Food Safety Management Tools- Basic concepts

Food businesses also build their reputation and brands by meeting their food safety and quality responsibilities by implementing assurance systems such as Good Agricultural Practices (GAP), Good Hygienic Practices (GHP), Hazard Analysis and Critical Control Points (HACCP), and Food Safety Management Systems such as ISO 22000.

If quality and food safety systems are not being applied in a food business, then resources(people, materials, equipment, money and time)are actually being devoted to producing risky or dangerous produce which would be rejected on the market or if accepted, may cause serious health problems to people. Without food safety and quality systems, food businesses:

- are not in a position to provide confidence in food safety
- are unable to build a reputation
- can neither prevent errors and risks till problems occur, nor recall defective or unsafe products •damage the reputation of the enterprise
- may face fines, legal action or even close down

Common food safety management system requirements

Without a well-designed and documented programme that is properly implemented and maintained, the chances that a company will have a recall or have itsproducts cause illness are significantly higher. Following are the main practices and systems followed internationally---

Pre-requisite programmes (PRPs)

PRPs are codes of good practice that comprise the fundamental principles, procedures and means needed for safe food production. PRPs are defined as basic conditions and activities that are necessary to maintain a hygienic environment throughout the food chain suitable for the production, handling and provision of safe end products and safe food for human consumption

Good Agricultural Practices (GAPs)

GAPs are practices that ensure environmental, economical and social sustainability for on-farm practices (and post production practices) resulting in safe and quality food and non-food agricultural products (FAO 2003). These are applied taking into consideration food safety hazards from the following sources:

•Environment

•Agricultural inputs (soil, water, seeds, agrochemicals, organic / inorganic fertilizers, animals)
•Workers
•Growing practices
Harvest and transportation
•Facilities (storage areas for produce, equipment, pesticides etc)
•Equipment, tools, utensils.

Good Hygiene Practices (GHP)

All practices regarding the conditions and measures necessary to ensure the safety and suitability of food at all stages of the food chain. (FAO). These include—

•Suitable facility design and maintenance
•Thoughtful equipment design and maintenance
•Documentation that includes procedures, forms and manuals
•Process validation
•Corrective and preventive actions
•Control of non-conforming products
•Traceability
•Management of incidents and product recall.
•Hygiene and sanitation
•Waste removal
•Pest control
•Chemical and physical product contamination control
•Prevention of cross contamination.
•Dispatch and transport
•Allergen management
•Product packaging and labeling
•Personal hygiene

Hazard Analysis and Critical Control Points (HACCP)

HACCP is a science-based system which systematically identifies, evaluates, and controls hazards which are significant for food safety. Food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement and handling, to manufacturing, distribution and consumption of the finished product. Pre-requisite programmes (GAP and GHP) must be working effectively within a system before HACCP is applied. If these pre-requisite programmes are not functioning effectively then the introduction of HACCP will not be effective.

The Seven Principles of HACCP

1. Hazard Analysis
2. Critical Control Points
3. Critical Limits
4. Monitoring System
5. Corrective Action
6. Verification
7. Record Keeping

Principle 1. – Hazard Analysis

Step 1. Assemble the HACCP team and define the scope of the HACCP plan.
Step 2. Describe the product and its distribution method.
Step 3. Describe the intended use of the product.
Step 4. Construct a detailed flow diagram of the process.
Step 5. Conduct on site verification of flow diagram.
Step 6. List all potential hazards associated with each step, conduct a Hazard Analysis and consider any control measures to control hazards.

Principle 2. – Critical Control Points (CCP)
Step 7. Determine Critical Control Points.

Principle 3. – Critical Limits
Step 8. Establish Critical Limits for each CCP (as per Food Standards of country)

Principle 4. – Monitoring System
Step 9. Establish a Monitoring System for each CCP.

Principle 5. – Corrective Action Step 10. Establish Corrective Action plans for CCP deviations that may occur.

Principle 6. – Verification Procedures
Step 11. Establish Verification Procedures

Principle 7. – Record Keeping
Step 12. Establish Record Keeping and documentation.
Step 13. Determine training needs.
Step 14. Monitor the CCPs using forms and evaluate the usefulness of the forms for improving the product and process control and providing trend analysis of the procedures.

Step 15. Use microbiological tests to complement verification activities.

ISO 22000: Food safety management systems

The development of ISO 22000 was based on the assumption that the most effective food systems are designed, operated and continually improved within the framework of an organization's structured management system. ISO 22000 thus carries some management system requirements that are not explicitly stated in HACCP. These include a food safety policy and related objectives, planning and documenting the food safety system, effective external and internal communication arrangements, the assignment of specific responsibilities to the food safety team leader, internal audits, management reviews, continual improvement and updating of FSMS. Briefly, the ISO 22000 requirements are a combination of the following four key elements:

- Interactive communications
- System management
- Prerequisite programmes
- HACCP principles.