

## Module 03 - lecture 02

# HACCP system and its application

# Codex HACCP system and guidelines for its application

- HACCP can ( *should* ) be applied from the primary producer to the final consumer
- HACCP enhances food safety, makes better use of resources, enables more timely response to problems
- HACCP can aid official inspection and promote international trade by increasing confidence in food safety
  - *Codex Alimentarius 1995*

# Codex HACCP principles and guidelines

The ***“Principles”***  
set the basis for  
the minimum requirements  
for the application of HACCP,  
The ***“Guidelines”***  
provide general guidance

# Codex HACCP principles

1. Conduct a hazard analysis
2. Determine the CCPs
3. Establish critical limit(s)
4. Establish a monitoring system
5. Establish corrective actions
6. Establish verification procedures
7. Establish documentation

***( Definitions are given for all important terms )***

# How to do HACCP (1)

- ✦ **HACCP study**
- ✦ **HACCP plan**
- ✦ **Training the personnel**
- ✦ **Implementation of the plan**
- ✦ **Verifying and improving**

## How to do HACCP (2)

- ✦ **Commitment of management**
- ✦ **Training in HACCP**
- ✦ **Resources expertise, equipment, etc.**

# Codex HACCP guidelines

- 1. Assemble HACCP team**
- 2. Describe product**
- 3. Identify intended use**
- 4. Construct flow diagram**
- 5. Confirm on-site flow diagram**
- 6. List all potential hazards, conduct a hazard analysis and consider control measures**
- 7 - 12. Apply principles 2 - 7**

# **(1) Assemble HACCP team**

- \* Obtain top management commitment**
- \* Appoint a leader and a secretary**
- \* Assure participation of experts in QA, microbiology, chemistry, food technology**
- \* Assure co-operation of other experts**
- \* Define scope of the study**
- \* Set priorities**

## **(2) Describe product**

- \* Formulation and composition**  
**Raw materials & ingredients**  
**Parameters influencing safety**
- \* Processing**
- \* Packaging**
- \* Distribution**

## **(3) Identify intended use**

- \* Food service establishments**
- \* Caterers**
- \* Hospitals**
- \* General population**
- \* Specific groups of the population**
- \* Preparation practices**
- \* Exportation**

## **(4) Construct flow diagram**

**Cover all steps which might have an influence on the safety of the product**

- ◆ **Include important data such as time & temperature**
- ◆ **Indicate hygiene level of areas and barriers**

## **(5) On - site confirmation of flow diagram**

- \* Check correctness of information**
- \* Check whether important information was not overlooked**
- \* Check during all periods of operation and cleaning, but also during idle hours**
- \* Discuss practices with operators**

**(6) List all hazards  
associated with each step,  
conduct a Hazard Analysis,  
consider any measures  
to control identified hazards**

# Hazard

**A biological, chemical, or physical  
agent in, or condition of, food  
with the potential  
to cause an adverse health effect**

***Codex alimentarius, 1997***

# **Hazard Analysis**

**The process of collecting and interpreting information on hazards and conditions leading to their presence to decide which are significant for food safety and should be addressed in the HACCP plan**

# **Control measures**

**Actions and activities  
that can be used  
to prevent or eliminate  
a food safety hazard  
or reduce it to an acceptable level**

# Control

**To take all necessary actions  
to ensure and maintain compliance with  
established criteria established in the HACCP  
plan *(verb)***

**The state wherein correct procedures are  
being followed and criteria are being met  
*(noun)***

# When to perform a Hazard Analysis

- ✱ **during product development**
  - ✱ **during industrialization of new product**
  - ✱ **when new hazards emerge**
  - ✱ **when new raw materials are used**
  - ✱ **when formulation or use is changed**
  - ✱ **when equipment is changed**
  - ✱ **with new (layout of) production area**
- etc.**

## **(7) Determine CCPs**

***Critical Control Points (CCPs)  
can be related to :***

- **Raw materials,**
- **Locations,**
- **Processes,**
- **Procedures,**
- **Practices,**
- **Product formulations etc.**

# **Critical Control Point**

**A step at which control is essential  
to prevent or eliminate  
a food safety hazard  
or reduce it to an acceptable level**

# Step

**A point, procedure, operation or  
stage in the food chain,  
including raw materials,  
from primary production  
to final consumption**

## **(8) Establish critical limits for each CCP**

***Critical limits can be :***

**Values of : pH,  $a_w$ , temperature, time**

**Maximum residue limits**

**Maximum levels (of contaminants)**

**Limits in microbiological criteria**

**Level of cleanliness**

**Levels of chlorine, overpressure etc.**

# Critical limit

**A criterion which separates  
acceptability  
from  
unacceptability**

## **(9) Establish a monitoring system for each CCP**

- \* the method or equipment to be used**
- \* the moment and / or frequency of checking**
- \* the interpretation of the results and the actions to be taken**

# Monitor

**The act of conducting a planned sequence  
of observations or measurements  
of control parameters  
to assess whether a CCP  
is under control**

# **(10) Establish corrective actions**

**Corrective actions should ensure  
that only safe products  
reach the consumer**

# **Corrective actions**

**Actions to be taken when  
the results of monitoring at the CCP  
indicate a loss of control**

# **(11) Establish verification procedures**

**Verification procedures  
are intended to check  
the effectiveness  
of the HACCP system**

# **Verification**

**The application of  
methods, procedures, tests  
and other evaluations  
in addition to monitoring,  
to determine compliance with  
the HACCP plan**

## **(12) Establish record keeping and documentation**

- **Minutes of HACCP study meetings, decisions made and their reasons**
- **Records of monitoring**
- **Records of verification**
- **Records of deviations and corrective actions**
- **Records of modifications to the HACCP plan**

# HACCP plan

**A document prepared in accordance with  
the principles of HACCP  
to ensure **control** over hazards  
which are significant for food safety  
in a segment of the food chain**

# HACCP data sheet

Raw Materials	Hazards	Control Measures	CCP Parameters	Critical Limits	Target Values	Monitoring Procedures	Corrective Actions
Process step	Hazards	Control Measures	CCP Parameters	Critical Limits	Target Values	Monitoring Procedures	Corrective Actions

# HACCP study tips

- ✳ **Use disciplined approach**
- ✳ **Don't make assumptions**
- ✳ **Challenge beliefs**
- ✳ **Discuss non - hierarchically**
- ✳ **Don't rush**
- ✳ **Set deadlines for comments**
- ✳ **Keep accurate records**
- ✳ **Teamleader should moderate,  
not dominate**

# Key messages

- **The HACCP system consists of 7 Principles**
- **The Codex terminology should be used to prevent misunderstanding**
- **The Guidelines provide an optional framework for HACCP studies**
- **Hazard Analysis should be performed when significant changes are made**
- **Records should be kept to demonstrate correctness of application and implementation**