification – past
- Validation - future

Risk Assessment Control Measure			Severity				
From **1 – 4** = Low Risk			Negligible	Minor	Moderate	Major	Extreme
From **5 – 10** = Med Risk							
From **12 – 25** = High Risk			**1**	**2**	**3**	**4**	**5**
Likelihood (Probability)	Very Unlikely	**1**	1	2	3	4	5
	Rarely Occur	**2**	2	4	6	8	10
	Possible	**3**	3	6	9	12	15
	Likely Occur	**4**	4	8	12	16	20
	Occurs Frequently	**5**	5	10	15	20	25

FSSAI ACT 2006 Rules 2011

Repealed Acts/Orders/Regulations

1. Prevention of Food Adulteration Act,1954
2. Fruit Products Order (FPO), 1955
3. Solvent Extracted Oil, De-oiled Meal and Edible Flour (Control) Order, 1967
4. Meat Food Products Order (MFPO) DIVISION, 1973
5. Vegetable Oil Product Order, 1980
6. The Edible Oils Packaging (Regulation) Order 1998.
7. Milk and Milk Product Amendment Regulations, 2009

Food Safety and Standards Regulations

1. Food Safety and Standards (Licensing and Registration of Food Businesses) Regulation, 2011
2. Food Safety and Standards (Food Products Standards and Food Additives) Regulation, 2011
3. Food Safety and Standards (Prohibition and Restriction of Sales) Regulation, 2011
4. Food Safety and Standards (Packaging and Labelling) Regulation, 2011
5. Food Safety and Standards (Contaminants, Toxins and Residues) Regulation, 2011
6. Food Safety and Standards (Laboratory and Sampling Analysis) Regulation, 2011

Food Safety and Standards Regulations… contd

7. Food Safety and Standards **(Food or Health Supplements, Nutraceuticals, Foods for Special Dietary Uses, Foods for Special Medical Purpose, Functional Foods and Novel Food)** Regulations, 2016
8. Food Safety and Standards **(Food Recall Procedure)** Regulation, 2017
9. Food Safety and Standards **(Import)** Regulation, 2017
10. Food Safety and Standards **(Approval for Non-Specified Food and Food Ingredients)** Regulations, 2017
11. Food Safety and Standards **(Organic Food)** Regulation, 2017
12. Food Safety and Standards **(Alcoholic Beverages)** Regulation, 2018
13. Food Safety and Standards **(Fortification of Food)** Regulation, 2018
14. Food Safety and Standards **(Food Safety Auditing)** Regulation, 2018

Food Safety and Standards Regulations… contd

15. Food Safety and Standards **(Recognition and Notification of Laboratories)** Regulation, 2018
16. Food Safety and Standards **(Advertising and Claims**) Regulation, 2018
17. Food Safety and Standards **(Packaging)** Regulation, 2018
18. Food Safety and Standards **(Recovery and Distribution of Surplus food)** Regulation, 2019
19. Food Safety and Standards **(Safe food and balanced diets for children in school)** Regulations, 2020
20. Food Safety and Standards **(Foods for Infant Nutrition)** Regulations, 2020
21. Food Safety and Standards **(Labelling and Display)** Regulations, 2020

Food Safety officer

- a degree in Food Technology or Dairy Technology or Biotechnology or Oil Technology or Agricultural Science or Veterinary Sciences or Bio-Chemistry or Microbiology or Masters Degree in Chemistry or degree in medicine from a recognized University, or
  (ii) any other equivalent/recognized qualification notified by the Central Government, and
  (iii) has successfully completed training as specified by the Food Authority in a recognized institute or Institution approved for the purpose.
  Provided that no person who has any financial interest in the manufacture, import or sale of any article of food
  shall be appointed to be a Food Safety Officer under this rule

Food Analyst

- Holds a Master's degree in Chemistry or Biochemistry or microbiology or Dairy Chemistry or Food Technology, Food and Nutrition or holds Bachelor of Technology in Dairy/Oil or holds degree in Veterinary Sciences from a university established in India by law or is an associate of the Institution of Chemists (India) by examination in the section of Food Analysts conducted by the Institution of Chemists (India) or any other
equivalent qualification recognized and notified by the Central government for such purposes and has not less than three years experience in the analysis of food; and

- . The manuals of the method of analysis, as amended/adopted by the Authority from time to time including AOAC/ ISO/ Pearson's/ Jacob/IUPAC/Food Chemicals CODEX/BIS/Woodmen/Winton-Winton/Joslyn, shall be used for analyzing the samples of food articles.
- However, in case the method for analyzing any parameter is not available in these manuals, a validated method of analysis prescribed by internationally recognized/analytical/regulatory agencies, shall be adopted

RAFT (Rapid Analytical Food Testing)

- The rapid food testing kit/equipment approved by FSSAI is to be used for screening and surveillance purposes only.
- The purpose of the approval by FSSAI to Rapid Analytical Food Testing (RAFT) Kit/Equipment/Method is to facilitate carrying out on the spot field testing by Food Safety Officers (FSOs) or Mobile Testing Labs or to improve speed and reduce testing costs in food laboratories. The rapid food testing kit/equipment/method ensure "faster, better, cheaper" real-time testing of food. The rapid food testing kit/equipment/ method are better in terms of their size, faster in terms of their total run time and cheaper in terms of cost effectiveness as compared to conventional methods.
- The recommended rapid kit/equipment/method meets the requirements of the Food Safety and Standard Regulations and are validated against International Standards.
- The procedure for approval of Rapid Analytical Food testing Kit, Equipment or Methods shall be as per the guidelines that may be framed by the Food Authority from time to time.

Hazard Analysis table

Processing Step	Hazard				Risk analysis		Control measures	Significance	
	P	C	B	Details of hazard	Likelihood Occurrence	Severity impact		Significant	Non Sig

CCP plan

Proc. Step	CCP	Critical Limit	Monitoring				Corrective Action	Record
			What	How	When	Who		