Lecture-6

Course: MPH-5161 (Food Safety & Hygiene)

Topic: Food Quality Management System (FQMS)

Food Quality Management System:

Quality management system (QMS) is defined as a formalized system that documents processes, procedures, and responsibilities for achieving quality policies and objectives.

Quality management systems (QMS) are indispensable in each sector of the food industry, to ensure safe, quality food for the consumer. The number of businesses in the food industry which adopts QMS in order to enhance their competitiveness on the global market is continually rising.

The most important quality management systems in the food industry are: Global Food Safety Initiative (**GFSI**), Hazard Analysis and Critical Control Point system (**HACCP**), International Food Standard (**IFS**), British Retail Consortium (**BRC**), Safe Quality Food (**SQF**) 2000 and International Organization for Standardization ISO 22000:2018.

GLOBAL FOOD SAFETY INITIATIVE (GFSI)

The Global Food Safety Initiative (GFSI) brings together key actors of the food industry to collaboratively drive continuous improvement in food safety management systems around the world.

The GFSI is a private organization that supervises and approves different auditing platforms as meeting their criteria. This criterion **provides a universal gold-standard of recognition to specific food safety audits**.

In practice, this means that a food processor or manufacturer who can point to their GFSI certification can effectively and immediately show their customers and potential customers that their plant is operating with a structured, comprehensive, and effective food safety program.

The objectives of the Initiative are:

1. Ensure consumer protection and to build up and maintain consumer trust.
2. Increase cost efficiency in the entire food supply chain through the common acceptance of GFSI recognized standards by retailers worldwide.
3. Develop competencies and capacity building in food safety to create consistent and effective global food systems
4. Provide a unique international platform for networking and the exchange of knowledge, information and best food safety practices. The basic principle the GFSI rests on is the fact that ensuring food safety is not a competitive process, since each potential problem may affect the entire sector, due to market globalization.

What does GFSI do?

Every GFSI standard effectively reviews three things:

- Does the supplier say what they do? (Reviewing policies and procedures)
- Does the supplier do what they say? (Observing processes while they run, interviewing employees, inspecting the facility)
- Does the supplier track that they do what they say? (Reviewing records)

Putting all of these elements together, a GFSI audit ensures that a supplier is producing safe food year-round.

While it can be stressful for a supplier to learn that an important contract hinges on obtaining a certification they've never heard of before, suppliers who successfully pursue GFSI certification generally find that the effort invested leads to significant rewards.
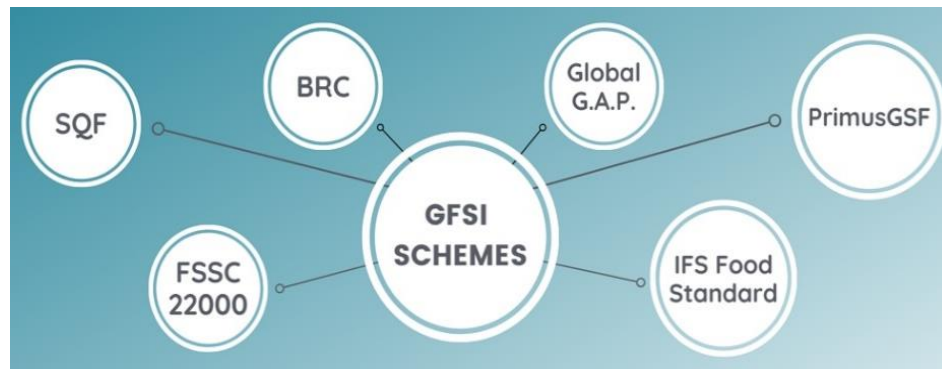
What are GFSI Schemes?

A food safety scheme is recognized by GFSI when it meets the food safety requirements defined in the GFSI Guidance Documents. Remember that GFSI is an organization that benchmarks and approves different auditing standards. **There isn't technically any single audit called "The GFSI Audit," but there are several standards that are GFSI-benchmarked.**

GFSI benchmarked schemes:

- Primus GFS
- Global Aquaculture Alliance Seafood

- Global Gap
- FSSC 22000
- Global Red Meat Standard
- Canadagap
- SQF
- BRCGS Global Standard
- IFS International Featured Standards
- Japan Food Safety Management Association

What Are GFSI Benchmarked Schemes?

While the GFSI established a series of standards to promote international food safety. Thus, it does not conduct any audits or certification activities. It does, however, act as an authority over a series of schemes, known as GFSI benchmarked schemes.

To obtain certification, companies can achieve a successful audit against any of these schemes.

What Are the Benefits of Becoming GFSI Certified?

A Strong Focus on Safety

GFSI standards help a food company ensure safer products. Certification to a GFSI-recognized standard offers shared risk management tools, so food safety management is optimized across the entire supply chain.

Resource Optimization

While becoming GFSI certified requires an initial investment of time and labor. With fewer audit finishes, you can focus your company's time and efforts on larger goals. Additionally, complying with GFSI standards helps to reduced failure, which can also have a positive impact on your bottom line.

<u>**Enhanced Performance**</u>

Certification can drive internal business results as well. A study on GFSI published in 2017 revealed that nearly 90% of respondents felt becoming certified helped to address food safety concerns, and 74% would become certified again even if their customers did not require it. The majority of companies also experienced improvements in Key Performance Indicators (KPIs) in the year directly after becoming GFSI certified.

What is HACCP standard in food industry?

Hazard Analysis Critical Control Points (HACCP) is an internationally recognized method to identify, evaluates, and control the hazards in food systems.

HACCP is the management system that analyzes and controls the chemical, biologcal, and physical hazard from the beginning of the process to the end products which starts from the entrance of raw materials to the food factory to procurement, handling, manufacturing, processing, producing, and selling the final product.

Of course, it is not possible to reach 100% food safety by HACCP standard but it is a very good system to maximize the food safety of the end product for the customers.

HACCP is the structured system for food safety and is made of three standerds-
(i) Good Manufacturing Practice (**GMP**) & Good Hygiene Practice (**GHP**); (ii) Good Agricultural Practice (**GAP**), and, (iii) Good Storage Practice (**GSP**) standards.

The structure of the standard is based on the 7 basic principles and the 12 steps of HACCP, with additional requirements for a quality management system.

Why it is important to have HACCP standard certificate?

Since many diseases are caused by food-borne pathogens and there are always food safety concerns in the food industry both for customers and producers, a comprehensive management system is essential to identify, evaluate, ad control the hazards. In addition, the HACCP certificate provides a high chance of competing in the international market

for the food producers and a good assurance for customers to buy food products conveniently.

The principles of HACCP standard

1.Hazards analysis

In this step, the process should be evaluated to find the biological (bacteria, viruses, foodborne pathogens, etc.), chemical (chemical contaminants, toxins, etc.), and physical hazards (metal contamination). The contaminations occur should be detected in the hazard analysis step. Hazard is detected in two steps of identification and evaluation. Evaluation is to check the risk degree of the identified hazard.

2.Critical Control Points (CCP)

The second step after the identification and evaluation of hazards is identifying the critical control point.

- **Critical control points** (CCPs) are any operation in the food chain where controls can be applied to eliminate or reduce any potential hazard.
- **Critical control points do not include** operations related to the quality of food.
- **Critical control points require** appropriate monitoring procedure and verification procedure to ensure compliance with standards.

3.Temperature range

Temperature is one of the important CCPs and the minimum and maximum temperature should be identified for each process.

4.Critical Limits

The maximum and minimum of each critical point should be determined in each process such as the temperature that was explained previously.

Examples of Critical Limits

Hazard	CCP	Critical Limit
bacterial pathogens (biological)	drying oven	drying schedule: oven temperature: $\geq 200^{\circ}F$ drying time: ≥ 120 min. air flow rate: ≥ 2 ft^3/min. product thickness: ≤ 0.5 inches

5.Monitoring

After indicating the CCPs and their limits, all the processes should be monitored and recorded to meet the critical limits. Monitoring includes the physical measurements and observations in specific and regular times.

6.Correction

Corrective actions occur when a problem is detected in the monitoring step and before releasing the end product. The correction includes two objectives of correcting the problem which was happened for lack of control and preventing the cause of this problem.

7.Record keeping procedure

The recording is an important part of HACCP to register all the occurred problems in the production line, the causes of problems, and the repetition of problems in CCP from development to operation steps of the system.

8.Verification procedures

Verification is the last step in HACCP to validate the processes to be implemented effectively, the hazards are identified correctly, the correction is done timely, and monitor effectively.

What is HACCP certification?

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- **A HACCP certification serves** as proof of your food establishment's commitment to upholding food safety regulations.
- **A food manufacturing business** is required to have a food safety management system to control hazards in its operations.
- **A HACCP certification is awarded** to a food business that has a complete and comprehensive HACCP plan and has undergone stringent audit from an accredited third-party certification body.

Who needs a HACCP certification?

Having a HACCP plan as your food safety management system is not mandatory per se. Despite this, a **food business is required** to have a set of management systems aimed at keeping food safe. In addition, a HACCP plan satisfies several food laws and regulations which require accurate identification of hazards and mitigation of food safety issues such as the FSMA regulations by the FDA.

A **HACCP certification is vital** for you to prove to your customers and partners that your food business is running safely. As such, HACCP certification should be sought by anyone with a food business, such as;

- Restaurants
- Catering businesses
- Food transportation companies
- Food preparation services, food truck
- Food manufacturers
- Food delivery service

Why do you need a HACCP certification?

A HACCP certification can provide **several advantages**. These benefits can be economic, safety, and social in nature. Some advantages may include the following:

- **Reduced probability** of releasing unsafe food to the market

- **Increased consumer confidence** in the finished product
- **Increased appeal** to investors, suppliers, and partners
- **Gain competitive advantage** against other products of the same niche and in international trade
- **Comply with** food agency regulations
- **Better management** of resources and waste
- **Gain entry** to additional markets and greater acceptance by food processors and manufacturers

How to obtain HACCP certification?

In order to obtain HACCP certification, your business will have to undergo a review by a qualified and adequate **food safety auditor**.

The audit usually takes a few days depending on the size of your business, and your HACCP will be reviewed during this time.

A part of the evaluation is dedicated to ensuring that your HACCP plan is complete and that all food workers related to food safety understand its importance and how to apply it.

The HACCP certification audit aims to review the 7 main principles of a HACCP plan.

- **Hazard identification and analysis** of biological, chemical, or physical health hazards in all of the processing steps in each product.
- **Identification of** any critical control point in your manufacturing process.
- **For each CCP**, there should be a set of established critical limits, the maximum and minimum parameter values determining what is safe for your food (pH values, temperature, chemical levels).
- **Monitoring your CCPs**. Determining how you will test your foods to prove they are safe for transportation, preparation, and sale. This principle also includes documents such as monitoring procedures and forms to ensure that every result in each process is recorded and properly controlled.

- **Corrective actions** must be established. A set of procedures must be ready in cases of non-compliance to ensure that the control of food safety and food quality are maintained in addition to keeping hazards at an acceptable level.
- **Verification tasks** must be in place. For example, establishing reviews at different stages of your operational process to ensure your HACCP plan is being followed.
- **Documentation** is essential, keeping a detailed review of your food safety practices, ensuring you have followed your HACCP plan. These documents are records of your past operations and will serve as proof that your HACCP plan has been properly working.

Do food hygiene certificates expire and how long do they last?

The majority of HACCP certificate **expiration happens after 12 months**, but consult this with your auditor before beginning the certification process. Once you have successfully received your HACCP certification, you need to know when it will have to be renewed, as your HACCP certificates expire after a certain amount of time. This is decided by the third-party auditor you have selected to carry out the audit.

You should note that your HACCP certification **can be revoked** if your company is found to be in breach of any regulatory or certification requirements.

In addition to maintaining your HACCP plan, **continuous improvement** and refreshers must be implemented for your HACCP team.

How much does HACCP certification cost?

When planning to get HACCP certified, there will be some cost expenses that you need to satisfy. The total cost to get HACCP certified will be around **$400 to $3,000 per day** and can amount to a **total of $5,000 to $6,000**. The total cost depends on many different factors such as:

- The size of your company
- Completeness of your HACCP plan and the extent of implementation
- The degree of errors in any process step and corrective actions needed to be applied to achieve a standard acceptable level
- The auditing firm you made a contract with
- The type of certification you are seeking
- Preparation processes for the audit such as training courses

Is HACCP similar to ISO 22000 certification?

In the food industry, there are **several types of food safety management systems** that all aim to control food safety issues for public health.

Perhaps the most **well-recognized food safety systems** are the HACCP and the ISO 22000.

Although similarly aim to mitigate food safety hazards, the two programs have their differences.

Generally, HACCP is the base requirement for most food companies that need to be implemented to control food safety. A HACCP plan deals with **preventing food safety issues** by building a plan that accurately identifies and addresses food safety hazards. It also requires the establishment of critical control points that are used to control these hazards.

On the other hand, ISO 22000 is applied to primary productions and deals with business **strategies** and **structures**. **ISO 22000 is the combination** of a basic food safety management system and HACCP principles to the whole food supply chain. It also deals with management and communication within the company. Where HACCP is solely concerned with food safety, the ISO 220000 program also **requires quality assurance**.

WHY ISO 22000?

ISO 22000 sets out the requirements for a food safety management system and can be certified to it. It maps out what an organization needs to do to demonstrate its ability to control food safety hazards in order to ensure that food is safe. It can be used by any organization regardless of its size or position in the food chain.

ISO Certification Process

ISO certification adheres to the following steps:

- Application
- Assessment
- Initial certification audit
- Stage 1
- Stage 2
- Certification

1.Application

You will need to fill in an application form to understand your company, the complexity and requirements. We will use this information to accurately define the scope of assessment and provide you with a proposal for certification.

2.Assessment

Once you've agreed with your proposal, your assessments will be booked with an Assessor. This assessment consists of two mandatory visits that form the Initial Certification Audit. Please note that you must be able to demonstrate your management system has been fully operational for a minimum of three months and has been subject to a management review and full cycle of internal audits. *Note: there may be additional requirements for some of the more technical standards – we will advise you of these.

3.Initial Certification Audit — Stage 1

The purpose of this assessment is to confirm that your organization is ready for full assessment. This assessment will take place at your management system centre (normally head office) and will be a documentation review assessment.

During the stage 1 assessment, your assessor will:

- confirm the accuracy of the information that you submitted during the application process
- confirm that the management system conforms to the requirements of the standard
- confirm the implementation status of your management system(s)
- confirm the scope of certification
- verify the evaluation of legal compliance

The output of the stage 1 assessment will be:

- a report that identifies any Areas of Concern (AOC's) which, if not addressed, could be raised as non-conformances at the stage 2 assessment
- the scheduling of the stage 2 assessment visit

- an assessment plan for the stage 2 assessment

4.Initial Certification Audit — Stage 2

The purpose of this assessment is to confirm that the management system fully conforms to the requirements of the chosen standard in practice.
During the stage 2 assessment, your assessor will:

- document how the system complies with the standard by using objective evidence
- undertake sample audits of the processes and activities defined in the scope of certification
- visit any remote locations, additional sites or remote activities to evaluate the effectiveness of the management system off site
- report any non-conformities or opportunities for improvement
- produce a surveillance plan and agree a date for the first annual surveillance visit

If the assessor identifies any major non-conformances, certification cannot be issued until corrective action is taken and verified. If this is not completed within 6 months, then certification cannot be recommended without a further stage 2 assessment.

5.Certification

Following a successful two stage audit, it's determined whether your operations and processes meet the required scope of certification within the applicable standard or standards. Consequently, a certification decision is made and if positive. You will receive a hard and soft copy of the certification. That copy will enable you to [share your certification with third parties](#) to demonstrate the high standards your organization .

6.How Long Is Certification Valid?

Once certification is obtained a certificate will be issued that will be valid for 3 years. This is maintained through annual surveillance audits (partial audits) and a 3 yearly recertification audit (full system audit).

How Does ISO 22000 Benefit the World's General Population?
Each individual's quality of life will benefit from the rules and regulations of ISO 22000 by the provisions of the following:

- Higher quality jobs in the food industry
- Improved utilization of resources worldwide
- Increased company profits
- Potential increased economic growth
- Insurance of safer food
- Reduction in rates of foodborne disease
- More efficient documentation of techniques, methods and procedures

Benefits of ISO 22000 Certification

Cuts investigation time to a minimum

The management system helps you to reduce food safety breach investigation time.

Customer satisfaction

Deliver products that consistently meet customer requirements and a service that is dependable and can be relied on.

Global recognition as a reputable supplier

Certification is recognized internationally and accepted throughout industry supply chains, setting industry benchmarks for sourcing suppliers.

Proven business credentials

Independent verification against a globally recognized industry standard speaks volumes.

Legal compliance

Understand how statutory and regulatory requirements impact your organization and its customers.

Ability to win more business

Procurement specifications often require certification as a condition to supply, so certification opens doors.

Respond to situations

Ideal for responding to situations that can compromise the food safety of both products and production processes.